

established that biocides have deleterious effects on the physiology of animals (Sengupta *et al.* 1990). Though no information on effect of different biocides on snakes is available, considering their extensive use in the agricultural fields of Assam (Hazarika and Das, 1996), it is definite that they also act as a strong force in eliminating serpentofauna of the state.

The present study thus suggests that more specific studies on the status of snakes of Assam be performed to evaluate the threats and to develop appropriate measures to conserve them.

Acknowledgement

We thank Indraniel Das (Madras Crocodile Bank Trust) for comments on the manuscript. We are also thankful to ASTE Council, Assam for providing financial help.

References

- Anonymous (1993). *Assam Forest at a glance*, Assam Forest Department, Guwahati.
- Baruah, M. and Sengupta, S. (In Press) Snakes in "Environmental Atlas of Assam" Vol II ASTE Council, Guwahati.
- Campbel, C.A. (1974). Survival of reptiles and amphibians in urban environments, in symposium: *Wildlife in an Urban Environment. Planning and Resource Development Series No.28*, Holdworth Natural Resources Centre.
- Cogger, H.G. (1982). The Potentially endangered snakes of Australia, In: *Proc. IUCN/SSC Snake Group. First Meeting, Madras India*.
- Das, P.K. (1996). *Brahmaputra*, Assam Science Society, Guwahati (in assamese).
- Deoras, P.J. (1990). *Snakes of India*, 4th ed., National Book Trust of India, New Delhi.
- Dodd, C.K. (Jr.) (1987). Status, Conservation, and Management In "Snakes Ecology and Evolutionary Biology" (Eds. Seigel, R.A. Collins, J.T. and Novak, S.S.) Macmillan Publishing Company. New York.
- Hazarika, R. and M. Das (1996). A Study on the BHC induced neurotoxicity in *Heteroneustes fossilis* (Bloch) from Assam, India 3rd cong. Toxic of Dev. count, Cairo, Egypt. Proceedings, Vol II, pp: 69-75.
- Nanda, A.R. (1992). *Final population totals : Indian : Brief analysis of primary census abstract Series 1, part 2*, Registrar General & Census Commissioner of India, New Delhi.
- Prakash, I. (1991). Ecological Role of Snakes In "Snakes and Human Welfare" (Ed. Director, Zoological Survey of India) Z.S.I. Calcutta.
- Project Report (1997). "Wet lands of Assam", Assam Remote Sensing Application Centre, Guwahati.
- Sengupta, S., D.K. Sharma, and M. Das (1990). Amylase activity of *Heteroneustes fossilis* under toxic stress of BHC In "Current Trends in Environmental Biology" (Eds. Mishra, R.R. & Chatterjee, K) Wiley Eastern
- Wilson E.O. (Rd) (1988). *Biodiversity*, National Academy Press Washington DC.

NOTE

BUTTERFLIES OF GUNDLA BRAMESHWARAM WILDLIFE SANCTUARY, ANDHRA PRADESH

C. Srinivasulu and V. Vasudeva Rao

Wildlife Biology Section, Department of Zoology, Osmania University, Hyderabad-500 007

Located on the Gundla Brameshwaram plateau of the Nallamaiai hill ranges 30 km off Nandyal town in Kurnool district, the Gundla Brameshwaram Wildlife Sanctuary is about 115 km from Kurnool town. It lies south to the Nagarjuna Sagar-Srisaillam Tiger Reserve and forms a continuous stretch of contiguous forest. The vegetation is of mixed type consisting of tracts of moist mixed deciduous forest.

The vegetation of the sanctuary is of southern tropical dry mixed deciduous forest with thorn scrub and riverine and swampy forest present along the Gundlakamma River. Vegetation includes

Terminalia tomentosa, *Adina cordifolia*, *Anogeissus latifolia*, *Pterocarpus marsupium*, *Chloroxylon swietenia*, *Acacia sundra*, *Buchanania lanzan*, *Hardwickia binata*, *Aegle marmelos*, *Erythroxylon monogynum*, *Dalbergia paniculata*, *Dalbergia latifolia*, *Madhuca indica*, *Dyospiros melanoxylon*, *Wrightia tinctoria*, *Boswellia serrata*, *Randia dumetorum*, *Ziziphus oenoplia* and a variety of other herbs and shrubs. Fauna is varied and rich with representatives of a variety of birds, Mugger Crocodile *Crocodylus palustris*, Tiger *Panthera tigris*, Leopard *Panthera pardus*, Jungle Cat *Felis chaus*, Wild Dog *Cuon alpinus*, Striped Hyena *Hyaena hyaena*, Indian Porcupine *Hystrix indica*, Nilgai *Boselaphus tragocamelus*, Chousingha *Tetraceros quadricornis*, Blackbuck *Antelope cervicapra*, Sambar *Cervus unicolor*, Spotted Deer *Axis axis*, Muntjac *Muntiacus muntjak*, Wild Boar *Sus scrofa cristatus* etc.

The study area was visited twice by us during the months of July and November, 1997. Butterflies encountered were recorded and the work of Gay *et al.*, (1992) was referred for identification. A total of 41 species of butterflies was recorded from the Gundla Brameshwaram Wildlife Sanctuary. Most of these butterflies are widely distributed in Andhra Pradesh and are commoner on the Nallamala hill ranges.

Acknowledgements

We are grateful to Prof. J.V. Ramana Rao and Dr. V. Nagulu for their continued encouragement and support. We extend our heartfelt thanks to Shri D. Sudhakar (Field Director) and Shri A. Tulasi Rao (Assistant Director) of Nagarjuna Sagar-Srisaillam Tiger Reserve for permitting us to carry out the present study and extending necessary facilities during the surveys. Financial grant in the form of Fellowship to one of the authors (CS) by CSIR, New Delhi is greatly acknowledged.

Reference

- Gay, T., I.D. Kehimkar and J.C. Punetha (1992) Common Butterflies of India. WWF-India and Oxford University Press, Bombay.

Check List of Butterflies of Gundla Brameshwaram Wildlife Sanctuary, Andhra Pradesh

Papilionidae

- | | |
|------------------------------------|---------------|
| 1. <i>Pachliopta aristolochiae</i> | Common Rose |
| 2. <i>Papilio clytia</i> | Common Mime |
| 3. <i>Papilio polytes</i> | Common Mormon |
| 4. <i>Papilio polymnestor</i> | Blue Mormon |

Pieridae

- | | |
|-----------------------------|----------------------|
| 5. <i>Anaphaeis aurota</i> | Pioneer |
| 6. <i>Cotopsilia pomona</i> | Common Emigrant |
| 7. <i>Delias eucharis</i> | Common Jezebel |
| 8. <i>Ixias marianne</i> | White Orange Tip |
| 9. <i>Pareronia valeria</i> | Common Wanderer |
| 10. <i>Pieris canidia</i> | Indian Cabbage White |

Lycaenidae

- | | |
|---------------------------------|--------------------|
| 11. <i>Abisara echerius</i> | Plum Judy |
| 12. <i>Caleta caleta</i> | Angled Pierrot |
| 13. <i>Castalius rosimon</i> | Common Pierrot |
| 14. <i>Euchrysops cnejus</i> | Gram Blue |
| 15. <i>Leptotes plinius</i> | Zebra Blue |
| 16. <i>Pseudo zizeeria maha</i> | Pale Grass Blue |
| 17. <i>Surendra quercetorum</i> | Common Acacia Blue |
| 18. <i>Talicerca nyseus</i> | Red Pierrot |

Nymphalidae

- | | |
|--------------------------|--------------|
| 19. <i>Acraea violae</i> | Tawny Coster |
|--------------------------|--------------|

20. *Ariadne ariadne* Angled Castor
 21. *Charaxes bernardus* Tawny Rajah
 22. *Cynthia cardui* Painted Lady
 23. *Danaus chrysippus* Plain Tiger
 24. *Danaus genutia* Striped Tiger
 25. *Euploea core* Common Indian Crow
 26. *Euthalia nais* Baronet
 27. *Hypolimnas misippus* Danaid Eggfly
 28. *Junonia hierta* Yellow Pansy
 29. *Junonia lemonias* Lemon Pansy
 30. *Junonia orithya* Blue Pansy
 31. *Lethe europa* Bamboo Tree Brown
 32. *Melanitis leda* Common Evening Brown
 33. *Parantica aglea* Glossy Tiger
 34. *Phalanta phalantha* Common Leopard
 35. *Tirumala limniace* Blue Tiger

Hesperidae

36. *Badamia exclamationis* Brown Awl
 37. *Hasora chromus* Common Banded Awl
 38. *Matapa aria* Common Red-eye
 39. *Odonoptilum ransonnetti* Golden Angle
 40. *Pelopidas conjuncta* Conjoined Swift
 41. *Udaspes folus* Grass Demon

NOTE

BIRDS OF POBITORA WILDLIFE SANCTUARY

Bibhuti Prasad Lahkar

P.G. Department of Zoology, Cotton College, Guwahati - 1, Assam

The Pobitora Wildlife Sanctuary (PWLS) is the smallest protected area in Assam. It has been established for its role in the conservation of *Rhinoceros unicornis* in 1987. It is one of the richest and the most potential site for the diversity of birds in Assam. The PWLS is situated in Morigaon district located on 26°12' N to 26°15' N and longitude 92°20' E to 92°50' E. This sanctuary is about 16 sq. km. The altitude varies from 15-25m above MSL. The climate of Pobitora can be termed as "subtropical moist", the annual average rainfall varies from 2500mm-3200mm. Mean summer temperature is 37°C and mean winter temp. is 16°C. The forest type is a combination of eastern wet alluvial grasslands, low alluvial savannah woodland and tropical fringing forests.

The survey in PWLS was carried out during August 1997 to January 1998 as M.Sc. dissertation work. A total of 15 days was spent at different intervals during the study with a total of 60 hours. The birds were observed and identified with the help of field binocular (10x50x), their calls and the books by Ali and Ripley (1933a,b) and Sonobe and Usui (1993). There were 85 species of birds belonging to 35 families and the checklist is not a complete one.

Table 1. Checklist of birds in Pobitora Wildlife Sanctuary

Common name	Scientific name
Family: Pelecanidae	
1. Spotbilled Pelican	<i>Pelecanus philippensis</i>
Family: Phalacrocoracidae	
2. Little Cormorant	<i>Phalacrocorax niger</i>
3. Large Cormorant	<i>P. carbo</i>
Family: Ardeidae	
4. Pond Heron	<i>Ardeola grayii</i>

5. Cattle Egret *Bubulcus ibis*
 6. Little Egret *Egretta garzetta*
 7. Median Egret *E. intermedia*
 8. Large Egret *Ardea alba*
 9. Gray Heron *A. cinerea*
 10. Purple Heron *A. purpurea*
 11. Black Bittern *Ixobrychus flavicollis*

Family: Anhingidae

12. Darter *Anhinga rufe*

Family: Ciconidae

13. Lesser Adjutant *Leptoptilos javanicus*
 14. Adjutant Stork *L. dubius*
 15. Openbill Stork *Anastomus oscitans*
 16. Black-necked Stork *Ephippiorhynchus asiaticus*

Family: Threskiornithidae

17. White Ibis *Threskiornis aethiopica*

Family: Anatidae

18. Lesser Whistling Teal *Dendrocygna javanica*
 19. Spotbill Duck *Anas poecilorhyncha*
 20. Shoveller *A. cygnea*
 21. Gadwall *A. strepera*
 22. White-eyed Pochard *Aythya nyroca*
 23. Greylag Goose *Anser anser*

Family: Accipitridae

24. Common Pariah Kite *Milvus migrans*
 25. Grey-headed Fishing Eagle *Ichthyophaga ichthyeatus*
 26. Pallas's Fishing Eagle *Haliaeetus leucoryphus*
 27. White-backed Vulture *Gyps bengalensis*
 28. Pied Harrier *Circus melanoleucus*
 29. Crested Serpent Eagle *Spilomys cheela*
 30. Crested Hawk-Eagle *Spizeatus carrhatus limnaeetus*
 31. Kestrel *Falco tinnunculus*

Family: Phasianidae

32. Swamp Partridge *Francolinus gularis*

Family: Rallidae

33. White-breasted Waterhen *Amauornis phoenicurus*
 34. Indian Moorhen *Gallinula chloropus*

Family: Jacanidae

35. Bronze-winged Jacana *Metopidius indicus*

Family: Charadriidae

36. Red-wattled Lapwing *Vanellus indicus*

Family: Scolopacidae

37. Spotted Green Shank *Tringa guttifer*

Family: Columbidae

38. Spotted Dove *Streptopelia chinensis*
 39. Ring Dove *S. decaocto*
 40. Red Turtle Dove *S. tranquebarica*

Family: Psittacidae

41. Rose-ringed Parakeet *Psittacula krameri*

Family: Cuculidae

42. Crow-Pheasant *Centropus sinensis*

Family: Apodidae

43. Palm Swift *Cypsiurus parvus*

Family: Alcedinidae

44. Small Blue Kingfisher *Alcedo atthis*

Family: Dacelionidae

45. White-breasted Kingfisher *Halcyon smymensis*