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Butterfly diversity of Uplaon nature camp, Kalaburagi district, Karnataka, India

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Abstract

Butterflies are the most attractive than most other insects. They have been referred to as 'Flagship' and 'honorary birds'. They are valuable pollinators, important food chain components of birds, reptiles, spiders, and predatory insects; they are also the good indicators of environmental quality.

Biological diversity is the base for upholding the ecosystems and the functional aspects of the species that provide goods and services for human well-being (Wilson, 1997). In this paper an attempt was made to document the diversity of butterflies in Uploan Nature Camp of Kalaburagi, Karnataka. A total of 52 species of butterflies belonging to 5 families were recorded during the study period. Among the 5 families Nymphalidae and Pieridae dominated the list with 18species, followed by Lycaenidae with 8 species and Papilionidae with 6 species and Hesperidae only with 2 species.

Key words: Biodiversity, Butterflies, Uplaon nature camp, Kalaburagi.

1. Introduction

Biological diversity is the base for upholding the ecosystems and the functional aspects of the specie that provide goods and services for human well-being (Wilson, 1997) [1]. The study of biological diversity encompasses both the intrinsic and anthropocentric values associated with it. Arthropada classification is still in a state of flux, and may always remains so. Butterflies belong to the order Lepidoptera of Class Isecta. Butterflies are taxonomically well studied group, which have received reasonable amount of attention through the world (Ghazoul, 2002) [14, 21]. 19,238 species have been documented from all over the world (Ghazoul,2002) [14, 21] among them 1501 species of butterflies are recorded from India (Kunte*et al.*,1999) [15] out of which 962 species have been reported from North eastern part (Evans, 1932), 332 species from the Western Ghats (Ashish *et al.*, 2009) and 150 from Eastern Ghats. Out of 332 species of Western Ghats 37 species are endemic (Kunte, 2000; Prajapati, 2010) [19, 20]. After bees, butterflies are the category of insects which are very specific to their food plants (Ghazoul, 2002) [14, 21]. Butterflies are one of the most amazing and magnificent elements of biodiversity (Ghazoul, 2002) [14, 21].They are valuable pollinators in the local environment and help in pollinating more than 50 economically important crops (Borges *et al.*, 2003). They are one of the important food chain components of birds, reptiles, spiders and predatory insects (Thomas, *et al.*, 1998). The larvae, which feed on foliage, are primary herbivores in the ecosystem and are important in the transfer of energy fixed by plants, making them available to the other organisms in the ecosystem. Adult butterflies are dependent on nectar and pollen as their food while the caterpillars are dependent on specific host plant for foliage. Butterflies bear a history of long-term coevolution with plants. The faunistic survey of butterflies their occurrence and characteristics provide crucial information on the ecology of a particular region (Ghazoul, 2002) [14, 21].

Being good indicators of climatic conditions as well as seasonal and ecological changes, they can serve in formulating strategies for conservation. However, they have largely been ignored by conservation biologist and policy makers as well. It is hence encouraging that butterflies are now being included in biodiversity studies and biodiversity conservation prioritization programme (Gadgil, 1996) [25]. Habitat destruction, fire use of pesticides and illegal collection for trade, increased urban features including roads and buildings, many species of butterflies have become very rare and some are on the verge of extinction. Recent report reveals that 100 out of 1500 butterfly species occurring in India are on the verge of extinction (Elanchezhyan*et al.*, 2012)[26]. Diversity of butterflies were adversely affected by grass cutting, cutting of plants and unauthorized grazing and monoculture plantation (Ashish, 2007) [16].

The conservation of butterflies is necessary to sustain varied kinds of ecosystem services for human well-being. In view of the essential ecosystem services rendered by butterflies, the present study was aimed at the estimation of the butterfly diversity in Uplaon Nature Camp, Kalaburagi District Karnataka.

1.1 Material and methods

1.2 Study area

Kalaburagi is located in the Northeast of Karnataka. The district is spread across 7 Talukas – Afzalpur, Aland, Chincholi, Chittapur, Kalaburagi, Jewargi and Sedum. Uplaon Nature Camp lies on the geographical coordinates of 17^0 23'39.1826'' N and 76^0 52' 33.5019'' situated about 13 km away from Kalaburagi Central bus stand, of survey number 16, with a geographical area 18.88 Hectare. Kalaburagi district has a semi-arid type of climate. During peak summer maximum temperature reaches 45^0C and December is the coldest month with minimum temperature 20 to 10^0C Average rain fall 1-839mm.

(Reference – Kalaburagi District Profile Government of Karnataka: the knowledge hub Asia)

2. Methodology

Field observation was made 4 days in a week continuously (From Sunday to Wednesday) for one and half year from April 2015 to November 2016. Observations were made between 8 am to 4 pm. (8:00h and 12:00h). The butterflies were recorded by direct visual observations and photographic evidence. Some small butterflies which are difficult to identify were caught following and closely observed after placing them in clear glass jar. Then they were released, however enough precautions were taken, so that the entire procedure did not cause any damage to the target specimen (Dayanada, 2014).

The key characters used for identification were color pattern and wing span (Evan, 1932; Wyntes-Blyth, 1957) [3] and also by using field guides. (Gay*et al.*,1992; Antram,2002; Sharma *et al.*,2005; Gunathilagaraj*et al.*,2015; Kishandas, 2013; BNHS hand books,2005 and 2012) [6, 8]. The line transect method developed by institution of Terrestrial Ecology was followed to monitor the diversity (Pollard, 1979).

3. Result

During the systematic survey, a total of 52 species of butterflies belonging to 29 genera and 5 families were recorded from Uplaon Nature Camp, Kalaburagi district, Karnataka. Nymphalidae and Pieridae dominated the list with 18species followed by, Lycaenidae with 8 species, Papilionidae with 6 species and Hesperidae with 2 species.

4. Discussion

The Hesperidae is the third largest family of the butterflies in the world. Only 2 species belongs to this family were reported from the area during our study period.

The family Lycaenidae is the largest family of butterflies with 7374 species in the world and 443 species In India. Nearly all of them are small sized butterflies and even the largest is less than 80 mm only. According to Kunte (2000) [15] Lycaenidae is the abundant family of the Western Ghats, Compared to all other butterfly families. 8 species of Lycaenidae was reported from the area during study period belonging to 8 genera.

The family Nymphalidae is the second largest butterfly family with 7080 species in the world and 521 species in India.

Total 18 species of this family have been recorded from our study area.

The Papilionidae are the most conspicuous of all butterflies with 589 species distributed throughout the world and just 107 species in our country, making the smallest butterfly family. 6 species have been reported from our study area during our study period. There are 1275 species of Pieridae in the world and 109 species in India, the present observation reveals total of 18 species from the study area during the study period belonging to 7 genera.

Among the 52 species recorded 4 species of butterflies possesses protected status under the Indian Wildlife (Protection) Act, 1972. Crimson rose is in Schedule I, Two species are in Schedule II namely, Danaid eggfly and Gram blue and Painted Sawtooth in Schedule IV.

5. Conclusion

In urban ecosystems, monitoring species diversity can be used as a tool to reduce human mismanagement and pollution in urbanized industrial rural and managed area (Wilson, 1997) [1]. In Uplaon nature camp unauthorized grazing has been observed during the study period. (Picture 1: Shows the grazing in study area). Diversity of butterflies was adversely affected by grass cutting and unauthorized, grazing. Five species of butterflies recorded from study area possess a protected status under the Indian Wildlife (Protection) Act, 1972. Presence of these schedule species in the study area reveals that the area is rich in butterfly diversity and there is an urgent need to adapt conservation policies.

The control of fire and grazing in green landscapes may be the first best step to maintain diversity of butterflies. The result of the study is expected to supplement the necessary information on the conservation management and enhancing the ecological roles of the butterfly species in Uplaon Nature Camp, Kalaburagi District Karnataka and similar geographical areas.

Table 1: Check list of butterflies recorded from the study area

Serial number	Scientific name	Common name
	I) **Family - Hesperidae**	
1	*Pelopidas agna* (Moore, 1865)	Dark Branded Swift
2	*Pelopids mathias* (Fabricuis, 1798)	Small Branded Swift
	II) **Family – Lycaenidae**	
3	*Castalius rosimon* (Fabricius, 1775)	Common Pierrot
4	*Catochrysops Strabo* (Fabricius, 1793)	Forget me not
5	*Freyeria trochylus* (Freyer, 1845)	Grass jewel
6	*Freyeria putli* (Kollar, 1848)	Eastern grass jewel
7	*Azamus ubaldus* (Cramer, 1782)	Bright babul blue
8	*Everes lacturnus* (Godart, 1823)	Indian cupid
9	*Euchrysops cnejus* (Fabricius, 1798)	Gram blue
10	*Edales pandava* (Horsfield, 1829)	Plains cupid
	III) Family - Nymphalidae	
11	*Tellervo limniace* (Cramer, 1775)	Blue tiger
12	*Tellervo septentrionis* (Butler, 1874)	Dark blue tiger
13	*Danaus genutia*(Cramer, 1779)	Striped tiger
14	*Danaus chrysippus* (Linnaeus, 1758)	Plain tiger
15	*Cynthia cardui* (Linnaeus, 1758)	Painted lady
16	*Euploea core* (Cramer, 1780)	Common crow
17	*Melanitis leda* (Linnaeus, 1758)	Common evening brown

18	*Ypthima asterope* (Klug, 1832)	Common three ring
19	*Phalanta phalanta* (Drury, 1773)	Common leopard
20	*Junonia orithya* (Linnaeus,1764)	Blue pansy
21	*Junonia almanac* (Linnaeus,1758)	Peacock pansy
22	*Junonia hierta* (Fabricius, 1798)	Yellow pansy
23	*Junonia lemonias* (Linnaeus, 1758)	Lemon pansy
24	*Hypolimnas bolina* (Linnaeus,1758)	Great eggfly
25	*Hypolimnas misippus* (Linnaeus,1764)	Danaid eggfly
26	*Ariadne ariadne* (Linnaeus, 1763)	Angled caster
27	*Ariadne merione* (Cramer, 1779)	Common caster
28	*Byblia ilithyia* (Drury, 1773)	Joker
	IV)Family - Papilionidae	
29	*Graphium doson* (Felder, 1864)	Common jay
30	*Graphium Agamemnon* (Linnaeus, 1758)	Tailed jay
31	*Papilio polytes* (Linnaeus, 1758)	Common mormon
32	*Papilio demoleus* (Linnaeus, 1758)	Lime butterfly
33	*Pachliopta aristolochiae* (Fabricius,1775)	Common rose
34	*Pachliopta hector* (Linnaeus,1758)	Crimson rose
	V) Family - Pieridae	
35	*Eurema andersoni* (Moore, 1886)	One-spot grass yellow
36	*Eurema blanda* (Boisduval, 1836)	Three-spot grass yellow
37	*Eurema brigitta* (Cramer, 17800	Small grass yellow
38	*Eurema hecabe* (Linnaeus, 1758)	Common grass yellow
39	*Eurema laeta* (Boisduval, 1836)	Spotless grass yellow
40	*Catopsillia pomona* (Fabricius, 1775)	Common emigrant
41	*Catopsillia pyranthe* (Linnaeus, 1758)	Mottled emigrant
42	*Colotis amata* (Fabricius, 1775)	Small salmon Arab
43	*Colotis danae* (Fabricius, 1775)	Crimson tip
44	*Colotis etrida* (Boisduval, 1836)	Small orange tip
45	*Colotis eucharis* (Fabricuis, 1775)	Plain orange tip
46	*Colotis fausta* (Olivier, 1801)	Large salmon Arab
47	*Ixias marianne* (Cramer, 1779)	White orange tip
48	*Ixias glaucippe* (Linnaeus, 1758)	Great orange tip
49	*Ixias pyrene* (Linnaeus, 1764)	Yellow orange tip
50	*Cepora nerissa*(Fabricius, 1775)	Common gull
51	*Prioneris sita* (Felfer,1865)	Painted sawtooth
52	*Anaphaeis aurota* (Fabricius, 1793)	Pioneer

Table 1: showing butterfly families along with the number of species recorded in each

	Name of the Family	Total number of Species recorded in each family
1	Family - Hesperidae	2
2	Family – Lycaenidae	8
3	Family - Nymphalidae	18
4	Family - Papilionidae	6
5	Family - Pieridae	18
	Total – five families	52 species

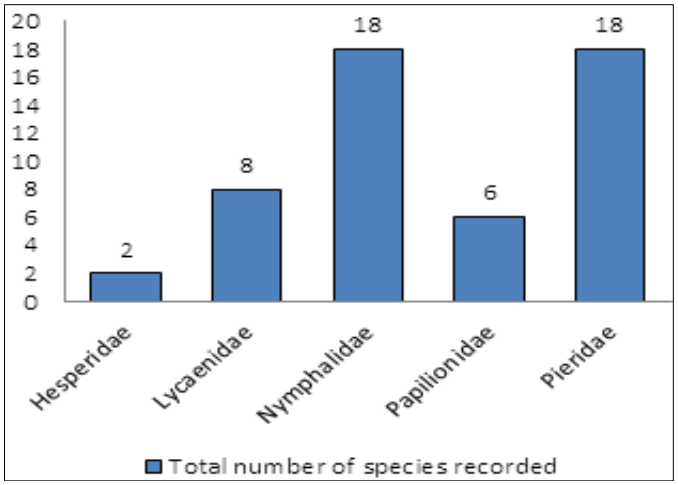

Fig 1

Fig 2: Showing the grazing of cows in the study area

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7. References

1. Wilson Eo. Introduction.In Reakakudla ML, Wilson DE, Wilson EO, editors. Biodiversity II. Washington DC. Henry Press. 1997, 1-3.
2. Dayananda GY. Diversity of butterfly fauna in and around Gudavi bird Sanctuary, Sorab, Karnataka, Journal of Entomology and Zoology Studies. 2014; 2(5):376-380.
3. Evan WH. The identification of Indian Butterflies. Bombay Natural History Society. Bombay and International Book Distributors, Dehradun, 1932.
4. Wynter-Blynth MA. Butterflies of the Indian Region, Bombay Natural History society, Bombay.1957, 523, 72.
5. Gay TI, Kehimakar D, Punitha JC. Common butterflies of India Oxford University press, Oxford, 1992.
6. Antram CB. Butterflies of India. A Mittal publication, New Delhi. 2002, 226.
7. Kunte K. Butterflies of Peninsular India (India: A Lifescape) Hyderabad: University Press India. 2000, 272.
8. Sharma RM, Radhakrishna C. Insect Rhopalocera and Grypocera Fauna of Melghat Tiger Reserve Conservation Area series, 24. Zoological survey of India, Kolkata. 2005, 377-400.
9. Gunnathilagaraj K, Perumal TNA, Jayaram K, Ganesh MKumar. Field Guide: South Indian Butterflies, first edition,Published by Krab Media and Marketing Bangalore India. 2015, 359.
10. Kishandas KR. Chittegalu. Fiest edition, Published by Arivu education and cultural trust Mysore, India. 2009, 136.
11. Gupta IJ,Mondal DK. Red Data Book (Part -2) - Butterflies of India: XV+1-535 Including 312 color photographs and 11 Maps. Published by the Director, Zool. Suv Kolkata, 2005.
12. Gupta IJ, Mridula Majumdar. Handbook on Diversity in some of the Indian Butterflies (Insect: Lepidoptera): 1-310, Published by the Director, Zool. Suv Kolkata, 2012.
13. Kunte KJ. Butterflies of Peninsular India. Indian Academy of sciences, Bangalore and University Press, Hyderabad, 2000.
14. Ghazoul J. Impact of logging on the richness and diversity of forest butterflies in a tropical dry forest in Thailand, Biodiversity Conservation. 2002; 11:521-541.
15. Kunte K, Joglekar A, Utkarsh G, Padmanabhan P. Patterns of butterfly, bird and tree diversity in the Western Ghats. Current Science. 1999; 77(4):577-586.
16. Ashish, Tiple D, Arun, Khurad M, Roger, Dennis LH. Buttefly diversity in relation to human- impact gradient on an Indian University campus. Nota lipid. 2007; 30(1):179-188.
17. Evan WH. The identification of Indian Butterflies. Bombay Natural History Society, Bombay and International Book Distributors, Dehradun, 1932.
18. Gunathilagaraj K, Perumal TNA, Jayram K, Ganesh Kumar M. Some South Indian butterflies. Nilgiri wild life and Environment Association, Nilgiris, 1998.
19. Kunte KJ. India - A Lifescape: Butterflies of Peninsular India. Universities Press, Hyderabad and Indian Academy of Sciences, Bangalore. 2000, 254.
20. Prajapati RC. Biodiversity of Karnataka, at a glance. Forest, Environment an Ecology Department, Government of Karnataka, Bangalora. 2010, 25.
21. Ghazoul J. Impact of logging on the richness and diversity of forest butterflies in a tropical dry forest in Thailand, Biodiversity Conservation J. 2002; (11):521-541.

22. Borges RM, Gowda V, Zacharias M. Butterfly pollination and high contrast visual signals in a low density distylous plant, oecologia. 2003; 136:571-573.
23. Thomas JA, Simcox DJ, Wardlaw JC, Elms WG, Hochberg ME, Clark RT. Effects of latitude, altitude and climate on the habitat and conservation ofendangered butterfly *Maculinesarion*and its Myrmica and host, J Sect Conserv. 1998; (2):39-46.
24. Ashish DT, Arun MK. Butterfly species Diversity, Habitats and Seasonal distribution in and around city, Central India, World. J Zool. 2002; 4(3):153-162.
25. GadgilM. Documenting diversity: An experiment. Curr Sci. 1996; 70:36-44.
26. Elanchezhyan K, Vinoth KB, Madhu SE. Biodiversity of butterflies at AmbasamudramTaluk, Tirunelveli District, Tamil Nadu. Journal of Research in Agriculture. 2012; 1(2):99-107.
27. Pollarad E. A National scheme for monitoring the Abundance of butterflies. The first three years Biritish Entomological and Natural History Society. Proceedings and Transactions. 1979; (12):77-99.