

DIVERSITY OF BUTTERFLIES AND SNAKES IN AND AROUND CAMPUS C.V.A.S. NAVANIA, UDAIPUR, RAJASTHAN – INDIA

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Abstract: Cold blooded creatures are important bio-indicators, so to conserve biodiversity and environment these should be protected. We studied diversity status of butterflies and snakes, in and around campus C.V.A.S. Navania, Udaipur. A twelve months study was done to check the status of butterflies and snakes. The presence of shrubs, weeds, grasses and plants it provides favourable condition for life cycle of butterflies. The status of snakes were also healthy because of maximum undisturbed area by human beings. Total of 28 species of butterflies were found with maximum individuals of common grass yellow with relative abundance of 17.53 and least 0.74 was recorded for Common silver-line. Eleven species of snakes were recorded in the studied area, including both venomous and non-venomous species. The study was an attempt to evaluate abundance, occurrence and species richness of both species. This study can play crucial role in conservation of biodiversity of studied area.

Keywords: Bio-diversity, Cold blooded, Shrubs, Status.

Introduction

Udaipur region is well known for its rich and healthy biodiversity of Rajasthan. Every organism plays a role for the healthy ecosystem. Butterflies are one of the most beautiful and colourful organism present on earth having a great aesthetic value while on other hand snakes are known for their feary image. There present about 1500 species of butterflies and more than 250 species of snakes in Indian Subcontinent. Both are cold blooded and indicators of good environment as sensitive to change in environment. The presence of butterflies indicates health status of a particular terrestrial biotope that's why they occupy a vital position in ecosystem [1] [2]. Butterflies plays an important role in the food chain of different insects, spiders, birds and reptiles [3]. Snakes are extremely well adapted to aquatic habitat and different terrestrial forms. The present study was done in and around college campus in Udaipur District, having a rich bio-diverse environment that is suitable for butterflies and snakes. In this campus water and vegetation are the two major factors which provides opportunities for worms, insects, birds, frogs, rats and snakes. The presence of food or prey, affects the density of snakes [4]. The existence of native plants, shrubs and weeds provide favourable conditions to butterflies. This

was the first scientific effort to study diversity of butterflies and snakes of this campus, understanding the fundamentals and favourable circumstances of different species leads us to make conservation approach. The study of larval plants, weeds and shrubs is also important for the conservation of butterflies.

Study Site:

College of Veterinary and Animal Science, is located at Navania, 45 km apart from the Udaipur City, Rajasthan – India, (24° 39' 15.2"N & 74° 01' 26.8"E) five Km downwards from the NH 76 (National Highway)**Fig. 1.** The campus climate is semi-arid in nature with undulated topography and average temperature remains 20°C to 35°C. As the whole area of campus is away from the main city, so it provides almost undisturbed and favourable environment to snakes and butterflies.

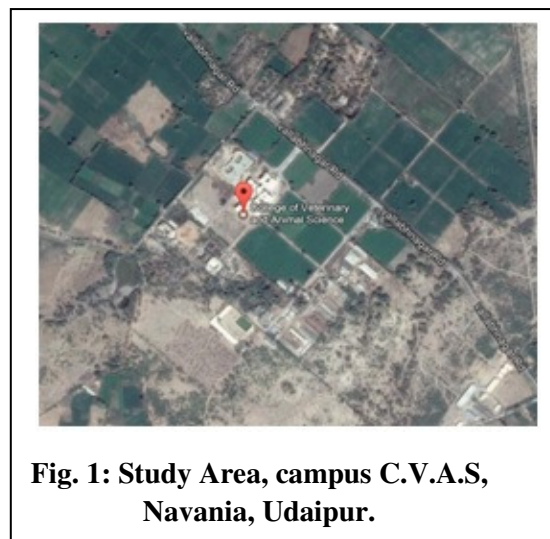


Fig. 1: Study Area, campus C.V.A.S, Navania, Udaipur.

Methodology:

The duration of study was twelve months, from Jan.

2016 to Dec. 2016, to check the status of both cold blooded species in all seasons of the year. The whole data for butterflies was collected by regular observation through naked eyes especially in active hours from 9 am to 3 pm. Almost all possible areas for butterflies were searched on regular basis. Butterflies were identified with help of coloured key provided by [5][6] [7] [2]. In most of occasions the snakes were observed during the evening hours. The snakes were identified through naked eyes and were identified according to [8] [9] and a Digital camera was used to capture the pictures of both studied species. The relative abundance of butterflies was calculated for the particular water-body by using formula:

$$\text{Relative Abundance} = \frac{\text{No. of Individuals of specie}}{\text{No. of Individuals of all species}} \times 100$$

Result

The study revealed that there present 28 species of butterflies (**Table 1**) belonging to four families of order lepidoptera and 11 species of snakes (**Table 2**) of order squamata in and around campus.

In Butterflies family Pieridae, represented by 12 species, was the most dominant followed by Nymphalidae with eight species, Lycaenidae with five species and Hesperidae with least three species. *Euremahecabe* was the most dominant specie of butterfly in terms of number of

individuals (210), followed by *Zizeeriakarsandra* (148), *Euremabrigitta* (102), *Catopsiliapyranthe* (88), *Danauschrysippus*(79), *Euremalaeta* (55), *Catopsiliapomona* (47), *Danausgenutia* (46), *Hypolimnasmisippus* (45), *Curetisacuta* (38), *Azanusubaldus*(36), *Azanusuranus* (33), *Junoniaorithya* (28), *Belenoisaurora* (25), *Junoniaalmana* (24), *Tirumalalimniace* (23), *Leptotesplinius* (22), *Junonialemonias* (21), *Chiladeslajus* (18), *Junoniahierta* (17), *Ceporanerissa*(17), *Pachlioptaaristolochiae* (16), *Colotisamata* (16), *Delias eucharis* (15), *Papiliopolytes* (14), *Zizina Otis* (13), *Ixias pyrene* (11) and *Spindasis v. fabricius* (9).

The Majority of snakes were recorded during the rainy season, because of filling of holes with water. During the whole year's study we found 11 species of snakes, including six non-venomous, one mildly venomous and four venomous species.

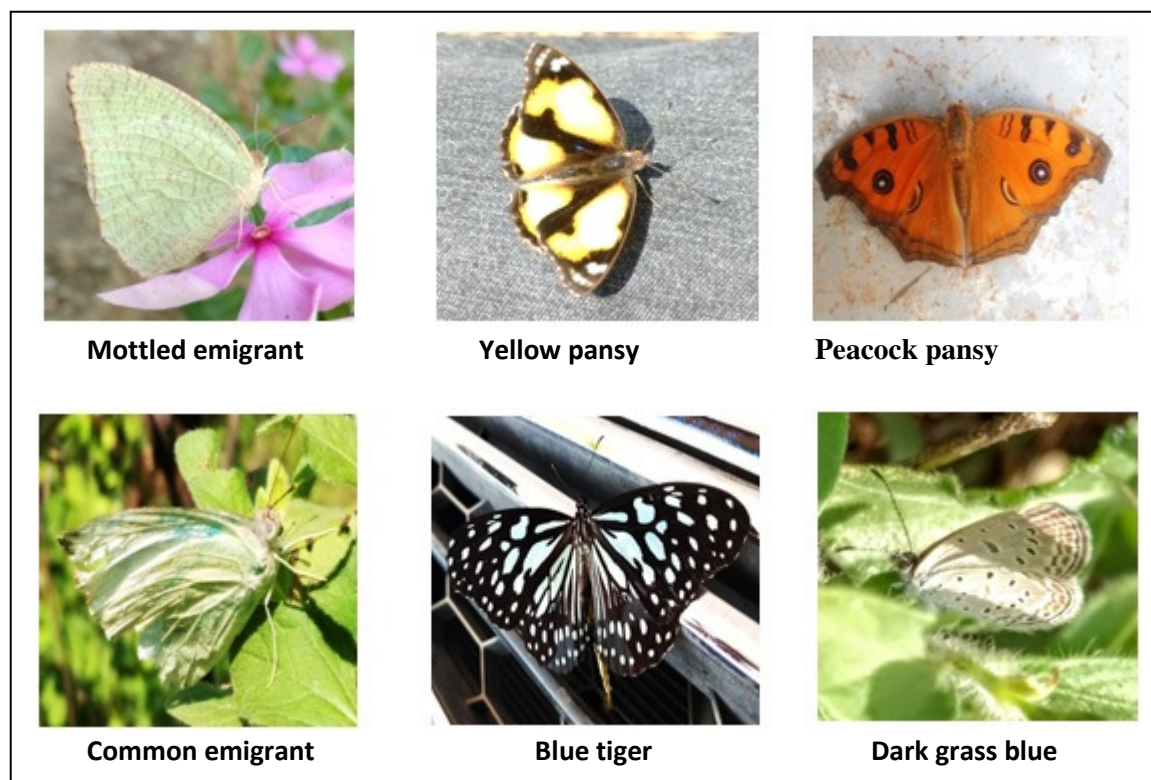


Table 1: List of butterflies with their host plant and relative abundance

Common Name	Scientific Name	FP	Host Plant	RA
Acute sunbeam	<i>Curetisacuta</i>	Aug-Oct	<i>Buteamonosperma</i>	3.12
Blue pansy	<i>Junoniaorithya</i>	Jun –Nov	<i>Barleriacristata</i>	2.30

Blue tiger	<i>Tirumalalimniace</i>	July –Nov	<i>Plumbagozeylanica</i>	1.89
Bright babul blue	<i>Azanusubaldus</i>	May-Aug	<i>Acacia leucophloea</i>	2.96
Common emigrant	<i>Catopsilia Pomona</i>	Jan-Dec	<i>Cassia spp.</i>	3.86
Common grass blue	<i>Zizina Otis</i>	Aug-Jan	<i>Alysicarpusvaginalis</i>	1.06
Common grass yellow	<i>Euremahecabe</i>	July–Dec	<i>Cassia fistula</i>	17.26
Common gull	<i>Ceporanerissa</i>	May-Aug	<i>Cadabafruticosa</i>	1.40
Common jezebel	<i>Delias eucharis</i>	Sep-Jan	<i>Dendrophthoefalcata</i>	1.23
Common Mormon	<i>Papiliopolytes</i>	Mar–Dec	<i>Murrayakoenigii</i>	1.15
Common rose	<i>Pachlioptaaristolochia e</i>	Aug-Dec	<i>Aristolochiaindica</i>	1.31
Common silverline	<i>Spindasis v. fabricius</i>	May-Nov	<i>Cassia fistula</i>	0.74
Common tiger	<i>Danausgenutia</i>	July-Jan	<i>Ceropegia spp.</i>	3.78
Danaideggfly	<i>Hypolimnasmisippus</i>	Sep-Marc h	<i>Portulacaoleracea</i>	3.70
Dark grass blue	<i>Zizeeriakarsandra</i>	May–Nov	<i>Amaranthusspinosus</i>	12.17
Dull Babul Blue	<i>Azanus Uranus</i>	Nov-Jan	<i>Acacia spp.</i>	2.71
Lemon pansy	<i>Junonialemonias</i>	Oct-Dec	<i>Barleriacristata</i>	1.72
Lime blue	<i>Chiladeslajus</i>	May-Nov	<i>Glycosmisarborea</i>	1.48
Mottled emigrant	<i>Catopsiliapyranthe</i>	May–Oct	<i>Cassia fistula</i>	7.23
Peacock pansy	<i>Junoniaalmanac</i>	July–Jan	<i>Barleria spp.</i>	1.97
Pioneer	<i>Belenoisaurota</i>	Mar-Oct	<i>Capparisspinosa</i>	2.05
Plain tiger	<i>Danauschrysippus</i>	Jan–Dec	<i>Calotropis gigantean</i>	6.49
Small grass yellow	<i>Euremabrigitta</i>	Aug-Dec	<i>Cassia keinii</i>	8.38
Small salmon arab	<i>Colotisamata</i>	Mar-Dec	<i>Azimatetracantha</i>	1.31
Spotless grass yellow	<i>Euremalaeta</i>	Oct-Jan	<i>Cassia spp.</i>	4.52
Yellow orange tip	<i>Ixias pyrene</i>	May-Dec	<i>Capparis decidua</i>	0.90
Yellow pansy	<i>Junoniahierta</i>	Oct-Dec	<i>Barleriaprinonitis</i>	1.40
Zebra blue	<i>Leptotesplinius</i>	Oct-May	<i>Plumbagozeylanica</i>	1.80

FP: Flying Period, RA: Relative abundance

Table 2: List of snakes with their Hindi names and venomous status.

Common Names	Scientific Names	Hindi Name	Status
Common Kriat	<i>Bungaruscaeruleus</i>	Karayat	V
Sand Boa	<i>Bungaruscaeruleus</i>	Dumbi, Dumuka	NV
Red Sand Boa	<i>EryxJohnii</i>	Domuhi	NV
Indian Rat Snake	<i>Ptyasmucosus</i>	Dhaman	NV
Common Kukri	<i>Oligodonarnensis</i>	Kukri	NV
Indian Rock Python	<i>Python morulus</i>	Ajgar	NV
Striped Keel back	<i>Amphiesmastolata</i>	Dumuka	NV
Spectacled Cobra	<i>Najanaja</i>	Nag	V

Common Cat Snake	<i>Boigatrigonata</i>	Manjarya	MV
Russell's Viper	<i>Dabiorusselli</i>	Kander	V
Saw Scaled Viper	<i>Echiscarinatus</i>	Diar	V

NV= Non Venomous, MV= Mildly Venomous, V= Venomous.

Discussion

According to the findings of research, the environment of campus was favourable to the both studied species. The presence of 28 butterflies and 11 snake species direct about the healthy environment of campus C.V.A.S. Navania. Majority of butterflies were observed during the season just after monsoon while highest number of snakes were found in rainy season. The relative abundance was higher for butterflies that were larval hosts to shrubs, as studied area have abundance of shrubs and grass. All the four venomous species found in India were observed at the studied area. So the area was well retained with the required conditions for butterflies and snakes.

References

- [1] Aluri, J.S.R. and Rao, S.P. (2002). Psychophily and evolution consideration of *cadaba fructicosa* (capparaceae). J. of the Bombay Natural History Society. 99(1): 59-63.
- [2] Kunte, K.J. (2000). India a Lifescape Butterflies of Peninsular India. Universities Press (India) Limited.
- [3] Sharma, J. and Joshi, P.C. (2009). Diversity of Butterflies (Lepidoptera: Insecta) from Dholbaha dam (Distt. Hoshiarpur) in Punjab Shivalik, India. *Biological Forum-An International J.* 1(2): 11-14.
- [4] Walmiki N. (2012). Herpetofauna of Basseinb fort and surrounding region, Thane, Maharashtra, India. © 2012 DAMA International:(3)1.
- [5] De Niceville, L. (1886). The butterflies of India, Burma and Ceylon. Vol-II. Nymphalidae, Lemoniidae, Libytheinae, Nemeobinae. The Calcutta Central press Co. Ltd. 332pp.
- [6] De Niceville, L. (1890). The butterflies of India, Burma and Ceylon. *Vol-III (Lycaenidae)*. The Calcutta Central press Co. Ltd. 503pp.
- [7] Evans, W.H. (1932). The identification of Indian Butterflies. (2nd Edition). The Bombay Natural History Society, Mumbai, India. 454pp.
- [8] Deoras PJ. Snakes of India, National Book Trust (NBT), New Delhi, 1965.
- [9] Khaire Neelamkumar. Indian Snakes, Indian Herpetological Society, Pune, 1996.