

A Preliminary Inventory and Bibliography of the Invertebrates in Wild Ass Sanctuary, Gujarat

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Introduction

Invertebrates occur more than the vertebrates in nature. More in number of groups and species, as well as more in numbers of individuals. Hence, knowledge on the invertebrates of any locality is fragmentary at present. There is need to make inventories, so that additions can be attempted in different animal groups.

The Zoological Survey of India (Anonymous, 1991) estimated about 300 Rotifera, 285 Mollusca (Subba Rao, 1989), 100 Cladocera (cf. Michael & Sharma, 1988), 100 Ostracoda, and >300 Copepoda. A large proportion of Insecta, which constitute more than 40% of the Indian fauna, have their larval stages in aquatic habitats. However, these figures for faunal diversity can only be underestimated for two major reasons. First, most of the wetland and open water habitats have not yet been fully explored, and even quick surveys are bound to bring to light a large number of taxa hitherto unknown. Second, there are no systematic keys for the identification of most of the groups of invertebrate fauna, particularly insects, whose larval and pupal stages alone occur in aquatic habitats. Their identification to the level of a species is extremely difficult.

Chhapgar (1957a, 1957b) gave information on marine crabs of Gulf of Kachchh. Gideon & Menon (1957) made a preliminary survey of the marine fauna of Gulf of Kachchh. Kulkarni (1953) described local and scientific names of fishes including commercially important prawns and crabs of Gujarat. Other information is in the form of individual records, especially for Gulf of Kachchh and Gulf of Khambhat, by Hornell (1922), Chandy (1969), Chandy (1973), Chhapgar (1961), Ramanandan (1966), Sarojini & Nagabhushanam (1968), Shanbhag & Inamdar (1968), Chhapgar (1979), Chhapgar & Mundkur (1995), Wagh (1974). Information on insects is scattered, e.g. Shull (1966) on the Dangs district; Acharya (1961) on Chandola Lake, Ahmedabad; Thakur (1983) on Khari River, Bhuj. Gopalakrishnan (1969) gave an account on Holothuroidea (Echinoderms) of Gulf of Kachchh. Johnson (1971) described Sipunculids in Gulf of Kachchh. Rao (1969, 1970, 1971) described foraminifera of Gulf of Khambhat. Vasu (1944) discussed migratory drag-

onflies.

Information on other invertebrates is rather scanty, by Hornell (1922), Dixit et al. (1969), Ghosh et al. (1963), Gideon et al. (1956), Gupta & Menon (1961), Trivedi (1976), Dalal & Rawal (1979) and Halder (1981).

Protected areas have not been studied for invertebrates, especially zooplanktons. The present study is an attempt to record the biodiversity of the Indian Wild Ass Wildlife Sanctuary, an unexplored area for its invertebrate studies (Fig. 1).

Study Area

Wild Ass Sanctuary is a saline desert. Surrounding villages of the sanctuary have many manmade village ponds which turn brackish water during post monsoon and winter period. Most of their species are capable of surviving in slightly saline water.

This study was carried out in the Wild Ass Sanctuary (WAS), spread chiefly over the Little Rann of Kachchh (LRK) in Gujarat state; situated between 23°10' and 23°45' N and 70°45' and 71°45' E. LRK is a vast saline desert, a typical arid area (4,953.59 sq.km) with annual temperature range of 5°C-44°C and average rainfall 125 to 400 mm. It lies just above sea level; and is spread over six districts (Rajkot, Surendranagar, Mahesana, Banaskantha, Patan, and Kachchh).

The WAS turns into a huge brackish water wetland during the monsoon due to the flooding of seasonal rivers and tidal waves of the Gulf. Some elevated areas called 'Bets' support many grass species, a typical desert flora and dense thickets of locally called 'Gando Bavai', *Prosopis juliflora*. The area is dotted with village ponds on the fringes of the sanctuary. Due to high salinity in the region, the village ponds show variation in salinity depending on their distance from saline area and season.

Since there are no records of the invertebrate fauna of the WAS, the present study was conducted to inventorise the invertebrate fauna. This is the first preliminary inventory of invertebrate fauna of the sanctuary.

Methodology

Zooplankton were collected using a funnel trap, fixed on extensible aluminium and steel pipes whose length ranged from 1.5m to 3.0m. The bottom soil samples from the fresh-

water ponds were collected from the area of the pond having abundant plant material. Every sample collected was labeled showing place, date and time. These samples were taken to the laboratory as quickly as possible and examined using a compound microscope.

Insects were thoroughly searched in waterbodies, salt-pans, sandy areas, on the tree trunks and tree canopy, grasses etc. Most of the captured insects were preserved using 70 percent alcohol and taken to the laboratory and identified using standard reference books and keys, e.g. Imms (1957), Jiri Zahardnik (1977), Maxwell-Lefroy (1978), Chedwick (1972) and Tonapi (1980).

Other invertebrates including nematodes, annelids, crustaceans, and molluscs were searched and collected from a variety of habitats in the WAS, then narcotized, preserved and brought to the laboratory for identification. Identification was done using standard reference material, e.g. Chhapgar (1958) and Tonapi (1980).

Results

Total 66 species of invertebrates have been identified (Table I). Among these 25, i.e. 19 protozoan, two nematodes, one rotifer and three crustaceans viz. *Cyclops*, *Daphnia* and *Cypris* spp. were zooplanktons. 24 species of insects were observed, followed by protozoans (19 species) and molluscs (12 species). All the mollusc families were represented by single representative species. The present list is first published record of the invertebrate fauna of the Wild Ass Sanctuary, Little Rann of Kachchh.

Table I. List of Invertebrate species found in Wild Ass Sanctuary, Gujarat.

Species	
Protozoa	
1.	<i>Acanthocystis spinibera</i>
2.	<i>Amoeba proteus</i>
3.	<i>Arcella vulgaris</i>
4.	<i>Chlamydomonas</i> sp.
5.	<i>Chrysamoeba</i> sp.
6.	<i>Coleps hirtus</i>
7.	<i>Coleps hirtus</i> var. <i>minor</i>
8.	<i>Euglena acus</i>
9.	<i>Euglena caudate</i>
10.	<i>Euglena spirogyra</i>
11.	<i>Euglena mutabilis</i>
12.	<i>Euglena</i> sp.
13.	<i>Glaucoma pyrajormis</i>
14.	<i>Loxodes strictus</i>
15.	<i>Ophryoglena flava</i>
16.	<i>Paramoecium bursaria</i>
17.	<i>Paramoecium caudatum</i>
18.	<i>Paramoecium</i> sp.
19.	<i>Stentor coerulens</i>
Rotifera	
20.	<i>Brachionus rubens</i>
Nemathelminthes	
21.	<i>Dugesia</i> sp.
22.	<i>Rhabditis cranganorensis</i>
Annelida	
23.	<i>Glossiphonia</i> sp.
Crustacea	
24.	<i>Balanus</i> sp.
25.	<i>Cyclops</i> sp.
26.	<i>Cypris</i> sp.
27.	<i>Daphnia</i> sp.
28.	<i>Palaemon</i> sp.
29.	<i>Pseudograpsus intermedius</i>
30.	<i>Scylla serrata</i>
Insecta	
31.	<i>Acrida</i> sp.
32.	<i>Amasacta moorei</i>
33.	<i>Anacridium rubrispinum</i>
34.	<i>Apis mellifera</i>
35.	<i>Ceutorotus cornutus</i>
36.	<i>Chrotopogonus trachypterus</i>
37.	<i>Chrotopogonus trachypterus</i>
38.	<i>Diplacodes trivialis</i>
39.	<i>Dysdercus cigulatus</i>
40.	<i>Ephimera</i> sp.
41.	<i>Gerris</i> sp.
42.	<i>Grylodes</i> sp.
43.	<i>Humbertiella indica</i>
44.	<i>Hydaticus faricil</i>
45.	<i>Hydrophilus olivaceous</i>
46.	<i>Labidura riparia</i>
47.	<i>Laccotrephes maculatus</i>
48.	<i>Larra</i> sp.
49.	<i>Modicogryllus</i> sp.
50.	<i>Myrmeleon contractus</i>
51.	<i>Odontotermis parvidens</i>
52.	<i>Pieris brassicae</i>
53.	<i>Procerus ramamurthy</i>
54.	<i>Ranatra elongata</i>
Mollusca	
55.	<i>Anadara antiquata</i> (Arcidae)
56.	<i>Ariophanta bajadera</i> (Ariophantidae)
57.	<i>Lymnaea (Pseudosuccinea) luteola</i> (Lymnaeidae)
58.	<i>Thais lacera</i> (Muricidae)

59. *Natica tigrina* (Naticidae)
 60. *Indoplanorbis exustus* (Planorbidae)
 61. *Cerithidea (Cerithideosilla) cingulata* (Potamididae)
 62. *Zootecus insularis* (Subulinidae)
 63. *Thiara (Melanoides) tuberculata* (Thiaridae)
 64. *Lamellidens* sp. (Unionidae)
 65. *Meretrix* sp. (Veneridae)
 66. *Bellamyia dissimilis* (Viviparidae)

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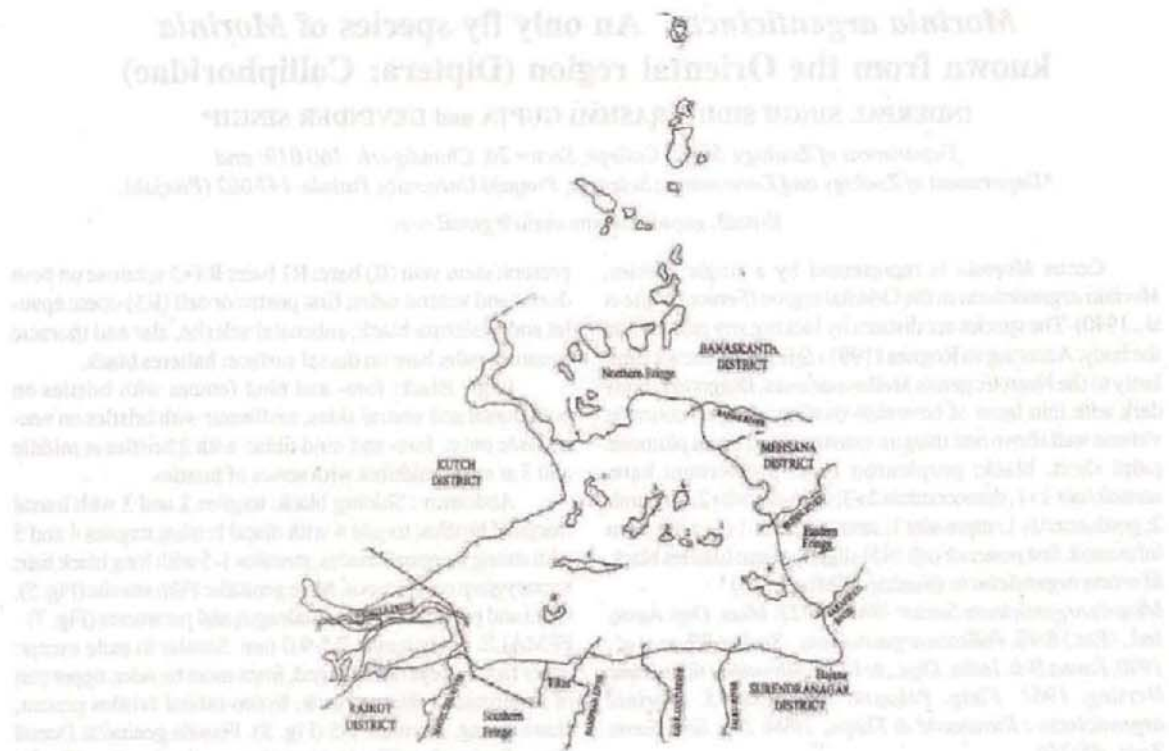


Fig. 1.- Location map of the Indian Wild Ass Wildlife Sanctuary, Gujarat.

- picta* Stimpson (Decapoda: Anomura) in the Gulf of Kutch. *J. Bombay Nat. Hist. Soc.* 63 (3): 770-771.
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