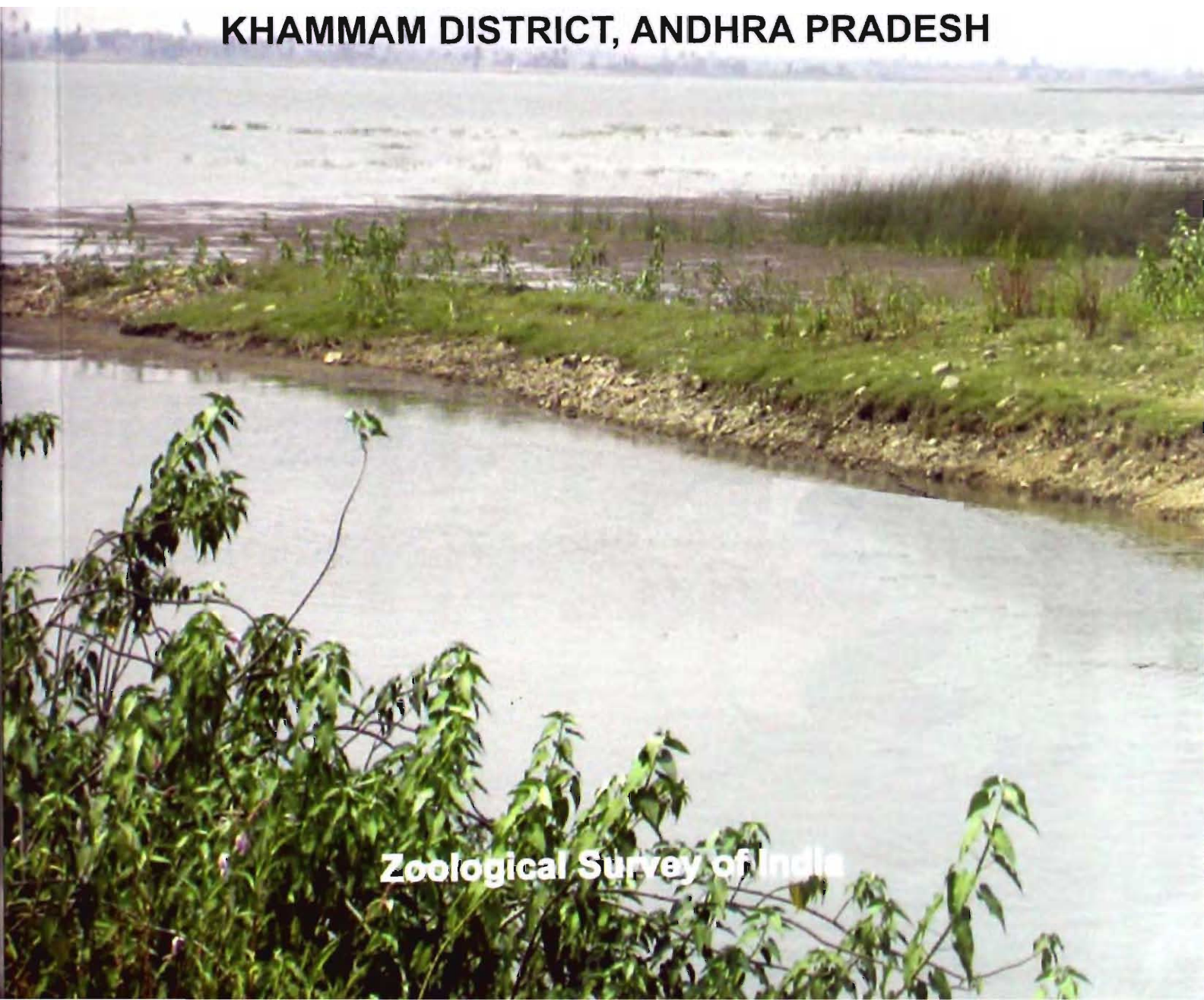




Freshwater Ecosystem Series, 16

Faunistic and Limnological Studies on Wyra Lake

KHAMMAM DISTRICT, ANDHRA PRADESH



Zoological Survey of India



Wetland Ecosystem Series, 16

**FAUNISTIC AND LIMNOLOGICAL
STUDIES ON WYRA LAKE
KHAMMAM DISTRICT, ANDHRA PRADESH**

**Zoological Survey of India
Kolkata**

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Page 1-158

CONTENTS

- | | |
|--|---------|
| 1. INTRODUCTION AND LIMNOLOGY | 1-26 |
| S.V.A. Chandrasekhar C.A. Nageswara Rao and Deepa, J. | |
| 2. ROTIFERA : WYRA LAKE | 27-33 |
| S.V.A. Chandrasekhar | |
| 3. CLADOCERA : WYRA LAKE | 35-39 |
| S.V.A. Chandrasekhar | |
| 4. AQUATIC INSECTS (HEMIPTERA AND COLEOPTERA) | 41-57 |
| Deepa, J. | |
| 5. INSECTA : ODONATA | 59-68 |
| Bhargavi, C. Srinivasulu and Deepa, J. | |
| 6. CRUSTACEA | 69-73 |
| S.S. Ghatak, S.K. Ghosh and M.K. Dev Roy | |
| 7. FRESHWATER MOLLUSCS | 75-96 |
| K.V. Surya Rao, K. Venkatesan and C.A.N. Rao | |
| 8. ICHTHYOFAUNA | 97-116 |
| C.A.N. Rao, Deepa, J., Mohd. Hakeel and S.V.A. Chandrasekhar | |
| 9. HERPETOFAUNA | 117-124 |
| C. Srinivasulu | |
| 10. AVES | 125-158 |
| C. Srinivasulu | |

INTRODUCTION AND LIMNOLOGY : WYRA LAKE

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INTRODUCTION

Wyra lake is a medium sized water body, that had been constructed during Nizam's period between 1922-29, between two hills on Wyra river (which is a tributary of Krishna river basin). It is located (17° 15'N & 80° 25'E) at about 25 kms from Khammam town of Khammam district which is about 200 kms away from Hyderabad in its south-west side in Andhra Pradesh. This has been constructed for irrigational and drinking water usage and serving the purpose for about 24 villages that covers 9,308 hectares of for irrigation. The lake is spread over three mandals *viz.*, Konijerla, Wyra and Thallada in the district. The salient features of the lake/water body are as follows.

Length of the dam	3.98 km
Free catchment area	367.78 km ²
Water spread area (FRL)	18 sq. km
Average rain fall	793.06 mm
Maximum height of the dam	26.83 m
Maximum depth of water above bed of river	17.075 m

The air temperature recorded at this place varied from 26 – 36°C and water temperature 26 – 35°C. The rain fall is received from south-west monsoon. The water body is surrounded by hills and forest area on one side and other side with villages and agricultural land, mainly cultivating paddy, sugarcane, maize, cotton and chilly during different seasons and due to this water body, the surrounding villages have good agricultural potential.

Further, since the water body is big with a maximum depth of 17.075 m, it is reported to be rich in fishing potential, several fishing villages are in the lake neighbourhood and make their living on fishing in this water body. During the studies it is observed that carps *viz.*, *Catla* and *Rohu* and cat fishes of 2-3 feet length are found in the water body frequently. Also it is found to be good in prawn fishing as *Macrobrachium* sp. of one feet length are also noticed in the fishing catch. The fishery department supplies fish seedlings (major carps) to fishermen communities which are grown in the water body. It has also been noticed that fishing craft made by fishermen by tying Thermo Cole planks/blocks and bamboo sticks, thus forming a flat floating body of size 3 x 6' Mostly fishing is done by using cast net in the low depth area *viz.*, periphery and in the deeper region fishing is done by gill net and hooks. Prawns are caught by cast net and bamboo traps.

The lake water is devoid of aquatic vegetation *viz.*, emergent floating plants except a few near the periphery. The lake is found to be oligotrophic with pH ranged between 7.0 – 8.5. Since the lake is away from the human settlements, there is no urban or industrial/ sewage entering the lake except agricultural run off during monsoon.

The studies on the water body has been taken for its limnological and faunistic details during 2005-08. During this period seven surveys were conducted covering different seasons of the year to have detailed information on water quality as well as fauna. Nine collection localities / spots around the lake *viz.*, has been selected (Wyra, Brahmanapalle, Reddigudem, Mallavaram, Narayanapuram, Singarayapalem, Lallapuram, Lallurugudem and Siddkhnagar) for sampling of water and fauna. At each locality during each survey, water samples, plankton samples, were collected to study physico-chemical parameters of the water body. Faunal samples (including zooplankton) were collected at random from the periphery of the lake, and also from the water body by using cast net, forceps *etc.* Fishes and prawns were collected from the fishermen catches.

The lake had also been declared as a tourism spot / recreational zone by the Government of Andhra Pradesh and constructed a recreational park on a small hilly area at one end with boating facility *etc.* in the year 2005.

LIMNOLOGY

In an aquatic ecosystem, all the life processes are dependent directly or indirectly upon the various physical and chemical factors. The rise and fall of these factors very frequently effect the biota, altering the number and diversity. In other words, the growth, reproduction and development of biota is influenced by the physico-chemical factors. Being the fifth largest state in India in area-wise, Andhra Pradesh has got fairly large number of wetlands ranging from small seasonal impoundments to large sized perennial lakes. These wetlands include the long stretches of riverine systems like Godavari, Krishna, Thungabadhra, Pennar and lakes to name a few like Kolleru, Kondakarla, Pocharam of perennial nature.

In India the contributions of Ganapathi (1943), Dutta Roy *et al.* (1984), Roy (1955) and in Andhra Pradesh Venkateswarlu (1969), Seenayya (1971, 1972), Chandrasekhar (1996): pertained to the ecology of freshwater lakes. Some outstanding contributions on the limnological studies on lentic waters in Andhra Pradesh in the last half century, include the works of Zafar (1966), Venkateswarlu (1969), Munawar (1970), Venu (1981), Ratna Rao (1985), Jaya Devi (1985), Chandrasekhar (1997), Patil and Panda (2003), Anitha *et. al* (2005), Siddiqi and Khan (2002) and Chandrasekhar *et. al* (2007).

In the present study, being the maiden attempt, the morphometric data was obtained from the Irrigation department, Government of Andhra Pradesh and the limnological data was obtained from the observations made during the field surveys in the study period.

MATERIAL AND METHODS

Sampling programme had been started from February, 2006 to July, 2008 that covers the three seasons of each year during the two year survey. Physico-chemical parameters were analysed with the aid of Standard Methods of APHA (1989). In order to cover the

whole topography of the water body, nine village spots that are passing around the bank of the lake have been selected *i.e.*, Siddikhnagar (SN), Lallapuram (LP), Wyra (WY), Singarayapalem (SP), Lallurugudem (LG), Mallavaram (MV), Narayanapuram (NP), Reddigudem (RG) and Brahmanapalle (BP). The details of the surveys (7) are of 14 – 18th Feb., 2006, 18 – 22nd April, 2006, 1 – 5th Nov., 2006, 24-27th March, 2007, 18 - 22nd August, 2007, 23 – 27th January, 2008 and 24 – 26th July, 2008.

The collection of water samples/analysis could not be done in some localities of some surveys particularly last survey due to some technical reasons. The limnological investigation embodies the information on physico-chemical parameters of the water *viz.*, Temperature, pH, Conductivity, Total Dissolved Solids, Turbidity, Dissolved Oxygen, Carbonates, Bicarbonates, Free Carbon-di-oxide, Chloride, Total Hardness, Calcium, Magnesium, Phosphates, Nitrates, Silicates, Sulphates, Sodium and Potassium.

The temperature was observed with the help of Mercury Celsius Thermometer and the pH, Conductivity & Total Dissolved Solids were noticed with the aid of respective electronic dips in all the collection spots. For the analysis of Dissolved Oxygen, water samples were collected in DO bottles of 300 ml. capacity and brought to the field laboratory after fixation together with water samples in 1000 ml PVC containers for the analysis of titrimetric parameters and analysed there itself. Water samples in separate 1000 ml PVC containers were brought to the Head Quarters (Hyderabad) and were given to the local private laboratory for analyzing the rest of the parameters *i.e.*, nutrients and some light metals.

RESULTS AND DISCUSSION

Results of the physico-chemical parameters of the lake water during the surveys have been given in tables and the the results were discussed with its graphic representations. For the convenience of discussion, three seasons *viz.*, Summer, Monsoon and Winter are considered to compute the water quality trends of the lake during 2006-2008. Broadly speaking, the climate of Wyra lake is characterized by a hot summer, mild winter and moderate monsoon season and these seasons can be noticed usually during the following months of a year.

Summer : February to May
Monsoon : June to September
Winter : October to January

TEMPERATURE [°C] :

Temperature is a primary environmental factor that affects and governs the biological activities and solubility of gases in water. Owing to the gases in air, humidity, dust and other colloidal particles, the air temperature is always higher than water temperature. Variation in the air and surface water temperatures are due to changing seasons in general and variations at different stations in the same day are due to time lag in the collection of samples, which are spatially separated. During the period of survey the air temperature and water temperature showed more or less similar pattern and the air temperature was noticed ranged from 26 – 36 and of the water 26 - 35. Air temperature was found more than

30 in all the places except in first year winter where it was fluctuated between 27 – 29 but at Wyra locality its exceptional lower value (26) was noticed in second year summer (March, 2007). More or less the same pattern was noticed in the case of water temperature. The reason for higher temperature values can be attributed to low water level, low velocity, clear atmosphere and greater solar radiation while its lower values can be explained due to frequent clouds, high percentage of humidity, high current velocity and high water levels. The reason for the exceptional lower temperature (air) of 26 can be attributed to the unseasonal rain during the period at the spot.

pH : pH is another important parameter affecting species diversity and distribution in an ecosystem. Aquatic organisms are well adapted to specific pH range and do not withstand abrupt changes in it. The pH in surface waters of Wyra lake was always high and ranged between 7.0 and 8.7 and both these values were noticed in Reddigudem in November, 2006 and March, 2007 respectively. The higher pH may be due to increased carbonates, bicarbonates and higher photosynthetic activities resulting from phytoplankton production. Most of the values of this parameter were observed around 8.0 only particularly in summer, 2006. Most of the values in second year (2007) were found less than 8.0. The ranges of the parameter showed that the water was alkaline in nature. Alkaline waters harbors more plants than acidic waters. According to Das (1978) and Robert *et al.* (1940), pH between 8.5 to 9.5 is unfavorable for the growth of aquatic organisms, but in this study on Wyra lake the values around 8.5 were noticed in less number of localities that too upto 8.7 only.

ELECTRIC CONDUCTIVITY [microsiemen's/cm] : Electric Conductivity of a water body depends on the amount of salts and silts carried by canals adjacent to agricultural fields. The conductivity values of the lake water fluctuated between 360 - 810 microsiemen's/cm. While the minimum value was found from Narayanapuram in November, 2006 (first year winter), the maximum value was from Siddikhnagar. In March, 2007 (summer) Most of the values in the present survey varied around 500 – 650 with some exceptional values in some localities. The exceptional higher values (700 and 810) were observed in March, 2007 at Siddikhnagar and Lallapuram showing the insufficient levels of inflows of fresh water during the period. The seasonal variation of the conductivity in the present study may be due to the insufficient inflows of freshwater, discharge of silt and salts from the surrounding agricultural fields as well as the discharge of domestic effluents.

TURBIDITY [N.T.U.] : The turbidity values in the survey ranged between 5 (Brahmanapalle in November, 2006) and 184 (Singarayapalem in March, 2007). During summer, 2007 these values were found high with values of 128, 166, and 184 at Lallapuram, Siddikhnagar and Singarayapalem respectively. The observation of 170 in monsoon season (August, 2007) is an occasional phenomena and the reason may be due to insufficient rains during the period. Higher turbidity is known to effect the primary productivity by restricting the light penetration and photosynthesis. The exceptional higher turbidity may be due to the suspended organic matter of autochthonous and allochthonous nature and bioeston like phytoplankton.

DISSOLVED OXYGEN [mg/lit.] : The minimal value (1.0) was recorded at Singarayapalem in March, 2007 (summer) and maximum (6.0) was from Wyra and Singarayapalem during August, 2007 (monsoon). But an abnormal value, 8.0 was noticed at Mallavaram in summer. Most of the values were noticed approximately between 3.5 to 6.0 only. The reasons for higher values of the DO can be attributed to the localities receiving the leaked effluents, other waste waters, together with anoxic and chemically reducing material prevailed at these spots. The low levels of this factor are probably due to low sunshine coupled with poor penetration of light from high turbidity and the higher values may be due to high productivity during the clear weather seasons. Super saturation (> 8.0) also prevailed for some times (April, 2006) at Mallavaram locality which may be due to the abundance of phytoplankton, and increased photosynthetic activities resulting from the phytoplankton blooms in these areas.

ALKALINITY : Carbonate, Bicarbonate and Carbon-di-oxide constitutes the major source of inorganic carbon to producers in an aquatic ecosystem and act as buffer (s), thus regulating pH of the medium.

Carbonates [mg/lit.] : Alkalinity is the acid neutralizing capacity of water which depends on the strength of carbonates in a sample and it determines the availability of free carbon-di-oxide that is essential for photosynthesis and thus directly related to productivity. In general, alkaline water supports the diversity of aquatic life. In the present study on Wyra lake, carbonate values ranged from 12 (January, 2008 at Lallurugudem) to 130 (February, 2006 at Siddikhnagar) when the carbonates were present. Zafar (1966) also found higher quantities of carbonates during summer. Total Absence of this factor was noticed in most of the localities / seasons during the period of study.

Bicarbonates [mg/lit.] : Bicarbonate values ranged between 105 to 370 with an exceptional value of 370. The minimum value was found in winter at Lallapuram and in the same season the maximum at Siddikhnagar, [in February, 2006]. In the first year winter, higher values 360 – 370, were noticed in different localities. Comparatively the summer values were seen at higher side. The liberation of carbon-di-oxide in the process of decomposition of bottom sediments with resultant conversion of insoluble carbonates into bicarbonates, may be the reason of summer maxima. Similar pattern was also noticed by Anitha *et al* (2005) in the case of Mir Alam lake.

Free Carbon-di-oxide [mg/lit.] : The abundance of Free CO₂ exerts specific effects on aquatic biota and helps in buffering the aquatic environment against rapid fluctuations in the acidity and alkalinity and also regulates biological process of aquatic communities. This parameter has ranged in the range of 32 to 55 and exceptional value 76 was found in monsoon in the month of August, 2007. This factor was noticed in the first year summer and second year monsoon in all the spots. The higher rate of decomposition during summer due to rapidly receding water level at these spots and higher temperature followed by scanty rains during monsoon, were probably responsible for higher carbon-di-oxide and reduced oxygen contents. Presence of algal bloom may be the reason for absence of free CO₂.

CHLORIDE [mg/lit.] : Chloride is one of the important anions that determines the total salinity of the water and marked quantitative accumulation of this factor over a period of time is an indication of anthropogenic pollution. Chloride content of the lake water had ranged from 27 to 110. The minimum value was found in March, 2007 (summer) and the maximum was observed in November, 2006 (winter) at Wyra and Reddigudem respectively. Presence of high amount of chloride influences the amount of dissolved oxygen and this may affect adversely the number of aquatic organisms.

As the lake is situated in rural areas, the anthropogenic influence is less. In general, the chloride quantity is more in summer and the reason could be attributed to evapotranspiration. Here the monsoon values (August, 2007) are seen comparatively at higher side and the reason may be due to insufficient rains in the preceding period.

TOTAL HARDNESS [mg/lit.] : This factor depends on the concentration of carbonate and bicarbonate salts of calcium and magnesium (temporary hardness) or sulphate, chloride or other anions of mineral acids (permanent hardness). Hardness has great effect on biotic diversity and also restricts the use of water. This parameter in the lake water ranged between 95 (Narayanapuram) in November, 2006) to 260 (Lallurugudem in February, 2006), but most of the factors are found more or less same range only. The same range was noticed earlier by Chandrasekhar *et. al* (2007) on Pocharam lake and Siddiqi and Khan (2002) in the lakes in the vicinity of Hyderabad. Some seasonal constancy was observed in the hardness values, higher in summers and lower during monsoons.

CALCIUM [mg/lit.] : Calcium is found in all the natural waters and its main source is weathering of rocks from which it leaches out. During the two year study period, the calcium ranged from 21 - 88. No specific pattern is found in this factor and the minimal values were noticed in most of the localities in different seasons where as its maximum value (88) was observed at Lallurugudem in summer (February, 2006.). The values of the first year survey (2006) are found comparatively at higher side than the rest. In general the higher values of calcium may due to the decomposition of organic materials that releases the carbon-di-oxide which brings calcium into the system.

MAGNESIUM [mg/lit.] : Calcium and magnesium are the principal cations imparting hardness, however to a lesser extent like iron, manganese and strontium of freshwater as well as other discharges into the water body are also responsible for it. The magnesium concentration of the lake water was ranged from 6 to 29 with an exceptional value, 50 and the minimum (6) was noticed in Lallurugudem and Mallavaram localities in April, 2006 while the maximum (29) was found at Singarayapalem in March, 2007 but the exceptional value, 50 was at Wyra locality in February, 2006. The sudden rising level of magnesium is an indicative of increase in the level of pollution during the period. No specific season-wise trend was noticed of this factor during the study period on Wyra lake.

PHOSPHATES [mg/lit.] : Phosphate acts as a limiting nutrient responsible for the process of eutrophication and leads to ultimate degradation of an aquatic ecosystem. In general, aquatic ecosystems receive excess of nutrients through untreated domestic sewage and agriculture run off. Lakes can be aesthetically classified into good, fair, very bad and awful, on the basis of percentage of phosphates loading.

During the course of study on Wyra lake the phosphate concentration ranged between 0.01 (Wyra in January, 2008) to 0.13 (at Mallavaram in November, 2006 and Lallapuram in March, 2007). The higher values are indicating the in loading of domestic sewage and agricultural run off from the housing colonies as well as the agricultural fields in these areas.

NITRATES [mg/lit.] : The Nitrogen pool of limnetic environment comprises of two compounds *viz.*, the organic component consisting organic material liberated by the biota or generated in the heterotrophic bacterial activity on proteinaceous substrate and inorganic components of nitrogen such as ammonia nitrite and nitrate. During the present investigation on Wyra lake only one form of nitrogen *i.e.*, nitrate nitrogen was estimated.

The quantity of Nitrates of lake waters ranged from 1 to 10 and the minimal value was noticed at Wyra in January, 2008 (winter) where as the maximum value (10) was observed at Siddiknagar in March, 2007 (summer). The nitrate values that were noticed at Siddiknagar and Brahmanapalle during the whole are at lower side (2.0 - 3.15), where as the summer values of the first year (April, 2006) in the whole lake are found at higher side.

SILICATES [mg/lit.] : Silicate concentration of the lake has ranged between 3 (Reddigudem in November, 2006) to 16 (Singarayapalem in March, 2007) with an exceptional peak values of 22 (Lallapuram in March, 2007) and 28 (Siddiknagar in March, 2007). The winter values (November, 2006) are at lower side while the second year summer (March, 2007) values are at higher side and the monsoon values are in between. Most of the values were found around 10 only.

SULPHATES [mg/lit.] : Sulphur exists in a number of oxidation states, from the most oxidized sulphate to the most reduced sulphide. High concentration of sulphates stimulates the action of sulphur reducing bacteria, which produce hydrogen sulphide, a gas highly toxic to fish life. Sulphates of lake water was observed from 13 to 48 with exceptional values of 90 and 97 at Reddigudem in March, 2007 and Siddiknagar in November, 2006 respectively. Both the minimum (13) and maximum values (48) were observed at Narayanapuram respectively in November and April, 2006 respectively. At Siddiknagar locality the sulphate values were noticed comparatively at higher side followed by Lallurugudem.

SODIUM [mg/lit] : When once the metals enter any aquatic body, it prevails in the water body permanently. Hence the metals have been termed as conservative pollutants. The gravity of the persistence of heavy metals in an aquatic environment is compounded by the fact that they are water soluble and non-degradable and bound to many biochemical activities. The heavy metal salts, being stable compounds can not be readily removed by oxidation, precipitation or any other process. Hence the pollution due to heavy metals is a serious concern and lead to deterioration of the water body by depleting ecologically sensitive species or eliminating the commercial species and also a serious threat to human health.

Sodium concentration in the lake water ranged between 30 (Wyra and Mallavaram in November, 2006) and 92 (Lallapuram in March, 2007). The summer values particularly in

at Siddikhnagar and Lallapuram are higher than the other values and no specific tendency was noticed in the other two seasons.

POTASSIUM [mg/lit.]: Even though this factor finds in lower quantities than the other cations, it plays a vital role in the metabolism of freshwater environments and considered to be an important macronutrient. The quantity of Potassium in the lake waters ranged from 2 to 7 where in the maximum was noticed at Siddikhnagar in March, 2007 and minimum was at several places. Here the winter values were found at lower side particularly in January, 2008. This factor has not shown any specific pattern of seasonal fluctuation in the whole study.

In general, Wyra lake water is characterized as alkaline with a pH range of 7.0 to 8.7 and these values are between desirable and permissible limits. Higher alkaline tendency was noticed particularly at Reddigudem followed by Lallurugudem and Brahmanapalli localities. Due to insufficient rains in the preceding periods, consequent low levels of inflows of freshwater with loading of silt and salts from the surrounding agricultural fields, the electric conductivity (360-810) is on higher side and the turbidity (5 - 184) shows less light penetration. More or less similar tendency was also noticed at Pocharam lake, Andhra Pradesh. The Dissolved Oxygen was found between 1.0 and 8.0 The monsoon values (August, 2007) were noticed comparatively at higher side and the reason may be due to the prevailing temperature. The lowest DO values in summer seasons may be due to overloading concentrations of organic wastes with receding water level in this seasons

Carbonates, bicarbonates, total hardness, calcium and magnesium have shown its maximum values in summer, where as the lower values of chloride were noticed in summer. The phosphate values were found minimum at several places and also its maximum value was noticed at Lallapuram during the summer season of the first year. The summer maxima and winter minima was noticed in the case of silicates in wyre lake where as its reverse case was observed in Pocharam lake. The sulphate concentration is noticed at comparatively higher side at Siddikhnagar followed by Lallurugudem. The sodium concentration was found at lower side in winter season while its higher values were noticed in summer. In the case of potassium, no specific pattern was observed but its maximum was noticed at Siddikhnagar in summer where as its minimal values were at seen at several places without any seasonal variation. The high concentration of chlorides and nutrients associated with the depletion of oxygen lead to anoxic or anaerobic conditions in the lake waters.

Locality-wise, at Siddikhnagar, the parameters like electric conductivity, carbonates, bicarbonates, nitrates, silicates, sulphates and potassium have shown its higher concentrations. At Lallapuram, and Wyra the parameters like pH, electric conductivity, turbidity, Dissolved Oxygen, magnesium, nitrates, silicates, sulphates, sodium and potassium are noticed at above average levels. At Singarayapalem and Lallurugudem also seen the similar pattern. The parameters like pH, electric conductivity, turbidity Dissolved Oxygen, chloride, , phosphates, nitrates, silicates, sulphates, sodium are noticed comparatively at higher side at Mallavaram and Narayanapuram. The light metal, potassium is found at higher side at Mallavaram, Narayanapuram, Reddigudem and Brahmanapalle. The chloride and sulphate content

was noticed at higher side at Reddigudem. By going through the over all survey on water quality, all the parameters are with in the tolerance limits for drinking purpose, as prescribed by Indian Standards.

SUMMARY

A limnological survey had been undertaken seasonally from February, 2006 to January, 2008 on Wyrā lake situated in Khammam District of Andhra Pradesh. Seasonal fluctuations in Physico-chemical parameters were discussed in the paper and its graphic representations were given together with the tables.

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Tables showing the variation of different physico-chemical parameters on Wyra lake during the study period :

Table - I : Ambient Temperature / Water Temperature [°C] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	33/30	30/28	29/28	35/35	33/32	31/29
2.	LP	32/30	32/30	29/28	35/32	36/32	-
3.	WY	32/30	32/30	28/28	26/26	36/32	30/30
4.	SP	34/30	30/28	29/28	31/30	33/32	30/29
5.	LG	34/30	31/30	-	-	-	31/29
6.	MV	34/30	31/29	27/26	-	30/30	31/30
7.	NP	34/30	31/29	27/27	-	31/30	30/30
8.	RG	33/30	28/29	29/28	36/32	32/31	30/30
9.	BP	-	30/29	29/28	36/32	34/32	30/30

Table - II : pH recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	7.5	7.9	7.2	7.6	7.2	7.7
2.	LP	7.5	7.7	7.3	7.7	7.7	
3.	WY	8.0	7.8	7.1	7.6	7.9	7.7
4.	SP	8.0	8.0	7.1	7.9	7.7	7.6
5.	LG	8.0	8.0	-	-	-	8.5
6.	MV	8.0	8.1	7.4	-	7.7	7.5
7.	NP	8.0	8.3	7.3	-	7.6	7.4
8.	RG	8.0	7.9	7.0	8.7	7.7	7.9
9.	BP	-	8.6	7.3	8.2	7.8	7.7

Table - III : Electric Conductivity [Micro siemens/cm] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN		550	590	810	580	560
2.	LP		540	520	700	590	-
3.	WY		560	420	590	510	570
4.	SP		500	490	620	530	580
5.	LG		550	-	-		610
6.	MV		590	440	-	560	600
7.	NP		570	360	-	510	580
8.	RG		600	440	600	530	580
9.	BP		530	440	580	520	580

Table - IV : Turbidity [N.T.U.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	-	15	46	166	170	15
2.	LP	-	12	25	128	58	-
3.	WY	-	38	61	14	6	15
4.	SP	-	24	15	184	28	19
5.	LG	-	18	-	-	-	18
6.	MV	-	15	12	-	64	21
7.	NP	-	36	15	-	54	15
8.	RG	-	21	6	19	57	23
9.	BP	-	24	5	17	12	19

Table - V : Dissolved Oxygen [mg/lit.] recorded during the study period

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	5.5	2.2	5.5	3.9	5.0	5.0
2.	LP	5.5	3.0	3.0	2.5	4.8	-
3.	WY	5.0	2.8	5.6	1.3	6.0	4.0
4.	SP	5.3	3.0	5.3	1.0	6.0	5.3
5.	LG	5.2	3.3	-	-	-	4.9
6.	MV	4.9	8.0	5.0	-	6.0	3.9
7.	NP	4.8	1.8	5.1	-	5.8	4.1
8.	RG	5.0	4.0	5.0	3.9	5.4	3.8
9.	BP	-	4.1	4.0	4.5	5.6	3.9

Table - VI : Carbonates [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	130	NIL	50	NIL	NIL	NIL
2.	LP	60	NIL	NIL	40	NIL	-
3.	WY	NIL	NIL	45	NIL	NIL	NIL
4.	SP	125	NIL	40	-	NIL	NIL
5.	LG	NIL	NIL	-	-	-	12
6.	MV	50	NIL	45	-	NIL	NIL
7.	NP	60	NIL	45	NIL	NIL	NIL
8.	RG	55	NIL	25	NIL	NIL	NIL
9.	BP	-	NIL	35	NIL	NIL	NIL

Table - VII : Bicarbonates [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	370	189	135	320	260	214
2.	LP	105	183	215	240	250	-
3.	WY	225	195	125	210	235	226
4.	SP	360	171	190	235	230	226
5.	LG	365	183	-	-	-	201
6.	MV	190	159	140	-	260	238
7.	NP	195	195	130	-	265	232
8.	RG	200	220	175	230	240	232
9.	BP	-	140	180	220	250	232

Table - VIII : Free Carbondioxide [mg/lit.] recorded during the study period

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	NIL	30	NIL	42	46	40
2.	LP	NIL	28	21	NIL	76	-
3.	WY	28	28	NIL	29	46	42
4.	SP	NIL	26	NIL	25	42	44
5.	LG	30	32	-	-	-	NIL
6.	MV	NIL	28	NIL	-	55	42
7.	NP	NIL	26	NIL	-	42	40
8.	RG	NIL	24	NIL	33	55	42
9.	BP	NIL	30	NIL	21	50	48

Table - IX : Chloride [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	55	73	63	93	58	44
2.	LP	43	65	65	50	63	-
3.	WY	50	53	63	27	88	43
4.	SP	43	43	65	55	73	46
5.	LG	40	43	-	-	-	48
6.	MV	51	48	48	-	98	44
7.	NP	50	43	38	-	95	44
8.	RG	45	43	110	43	83	43
9.	BP	-	48	40	38	65	44

Table - X : Total Hardness [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	100	160	135	150	140	135
2.	LP	150	200	150	140	145	-
3.	WY	255	215	175	170	150	140
4.	SP	170	155	125	190	245	140
5.	LG	260	200	-	-	-	140
6.	MV	210	140	105	-	155	150
7.	NP	200	165	95	-	145	145
8.	RG	200	185	125	160	165	145
9.	BP	-	160	135	125	150	145

Table - XI : Calcium [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	27	50	37	21	29	28
2.	LP	29	40	23	21	22	-
3.	WY	21	63	25	22	32	28
4.	SP	27	50	25	28	29	30
5.	LG	88	74	-	-	-	26
6.	MV	39	48	21	-	37	32
7.	NP	42	55	27	-	39	30
8.	RG	40	50	25	31	42	28
9.	BP	-	50	34	28	37	30

Table - XII : Magnesium [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	22	10	13	23	17	16
2.	LP	19	26	23	21	22	-
3.	WY	50	16	28	12	17	17
4.	SP	26	15	16	29	18	16
5.	LG	12	6	-	-	-	18
6.	MV	29	6	13	-	16	17
7.	NP	24	15	7	-	12	17
8.	RG	26	16	16	21	16	18
9.	BP	-	10	13	12	14	17

Table - XIII : Phosphates [mg/lit] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	-	0.04	0.28	0.2	0.05	0.03
2.	LP	-	0.05	0.04	0.13	0.04	-
3.	WY	-	0.04	0.12	0.10	0.03	0.01
4.	SP	-	0.05	0.07	0.10	0.04	0.03
5.	LG	-	0.05	-	-	-	0.02
6.	MV	-	0.05	0.13	-	0.05	0.02
7.	NP	-	0.06	0.09	-	0.04	0.02
8.	RG	-	0.06	0.04	0.11	0.04	0.02
9.	BP	-	0.05	0.04	0.11	0.05	0.02

Table - XIV : Nitrates [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	-	3.7	6.8	10.0	2.0	2.0
2.	LP	-	3.7	4.5	8.0	3.0	-
3.	WY	-	6.2	4.32	1.9	2.0	1.0
4.	SP	-	3.0	3.15	2.0	3.0	3.0
5.	LG	-	6.0	-	-	-	2.0
6.	MV	-	6.0	4.0	-	3.0	2.0
7.	NP	-	8.0	5.0	-	2.0	2.0
8.	RG	-	4.0	5.0	2.0	2.0	2.0
9.	BP	-	3.0	3.0	2.0	2.0	2.0

Table - XV : Silicates [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	-	6.0	5.7	28.0	9.0	9
2.	LP	-	8.2	3.3	22.0	11.0	-
3.	WY	-	8.0	5.2	14.0	9.0	8
4.	SP	-	7.0	5.0	16.0	10.0	8
5.	LG	-	10.0	-	-	-	9
6.	MV	-	13.0	5.0	-	10.0	9
7.	NP	-	10.0	4.0	-	12.0	8
8.	RG	-	11.0	3.0	15.0	11.0	9
9.	BP	-	8.0	6.0	14.0	12.0	8

Table – XVI : Sulphates [mg/lit.] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	-	37	97	53	43	34
2.	LP	-	36	28	16	46	-
3.	WY	-	38	19	34	43	29
4.	SP	-	34	25	42	36	31
5.	LG	-	46	-	-	-	40
6.	MV	-	46	30	-	44	33
7.	NP	-	48	13	-	38	29
8.	RG	-	48	18	90	40	31
9.	BP	-	37	23	37	45	30

Table - XVII : Sodium [mg/lit] recorded during the study period.

S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	-	64	73	90	74	66
2.	LP	-	46	64	92	72	-
3.	WY	-	65	30	79	63	65
4.	SP	-	53	38	68	64	68
5.	LG	-	55	-	-	-	75
6.	MV	-	70	30	-	68	68
7.	NP	-	68	40	-	65	67
8.	RG	-	69	42	65	66	65
9.	BP	-	60	40	62	64	67

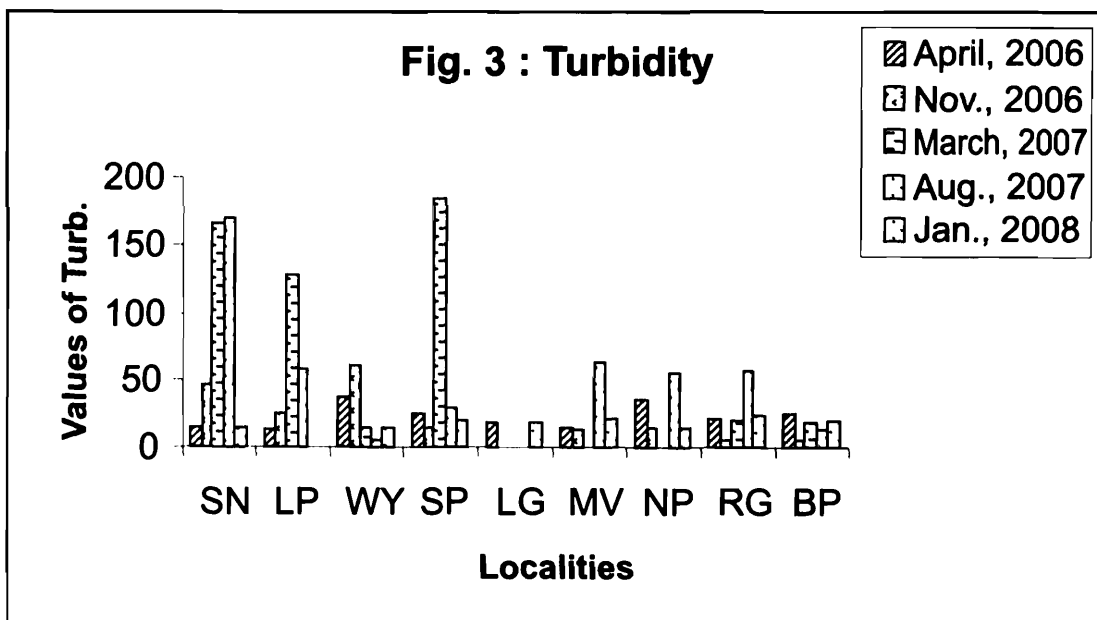
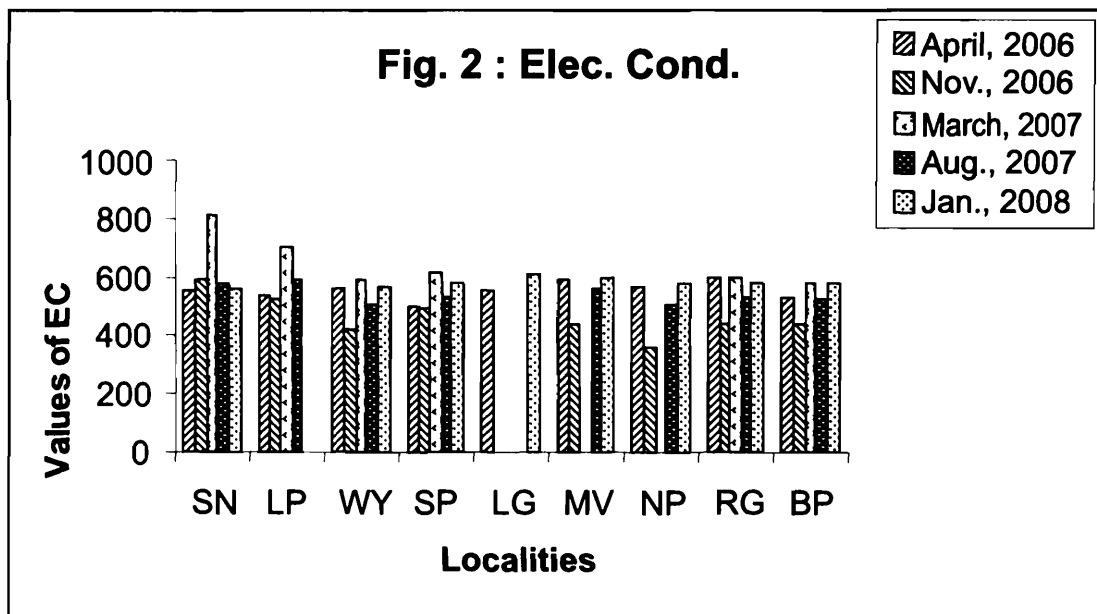
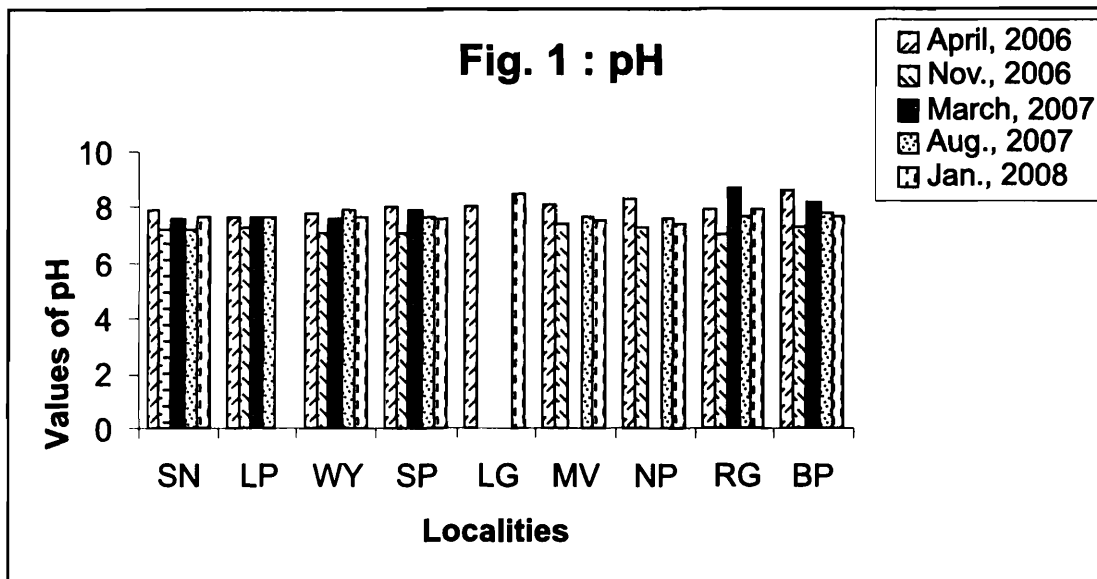
Table - XVIII : Potassium [mg/lit.] recorded during the study period.

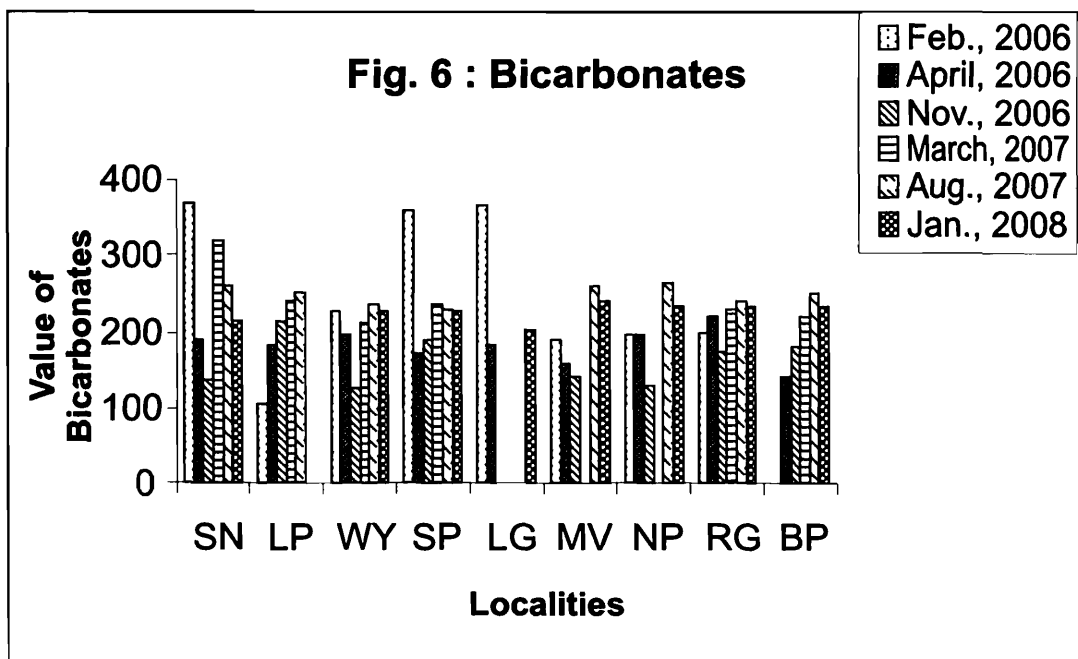
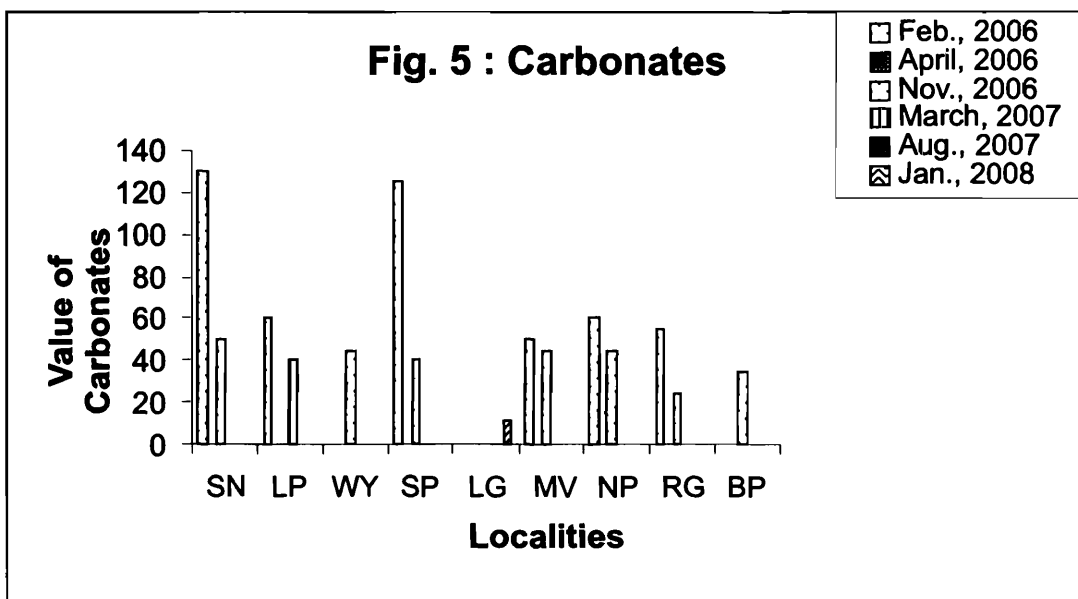
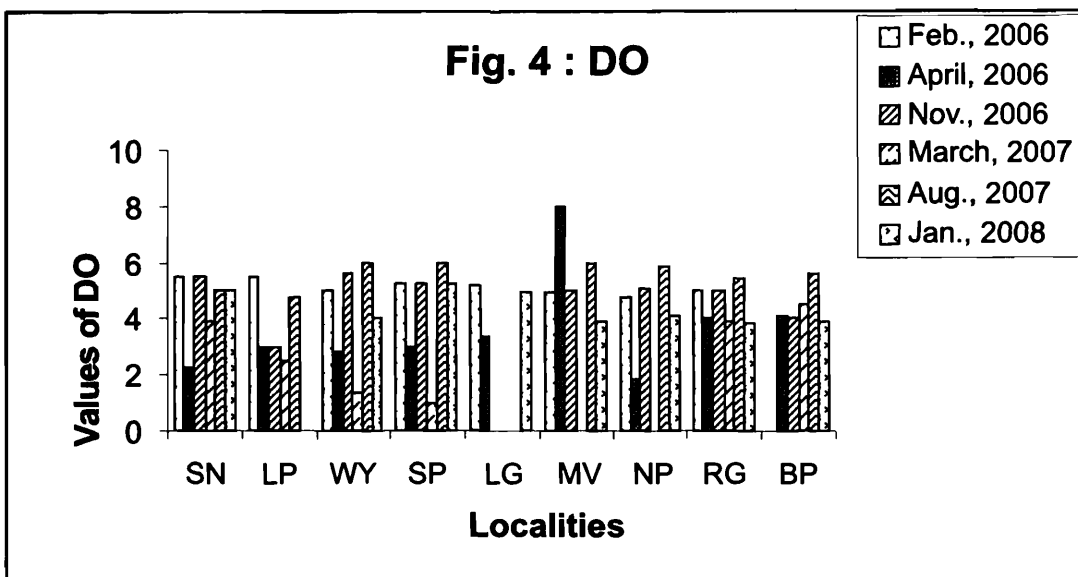
S.No.	Locality	Feb., 2006	April, 2006	Nov., 2006	March, 2007	Aug., 2007	Jan., 2008
1.	SN	-	4.0	3.0	7.0	3.0	3
2.	LP	-	3.0	3.0	5.0	3.0	-
3.	WY	-	4.0	4.0	2.0	3.0	3
4.	SP	-	3.0	2.0	3.0	3.0	3
5.	LG	-	3.0	-	-	-	2
6.	MV	-	4.0	4.0	-	3.0	3
7.	NP	-	4.0	2.0	-	3.0	3
8.	RG	-	4.0	2.0	3.0	3.0	3
9.	BP	-	3.2	2.0	2.0	3.0	3

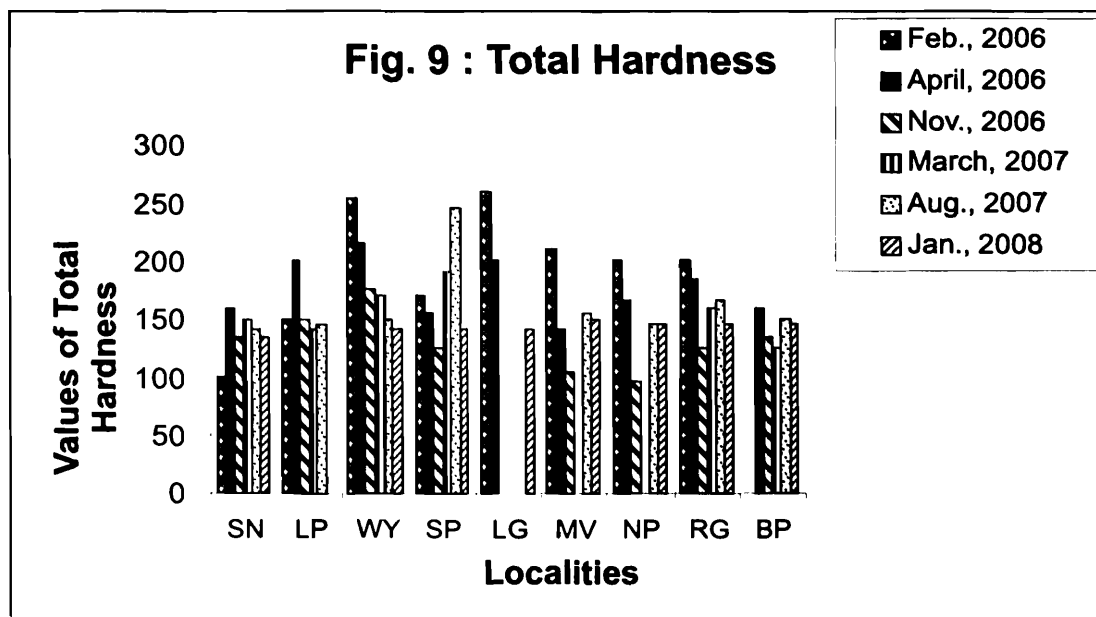
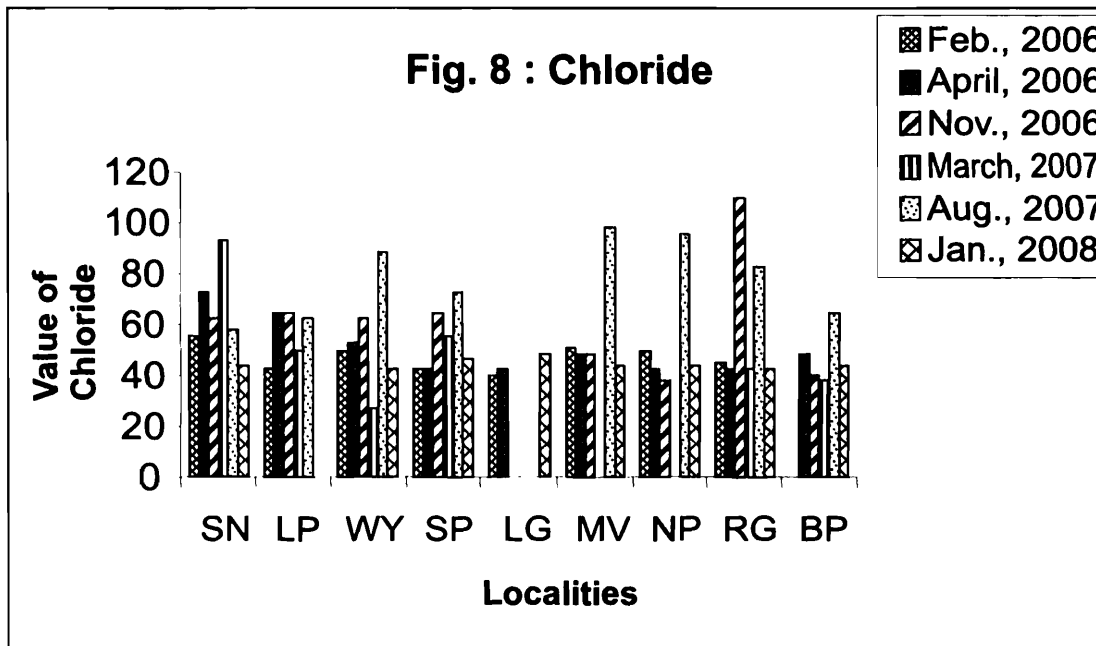
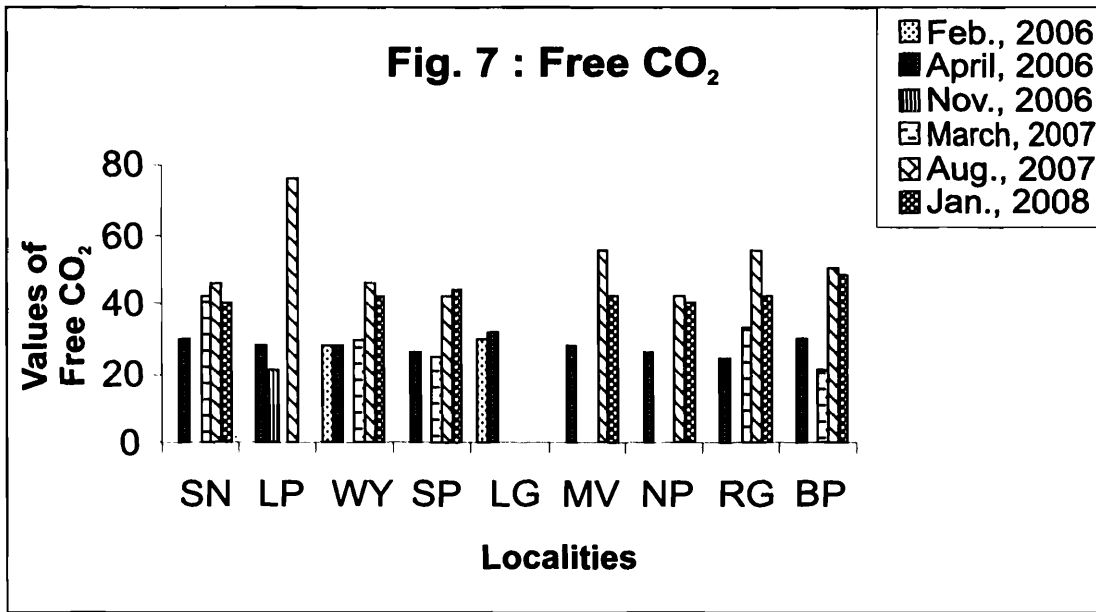
Table XIX : Showing the ranges of physico-chemical parameters on Wyra lake during the study period (with tolerance limits).

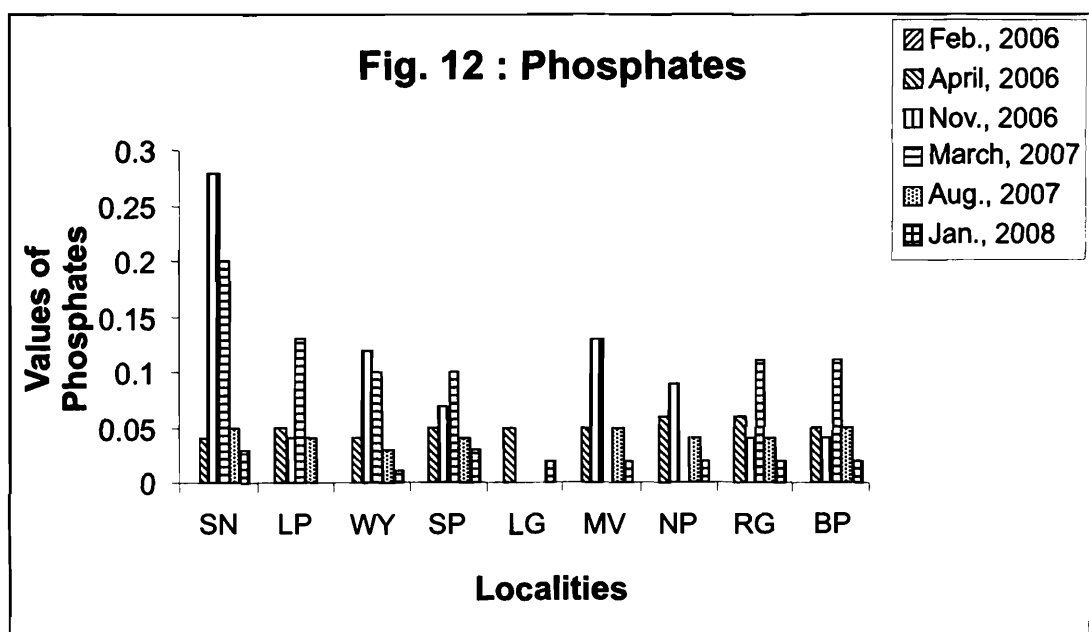
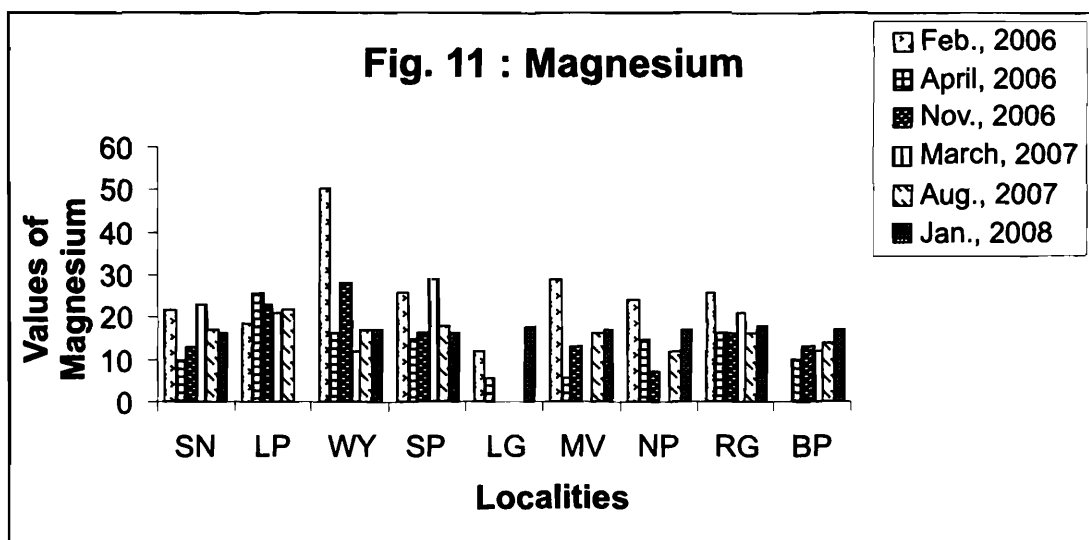
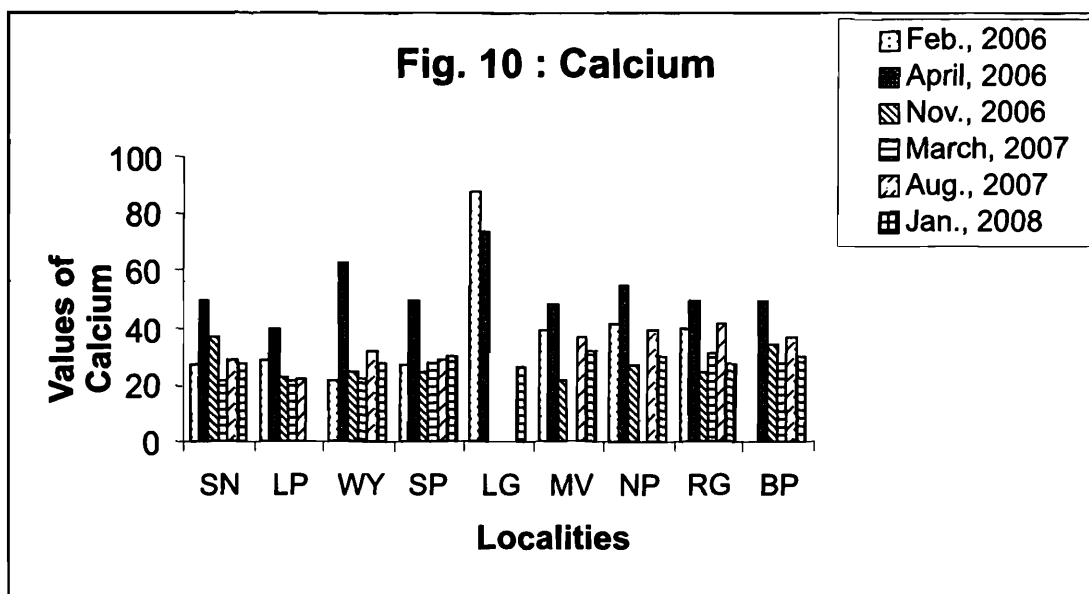
S. No.	Parameter	Range (s) found in Wyra lake waters	Tolerance Limits for Drinking Waters IS : 2296 - 1982	Tolerance Limits for Irrigational waters IS : 2296 - 1982
1	Temp. (Air/Water)	26 - 36 / 26 - 35	-	-
2	pH	7.0 - 8.7	6.5 - 8.5	6.0 - 8.5
3	Elec. Conductivity	360 - 810	-	2250
4	Turbidity	5 - 184	-	-
5	Dissolved Oxygen	1.0 - 8.0	6	-
6	Carbonates	0 - 130	-	-
7	Bicarbonates	105 - 370	-	-
8	Free CO ₂	0 - 76	-	-
9	Chloride	27 - 110	250	600
10	Total Hardness	95 - 260	300	-
11	Calcium	21 - 88	200	-
12	Magnesium	6 - 50	75	-
13	Phosphates	0.01 - 0.13	-	-
14	Nitrates	1.0 - 10.0	20	-
15	Silicates	3 - 28	-	-
16	Sulphates	13 - 97	400	1000
17	Sodium	30 - 92	-	-
18	Potassium	2 - 7	-	-

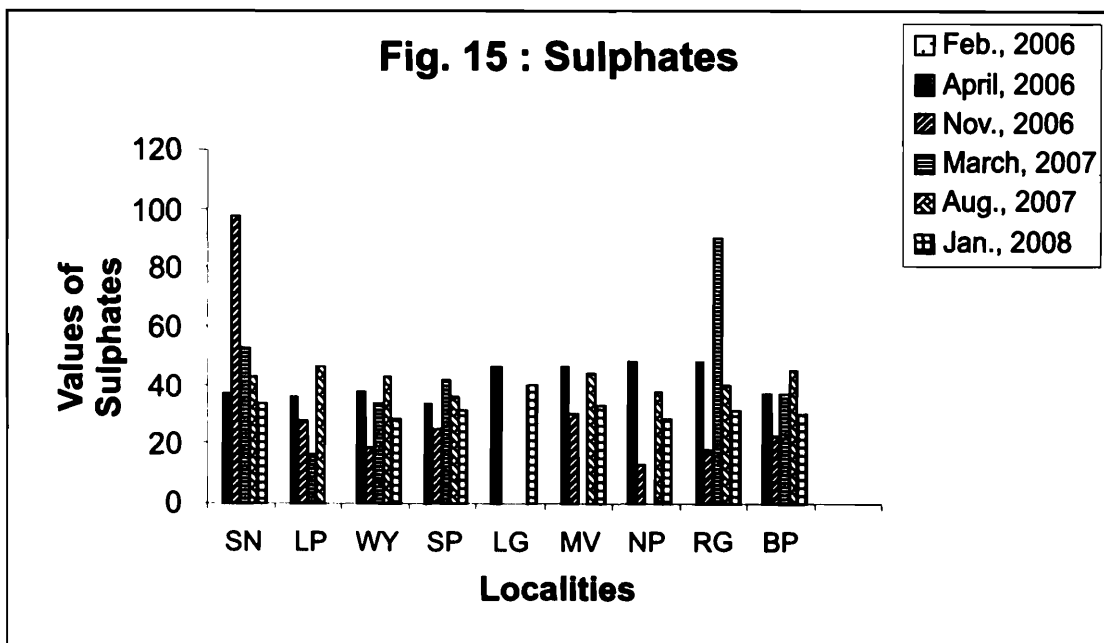
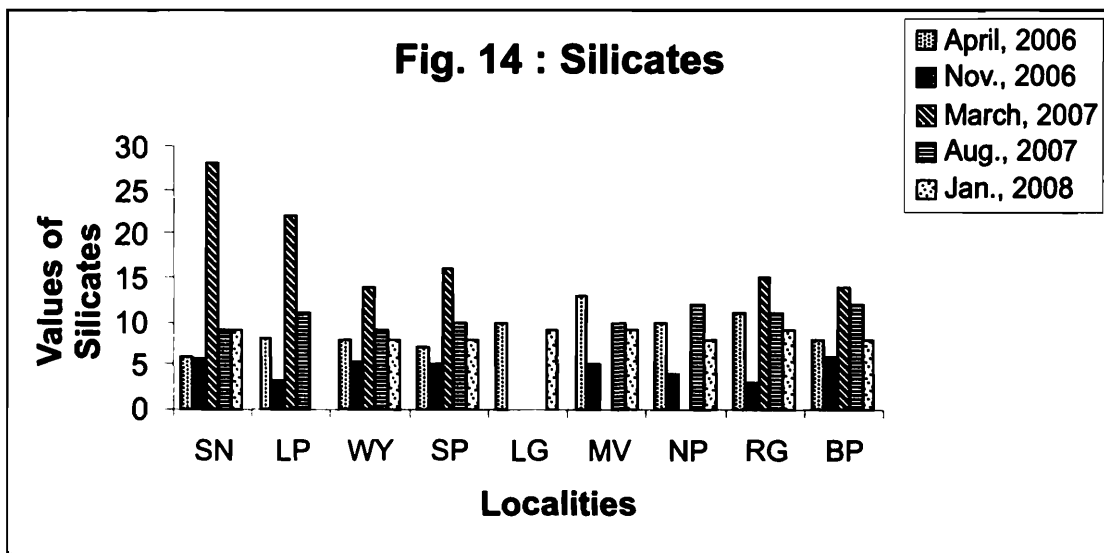
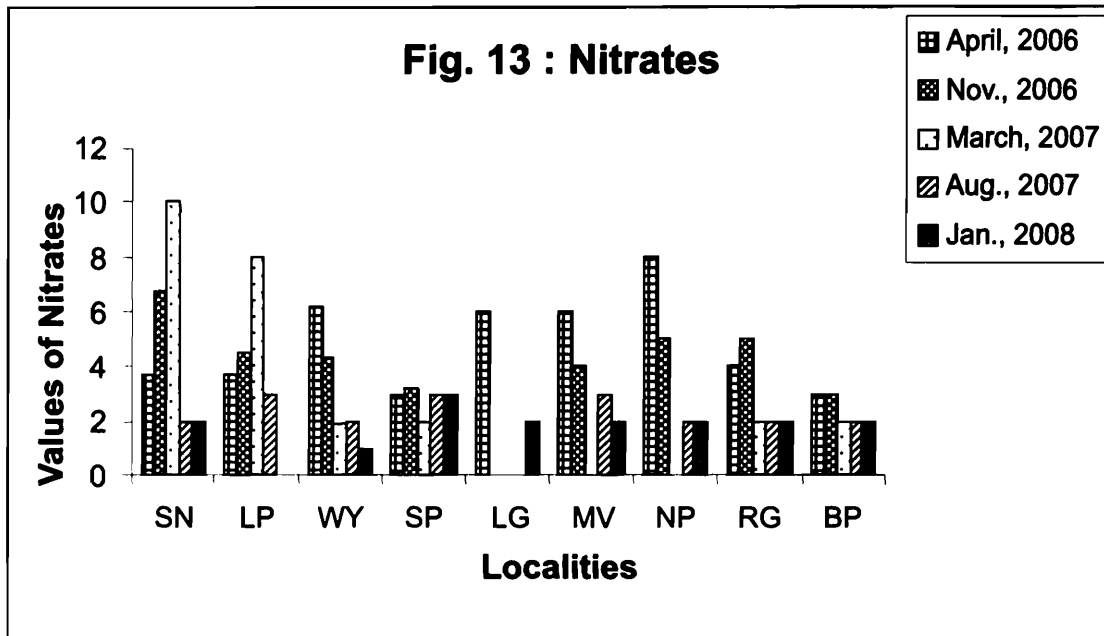
Graphs showing the variations in Physico-Chemical Parameters during the survey period on Wyra lake

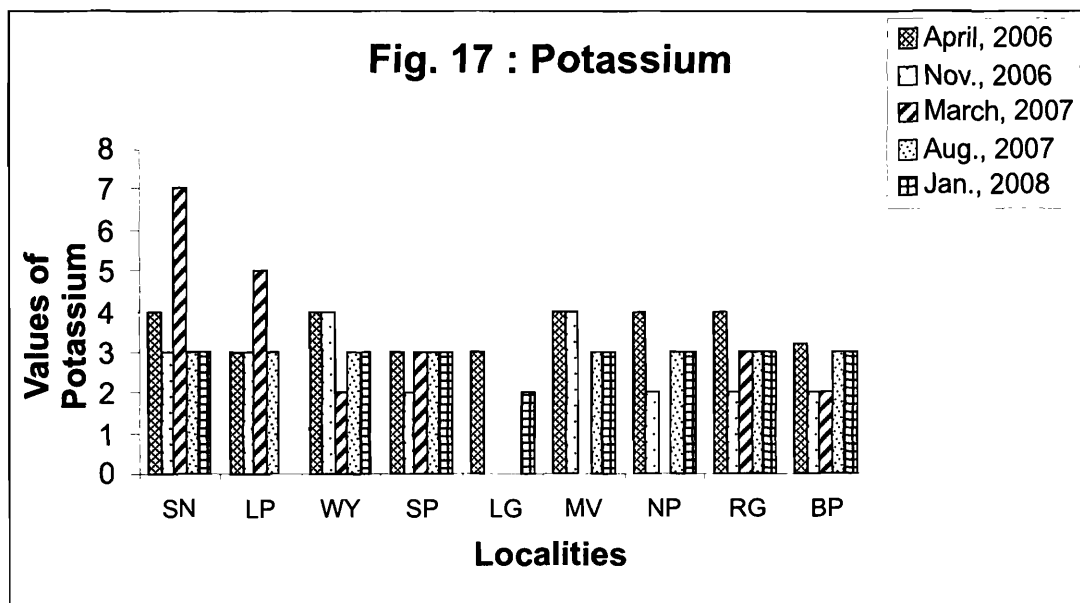
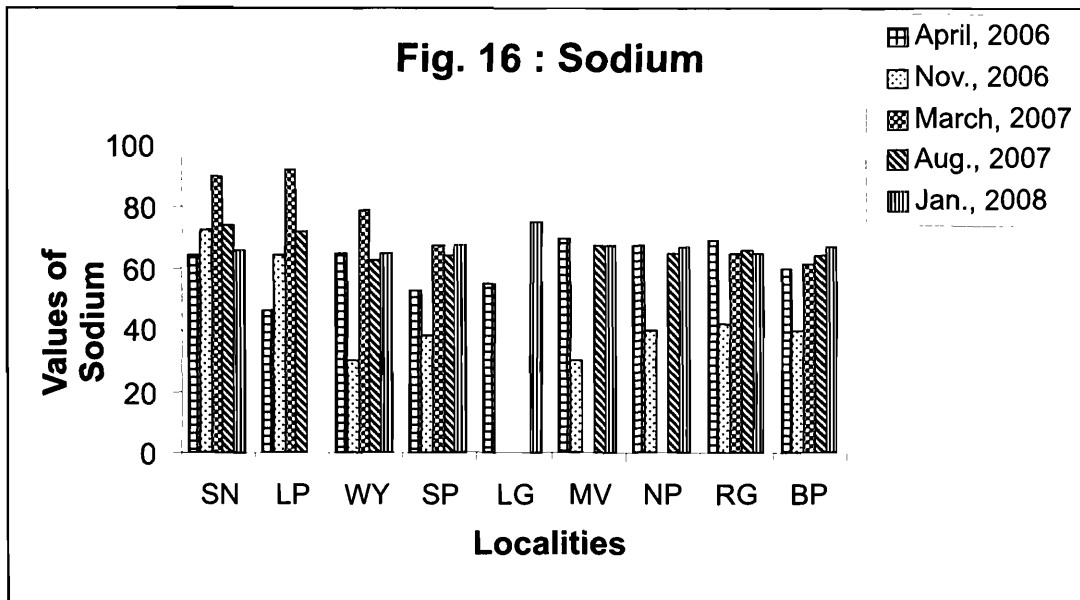




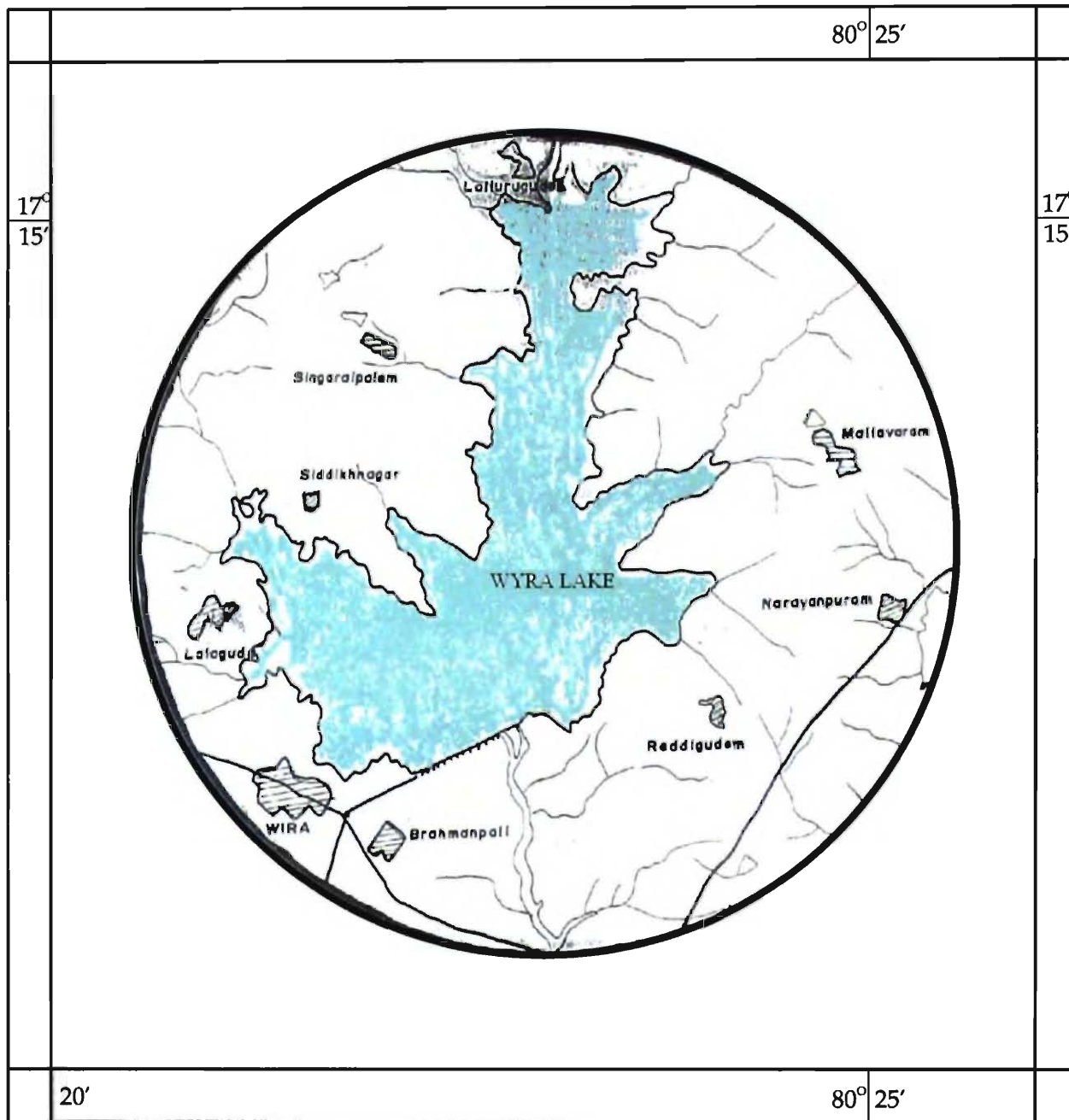








WARALAKE AND ITS ENVIRONS



Collection localities of Wyr



(1)



(2)



(3)



(4)



(5)



(6)



(7)



(8)



(9)



(10)



(11)



(12)

ROTIFERA : WYRA LAKE

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INTRODUCTION

Rotifers (also termed as *wheel animalcules*) are pseudocoelomate microscopic organisms ranging from 40 microns to 2.5 mm in size and constitute an important component of lentic freshwater zooplanktonic communities, form an integral link in aquatic food-chain and contribute significantly to secondary production in freshwater ecosystems. The rotifers are also regarded as valuable indicators of trophic status of their vicinity.

Some of the systematic studies on the rotifer fauna in Andhra Pradesh have been confined to Dhanapathi (2000); Dhanapathi and Rama Sarma, (2000); Chandra Mohan and Rao, 1976; Siddiqi and Chandrasekhar, 1995; Chandrasekhar and Siddiqi, 2005 and Chandrasekhar 2007. Out of the 325 species available in India (Sharma, 1997), 91 have been reported from Andhra Pradesh (Dhanapathi, 2000). With reference to Wyra lake, since no earlier studies available, this will form the first report from this water body.

Wyra lake is medium sized water body with a catchment area of 19.166 sq. kms and water spread area of about 18 sq. kms, located (17° 15'N & 80° 25'E) at about 25 kms from Khammam town, of Khammam district and at about 200 kms from Hyderabad city in its south-western side in Andhra Pradesh. This lake was constructed in the year 1929, on Wyra river, which is the tributary of Krishna river basin, for the irrigational and drinking water usage.

MATERIAL AND METHODS

In order to cover the whole landscape of Wyra lake, the following nine localities of the lake basin surrounding the water body were selected.

Localities and the abbreviations used :

1. Siddikhnagar (SN)
2. Lallapuram (LP)
3. Wyra (WY)
4. Singarayapalem (SP)
5. Lallurugudem (LG)
6. Mallavaram (MV)
7. Narayanapuram (NP)
8. Reddigudem (RG)
9. Brahmanapalli (BP)]

The plankton samples were collected during the course of limnological studies on the lake during 2006-08 in three different seasons of each year (14 - 18th Feb., 2006; 18 - 22nd April, 2006; 1-5th Nov., 2006; 24 - 27th March, 2007; 18 - 22nd August, 2007 and 23 - 27th January, 2008), by towing the plankton net (No. 25) on the littoral zones of different localities of the water body and the collected organisms were preserved in 5% formaldehyde solution. From these plankton collections, the author has studied the rotifer fauna of the lake with the aid of the standard literature on the group.

RESULTS AND DISCUSSION

Detailed studies were carried out on the diverse rotifer faunal assemblage in Wyra lake during the study period and given the occurrence of different species of the group in different localities of the water body in a table. The shallow littoral regions and also nearby limnetic zones play a host to a wide variety of the zooplankton community *viz.*, Rotifera. In Wyra lake, 23 species belonging to 11 genera spread over 8 families in 3 orders of rotifers were observed and the systematic account of the group is as detailed below.

Phylum : ROTIFERA
Superorder : MONOGONONTA
Order : PLOIMIDA
Family : BRACHIONIDAE

1. *Brachionus calyciflorus* var. *dorcas* (Gosse, 1851)

1851. *Brachionus calyciflorus* var. *dorcas* Gosse. *Ann. Mag. Nat. Hist. Soc.*, 2, 8 : 197-203.

2000. *Brachionus calyciflorus* var. *dorcas* Gosse. 1851. Dhanapathi. *Rotifer Taxonomy IAAB*, Hyderabad.

Material examined : 4 exs. BP, 26-3-2007 and 22-8-2007; SN, 24-1-2008;

Distribution : Andhra Pradesh, Orissa, Madhya Pradesh, Punjab, West Bengal.

2. *B. calyciflorus* var. *hymani* Dhanapathi, 1974

1974. *Brachionus calyciflorus* var. *hymani* Dhanapathi, *Hydrobiologia* : 40.

2000. *Brachionus calyciflorus* var. *hymani* Dhanapathi. *Rotifer Taxonomy. IAAB* : 40.

Material examined : 15 exs; WY 19-4-2006 and 22-8-2007; BP, 22-4-2006, 27-1-2008 and 26-3-2007; RG, 21-8-2007; MV 20-8-2007; SP 20-4-2006; SN, 20-4-2006 and 24-1-2008; NP 26-1-2008; LP, 25-3-2007.

Distribution : Andhra Pradesh.

3. *B. caudatus* Barrois & Daday, 1894

1894. *Brachionus caudatus* Barrois & Daday 232. p.VII. figs, 9, 10, 13.

2000. *Brachionus caudatus* Barrois & Daday. Dhanapathi. *Rotifer Taxonomy IAAB*, Hyderabad.

Material examined : 4 exs.; MV, 21-4-2006 and 26-1-2008; NP, 21-4-2006 and 25-1-2008; SN, 20-4-2006; SP, 20-4-2006.

Distribution : Andhra Pradesh, Maharashtra, Rajasthan, West Bengal, Cosmopolitan.

4. *B. diversicornis* Daday, 1883

1883 *Schizocerca diversicornis* Daday. *Math. Termesz Ertesita Budapest*. 1 : 291.

1998. *Brachionus divesicornis* (Daday) *Fauna of West Bengal, State Fauna Series*, 3 (Part-II) : 359.

Material examined : 8 exs.; LG, 20-4-2006; SP 20-4-2006 and 24-1-2008; RG, 21-8-2007; NP, 26-1-2008.

Distribution : Andhra Pradesh, Assam, Orissa, Punjab, Rajasthan, West Bengal.

5. *B. falcatus* Zacharias, 1898

1898. *Brachionus falcatus* Zacharias. *Forschunster. Biol. Stn. Zu. Plan.*, 6 : 89-139.

1998. *Brachionus falcatus* Zacharias. *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 361.

Material examined : 10 exs.; LG, 16-2-2006; LG, 16-2-2006; RG, 21-8-2007; BP, 22-4-2006, 26-3-2007 and 22-8-2007.

Distribution : Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Kerala, Madhya Pradesh, Orissa, Punjab, Rajasthan, West Bengal.

6. *B. forficula forficula* Wierzejski, 1891

1891. *Brachionus forficula* Wierzejski. *Bull. Soc. Zool. France*, 16 : 51.

1998. *Brachionus forficula forficula* Wierzejski. *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 361-362.

Material examined : 6 exs; LP, 25-2-2006 and 25-3-2007; BP, 26-3-2007; MV, 22-4-2006, 20-8-2007 and 26-1-2008; BP, 27-1-2008; NP, 25-1-2008..

Distribution : Andhra Pradesh, Gujarat, Orissa, West Bengal.

7. *B. patulus* O.F. Muller, 1786

1786. *Brachionus plicatilis* O.F. Muller, *Havinae* : ILVI; 344.

1998. *Brachionus plicatilis* O.F. Muller. *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 363.

Material examined : 2 exs.; LG, 16-2-2006 and 25-1-2008.

Distribution : Assam, Ladak, Orissa, Punjab, Rajasthan, West Bengal. Elsewhere 1999. cosmopolitan.

8. *B. quadridentatus quadridentatus* Herman, 1783

1783. *Brachionus quadridentatus* Hermann, p. 47. pl. II. fig.9; Ahlstrom, 1940, p. 165, pl. 10, fig. 9.

2000. *Brachionus quadridentatus quadridentatus* *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 364.

Material examined : 3 exs.; LG, 16-2-2006; LP 15-2-2006

Distribution : Andhra Pradesh, Assam, Orissa, Madhya Pradesh, Kerala, Rajasthan, Punjab, West Bengal and Kashmir. Elsewhere - cosmopolitan.

9. *Keratella tropica* (Apstein, 1907)

1907. *Anurea Volga f. tropica* Apstein, *Zool. Jb. Abst. Syst*, 25 : 210.

1998. *Keratella tropica* (Apstein) *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 369-370.

Material examined : 15 exs. ; LG, 16-2-2006 AND 25-1-2008; LP, 15-2-2006; BP 26-3-2007; RG, 22-4-2006 and 21-8-2007; SN 20-4-2006; NP, 26-1-2008.

Distribution : Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Kashmir, Kerala, Ladak, Madhya Pradesh, Orissa, Punjab, Rajasthan and West Bengal.

Family : MYTILINIDAE

10. *Mytilina ventralis* (Ehrenberg, 1832)

1832. *Salpina ventralis* Ehrenberg, p. 133, pl. 4. fig.7.

2001. *Mytilina ventralis* Ehrenberg, *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 377.

Material examined : 15 exs.; MV, 17-2-2006 and 26-1-2008; SP, 18-2-2006; SN, 16-2-2006;

Distribution : Andhra Pradesh, Assam, Bihar, Orissa, Madhya Pradesh, Gujarat, Kerala, Punjab, Kashmir, Ladakh, Rajasthan and West Bengal. Elsewhere - Cosmopolitan.

Family : TRICHOTRIDAE

11. *Macrochaetus sericus* (Thorpe, 1893)

1892. *Dinoharis sericus* Thorpe. P. 132. fig. 4

2002. *Macrochaetus sericus* Thorpe, *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 380.

Material examined : 2 ex.; MV 17-2-2006; NP 26-1-2008

Distribution : Andhra Pradesh, Madhya Pradesh, Maharashtra, West Bengal. Elsewhere-tropics and subtropics.

Family : COLURELLIDAE

12. *Lepadella ovalis* (O.F. Muller 1786)

1786. *Brachionus ovalis* Muller, p. 345, pl. 41, figs 1-3.

2003. *Lepadella ovalis* (Muller) *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 385

Material examined : 3 exs. LP, 15-2-2006; SP 20-4-2006.

Distribution : North-Eastern India, Orissa, Punjab, Ladakh, Kashmir and West Bengal. Elsewhere-Cosmopolitan.

Family : LECANIDAE

13. *Lecane (Lecane) curvicornis* (Murray, 1913)

1913 *Cuthypna curvicornis* Murray, p. 346, pl. XIV, fig. 22

1998 *Lecane (Lecane) curvicornis* (Murray) *Fauna of West Bengal, State fauna Series, 3 (Part-II)* : 397

Material examined : 4 exs.; LG, 16-2-2006; MV, 20-8-2007; LP, 19-4-2006.

Distribution : Andhra Pradesh, Madhya Pradesh, West Bengal. Elsewhere-tropics and subtropics.

14. *L(L) luna* (O.F. Muller, 1776)

1776 *Cercaria luna* Muller p. 280/1998 *Lecane (L) luna* *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 402 *Material examined* : 2 exs.; MV, 17-2-2006 and 26-1-2008; NP, 25-1-2008.

Distribution : Andhra Pradesh, all states in North-eastern India, Orissa, Gujarat, Rajasthan, Punjab, Kashmir and Ladakh. Elsewhere-cosmopolitan.

15. *Lecane (Monostyla) bulla* (Gosse, 1851)

1851. *Monostyla bulla* Gosse, p. 200.

2004. *Lecane (Monostyla) bulla* Gosse *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 412.

Material examined : 5 exs.; MV, 15-2-2006; NP, 25-1-2008; LG, 25-1-2008; WY, 19-4-2006.

Distribution : North-Eastern India, Andhra Pradesh, Orissa, Tamil Nadu, Rajasthan, Gujarat, Punjab, Kashmir and West Bengal. Elsewhere-cosmopolitan.

16. *L. (M) clostocerca* (Schmarda, 1859)

1859. *Monostyla clostocerca* Schmarda. *Veue Wibbellose Tier, beobachtet Und gasammelt and biner Reiesum die erde*. 1853-1857. Leipzig., 1 : I- XVIII. 59.

1998. *Lecane (Monostyla) clostocerca* (Schmarda). *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 412.

Material examined : 5 exs. LG, 16-2-2006 and 25-1-2008; MV 17-2-2006 and 20-8-2007; LG, 20-4-2006; RG, 26-1-2008.

Distribution : Andhra Pradesh, Assam, Gujarat, Kashmir, Ladakh, Rajasthan, Tamil Nadu and West Bengal.

17. *L. (M.) obtuse* (Murray, 1913)

1913. *Monostyla btuse* Murray South American Rotifera. *J. Roy. Micr. Soc.* p. 357, pl. 37

2005. *Lecane (Monostyla) bulla* Gosse *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 415.

Material examined : 2 exs.; MV 21-4-2006.

Distribution : Andhra Pradesh and West Bengal. Elsewhere-Cosmopolitan

18. *L. (M) tethis* (Harring and Myer, 1926)

1926. *Lecane (Monostyla) tethis* Harring & Myer. The rotifer fauna of Wisconsin III. A revision of the general *Lecane* and *Monostyla* *Trans. Wis. Acad. Sci. Arts*, 20 : 553-662.

2000. *Lecane (Monostyla) tethis* Harring and Myer *Taxonomic notes of The Rotifers from India from 1889-2000*. Indian Assn. of Aquatic Biologists. 72.

Material examined : 2 exs.; LP 15-2-2006; SN 16-2-2006 and 24-1-2008.

Distribution : Andhra Pradesh

Family : NOTAMMATIDAE

19. *Cephalodella forficula* (Ehrenberg, 1832)

1832. *Distemma forficula* Ehrenberg. *Über die Entwicklung and Lebensdauer der Infusionthiere, nebst ferneren Beitrágen zur einer. Vergleichung threr organischen Systema. Abhandl. Akad. Wiss. Berlin* P. 139.

1998. *Cephalodella forficula* Ehrenberg *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 421.

Material examined : 2 exs. WY 19-4-2006; BP 27-1-2008; LG, 25-1-2008.

Distribution : Andhra Pradesh and West Bengal.

20. *Scaridium longicaudum* (O.F. Muller, 1786)

2006. *Trichoda longicaudum* Muller *Animacula infusoria fluviatilia et marina, quae defexit systematicae descripsit et ad vivum delineari curavit. Havniae. P 216 taf 31, figs 8-10.*

1998. *Cephalodella forficula* Ehrenberg *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 423.

Material examined : 2 exs. ; MV, 17-2-2006.

Distribution : Andhra Pradesh Gujarat, Punjab and West Bengal.

Order : GNESIOTROCHA
Family : FILINIDAE

21 *Filinia pejleri* Hutchinson, 1964

1964. *Filinia pejleri* Hutchinson, G.E. On *Filinia terminalis* and *Filinia pejleri* n. sp. (Rotatoria : Testudinellidae). *Postilla*, 81 : P. 1-8. Fig-1.

2007. *Filinia pejleri* Hutchinson *Fauna of West Bengal, State Fauna Series, 3 (Part-II) : 442.*

Material examined : 6 exs. ; RG, 22-4-2006 and 21-8-2007; MV 20-8-2007; BP 22-4-2006; SN, 24-1-2008.

Distribution : Andhra Pradesh, Assam, Tamil Nadu, Rajsthan, Punjab and West Bengal. Elsewhere - tropics and subtropics.

Table : showing the occurrence of Rotatorian fauna in different localities of Wyra lake

S. No.	Species	Localities								
		SN	LP	WY	SP	LG	MV	NP	RG	BP
1.	<i>Brachionus calyciflorus</i> var. <i>dorcas</i>	-		-	-	-	-	-	-	+
2.	<i>B. calyciflorus</i> var. <i>hymani</i>	+	+	+	+	-	+	-	+	+
3.	<i>B. caudatus</i>	+					+	+		
4.	<i>B. diversicornis</i>	+	-	-	+	+	-	-	+	-
5.	<i>B. falcatus</i>	-	-	-	-	+	-	-	+	+
6.	<i>B. forficula forficula</i>	-	+	-	-	-	+	+	-	+
7.	<i>B. patulus</i>	-	-	-	-	+	-	-	-	-
8.	<i>B. quadridentatus quadridentatus</i>	-	+	-	-	+	-	-	-	-
9.	<i>Keratella tropica</i>	+	+	-	-	+	+	-	+	+
10.	<i>Mytilina ventralis</i>	+	-	-	+	-	+	-	-	-
11.	<i>Macrochaetus sericus</i>	-	-	-	-	-	+	+	-	-
12.	<i>Lepadella ovalis</i>	-	+	-	+	-	-	-	-	-
13.	<i>Lecane (Lecane) curvicornis</i>	-	-	+	-	+	+	-	-	-
14.	<i>Lecane (L) luna</i>	-	-	-	-	-	+	+	-	-
15.	<i>Lecane (Monostyla) bulla</i>	-	+	+	-	+	-	+	-	-
16.	<i>L (M) clostocerca</i>	-	-	-	-	+	+	-	-	-
17.	<i>L. (M.) obtuse</i>	-	-	-	-	-	+	-	-	-
18.	<i>L. (M) tethis</i>	+	+	-	-	-	-	-	-	-
19.	<i>Cephalodella forficula</i>	-	-	+	-	+	-	-	-	+
20.	<i>Scaridium longicaudum</i>	-	-	-	-	-	+	-	-	-
21.	<i>Filinia pejleri</i>	-	-	-	-	-	+	-	+	+
22.	<i>Testudinella patina</i>	+	-	-	-	+	-	-	-	-
23.	<i>T. mucronata</i>	+	+	-	+	+	+	-	-	-

Family : TESTUDINELLIDAE

22 *Testudinella patina* (Hermann, 1783)

1783. *Brachionus patina*, Hermann, Helmentholigische Bermerkungen. Zweytes Stuck . *Naturforcher Halle* p 48, Taf. 2, Fig. 10.

1998. *Testudinella patina* Hermann. *Fauna of West Bengal, State Fauna Series, 3 (Part-II)* : 439.

Material examined : 2 exs. ; LG, 16-2-2006; SN, 24-1-2008.

Distribution : Andhra Pradesh, Assam, Orissa, Gujarat, Kashmir, and West Bengal. Elsewhere –Cosmopolitan.

23. *T. mucronata* (Gosse, 1887)

1887 *Testudinella mucronata* Gosse. Twenty four new species of Rotifera. *J. Roy. Micro. Soc.*, : 1-7

2000. *Testudinella mucronata* Gosse *Taxonomic notes of The Rotifers from India from 1889-2000*. Indian Assn. of Aquatic Biologists, 92.

Material examined : 5 exs. ; LG, 16-2-2006; LP, 15-2-2006; SN, 16-2-2006; MV, 20-8-2007; SP, 24-1-2008.

Distribution : Kashmir and Andhra Pradesh.

SUMMARY

In the present study on Wyra lake that is situated in Khammam District of Andhra Pradesh, 23 species belonging to 11 genera spread over 8 families in 3 orders of rotifers were observed. This study is the only investigation on this Group on Wyra lake.

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CLADOCERA : WYRA LAKE

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INTRODUCTION

Some of the notable investigations on the cladoceran fauna of Andhra Pradesh can be attributed to Durga Prasad (1982) on Kolleru lake, Chandrasekhar (2002) on the lakes of Hyderabad, Chandrasekhar and Siddiqi (2005) on Kondakarla lake, Rao *et. al.* (1998) on two freshwater bodies of North Andhra.

Wyra lake is medium sized water body with a catchment area of 19.166 sq. kms and water spread area of about 18 sq. kms, located (17° 15'N & 80° 25'E) at about 25 kms from Khammam town, of Khammam district and at about 200 kms from Hyderabad city in its south-western side in Andhra Pradesh. This lake was constructed in the year 1929, on Wyra river, which is the tributary of Krishna river basin, for the irrigational and drinking water usage.

MATERIAL AND METHODS

In order to cover the whole landscape of Wyra lake, the following nine localities of the lake basin surrounding the water body were selected.

Localities and the abbreviations used :

1. Siddikhnagar (SN)
2. Lallapuram (LP)
3. Wyra (WY)
4. Singarayapalem (SP)
5. Lallurugudem (LG)
6. Mallavaram (MV)
7. Narayanapuram (NP)
8. Reddigudem (RG)
9. Brahmanapalli (BP)]

The plankton samples were collected during the course of limnological studies on the lake during 2006-08 in three different seasons of each year (14 - 18th Feb., 2006; 18 - 22nd April, 2006; 1-5th Nov., 2006; 24 - 27th March, 2007; 18 - 22nd August, 2007 and 23 - 27th January, 2008), by towing the plankton net (No. 25) on the littoral zones of different localities of the water body and the collected organisms were preserved in 5% formaldehyde solution. From these plankton collections, the author has studied the cladoceran fauna of the lake with the aid of the standard literature on the group.

RESULTS AND DISCUSSION

The studies on the diverse cladoceran assemblage in Wyra lake in detail were carried out during 2006-2008 and the occurrence of different species of the group in different localities of the water body are given in a table. The shallow littoral regions and also nearby limnetic zones play a host to a wide variety of the zooplankton community *viz.*, Cladocera. In Wyra lake, 16 species belonging to 9 genera spread over 4 families of Cladocera were noticed. The systematic account of the group is given hereunder.

Class : CRUSTACEA
Sub-Class : BRANCHIOPODA
Order : CLADOCERA
Family : SIDIDAE

1. *Diaphanosoma sarsi* Richard, 1894

1894. *Diaphanosoma sarsi* Richard, *Revue Biol. Nord. France*, 6 : 365.

1988. *Diaphanosoma sarsi* Richard. *Fauna of India, Indian Cladocera* : 44-46.

Material examined : 5 exs; SN, 16.2.2006; BP, 26.3.2007 & 22.8.2007.

Distribution : Andhra Pradaesh, Bihar, Meghalaya, Tamil Nadu, Uttar Pradesh, West Bengal.

Family : DAPHNIIDAE

2. *Ceriodaphnia cornuta* Sars. 1885

1885. *Ceriodaphnia cornuta* Sars, *Norske. Vidensk. Selsk. Forhaundl. Christiania*, 8 : 26-28.

1988. *Ceriodaphnia cornuta* sars, *Fauna of India, Indian Cladocera* : 51-53.

Material examined : 15 exs; LG, 16.2.2006; BP, 26.2.2007, 22.8.2007, 27.1.2008; RG, 21.8.2007, 26.1.2008; WY, 16.4.2006 & 22.8.2007; NP 25.1.2008; SN 24.1.2008.

Distribution : Andhra Pradesh Bihar, Haryana, Karnataka, Kerala, Madhya Pradesh, Meghalaya, Punjab, Rajasthan, Tamil Nadu

3. *Scapheloberis kingi* Sars, 1903

1903 *Scapheloberis kingi* Sars. *Arch. Math. Nat.*, 25 : 1-44. 1988.

Scapheloberis kingi sars, *Fauna of India, Indian Cladocera* : 72-73.

Material examined : 6 exs; LP, 15.2.2006, SP, 18.2.2006; LG, 25.1.2008.

Distribution : Assam, Kashmir, Meghalaya, Rajasthan Tamil Nadu and West Bengal.

Family : MACROTHRICIDAE

4. *Macrothrix spinosa* king, 1853

1853 *Macrothrix spinosa* king *Pap. Proc. R. Soc. Van Diemens Land*, 2 : 256.

1988. *Macrothrix spinosa* King, *Fauna of India, Indian Cladocera* : 102-104.

Material examined : 10 exs; LG, 16.2.2006; SN, 16.2.2006, 24.1.2008; NP, 21.4.2006, 25.1.2008; MV, 21.4.2006 & 26.1.2008; RG 25.1.2006.

Distribution : Rajasthan, Tamil Nadu.

5. *Macrothrix laticornis* (Jurine, 1820)

1820. *Monoculus laticornis* Jurine *Historie des Mobocles, qui se trouvent aux environs de Geneve, Paris*. P. 151.

1988. *Macrothrix laticornis* Jurine, *Fauna of India, Indian Cladocera* : 106

Material examined : 5 exs; SN, 16.2.2006; SP, 20.4.2006; LG, 16.2.2006; RG, 22.4.2006.

Distribution : Ladakh Kerala, Tamil Nadu.

6. *Echinisca triserialis* (Brady, 1886)

1886 *Macrothrix triserialis* Brady J. Linn. Soc. Zool., 19 :295.

1988 *Echinisca triserialis*. Brady *Fauna of India, Indian Cladocera* : 109-110.

Material examined : 4 exs; SN, 16.2.2006; SP, 18.2.2006; LG, 25.1.2008.

Distribution : Andhra Pradesh, Kerala, Rajasthan and West Bengal.

7. *Ilyocryptus spinifer* Herrick, 1882

1882. *Ilyocryptus spinifer* Herrick 10th Annual Rep. Geol. And Nat. Hist. Survey Minn., : 246.

1988. *Ilyocryptus spinifer* Herrick *Fauna of India, Indian Cladocera* : 115-117.

Material examined : 5 exs; SP, 18.2.2006; NP, 21.8.2007; SN 24.1.2008; WY, 19.4.2006.

Distribution : Andhra Pradesh, Kerala, Rajasthan, Meghalaya, West Bengal.

Family : CHYDORIDAE

Sub-family : CHYDORINAE

8. *Chydorus sphaericus* (O.F. Muller, 1776.)

1776. *Lynceus sphaericus* O.F. Muller. *Havniae* : 119.

1988. *Chydorus sphaericus* (O.F. Muller). *Fauna of India, Indian Cladocera* : 139-142.

Material examined : 6 EXS; SN, 16.2.2006, 24.1.2008; SP 18.2.2006; MV, 20.8.2007, 26.1.2008; RG, 26.1.2008.

Distribution : Andhra Pradesh, Bihar, Kashmir, Ladakh, Meghalaya, Tamil Nadu, Uttar Pradesh, West Bengal.

9. *Chydorus ventricosus* Daday, 1898

1898. *Chydorus ventricosus* Daday *Termes. Fezetek.*, 21 : 28-29.

1988. *Chydorus ventricosus* Daday *Fauna of India, Indian Cladocera* : 151-153.

Material examined : 2 exs; 18.2.2006.

Distribution : Gujarat, Kerala, Rajasthan, Tamil Nadu.

10. *Chydorus barroisi* Richard, 1894

1894. *Pleuroxus barroisi* Richard. *Revue. Biol. Nord. France*, 6 : 375-377.

1988. *Chydorus barroisi* Richard. *Fauna of India, Indian Cladocera* : 149-151.

Material examined : 10 exs; LG 16.2006 & 25.1.2008; SN, 16.2.2006; SP, 18.2.2006; RG, 21.8.2007; MV, 21.4.2006.

Distribution : Andhra Pradesh, Kerala, Gujarat, West Bengal, Tamil Nadu.

Sub-family : ALONINAE

11. *Alona rectangula rectangula* Sars, 1862

1862. *Alona rectangula* Sars. Eorchandl. Vidensk. Salark. Christiana : 160.

1998. *Alona rectangula rectangula* Sars Fauna of India, Indian Cladocera : 172-174.

Material examined : 6 exs; LG, 16.2.2006; SN, 16.2.2006; SP 18.2.2006; WY, 22.8.2007; MV, 20.8.2007; NP, 25.1.2008.

Distribution : Andhra Pradesh, Gujarat, Kashmir, Ladakh, Meghalaya, Rajasthan, West Bengal.

12. *Alona rectangula richardi* (Stingelin, 1895)

1895 *Alona rectangula richardi* Stingelin Rev. Suisse Zool., 3 : 250.

1988 *Alona rectangula richardi* Stingelin Fauna of India, Indian Cladocera : 174.

Material examined : 2 exs; LP 15.2.2006.

Distribution : West Bengal.

13. *Alona davidi davidi* Richard, 1895

1895. *Alona davidi davidi* Richard Mem. Soc. Zool. France, 8 : 192-195,

1988. *Alona davidi davidi* Richard Fauna of India, Indian Cladocera :175-176.

Material examined : 4 exs; SP, 15.2.2006; BP, 22.8.2007 & 27.1.2008; SN, 24.1.2008

Distribution : West Bengal.

14. *Alona davidi punctata* (Daday, 1898)

1898. *Alona punctata* Daday. Terms. Fiezetek, 21 : 39-40.

1988. *Alona davidi punctata* (Daday). Fauna of India, Indian Cladocera : 177.

Material examined :4 exs; LG, 20.4.2006; BP, 26.3.2007; NP, 21.8.2007; MV, 20.8.2007.

Distribution : Andhra Pradesh, Tamil Nadu, West Bengal.

15. *Alona pulchella* King, 1853

1853 *Alona Pulchella* King. Pap. Proc. R. Soc. Van Diemens Land, 2 : 260.

1988. *Alona pulchella* King. Fauna of India, Indian Cladocera : 182-184.

Material examined : 2 exs; BP, 26.3.2007; RG, 26.1.2008.

Distribution : Gujarat, Tamil Nadu and West Bengal.

16. *Camptocercus rectirostris* Schoedler, 1862

1862. *Camptocercus rectirostris* Schoedler Berlins Jahrb. Darotheonstadt. Realschule, Berlin.: 25,

1988. *Camptocercus rectirostris* Schoedler Fauna of India, Indian Cladocera : 194-195.

Material examined : 4 exs; BP, 26.3.2007 & 27.1.2008; SN, 24.1.2008.

Distribution : Andhra Pradesh. Gujarat, Kashmir, Meghalaya, West Bengal:

The above table shows that the relatively medium sized oligotrophic Wyra lake plays a host to a wide array of the cladoceran community in terms of species. Of the 16 cladoceran species, the ubiquitous chydorids, *Alona* and *Chydorus* genera each were represented by three species in the water body. Out of the 16 of this group, *Ceriodaphnia cornuta* and *Alona rectangula rectangula* were observed in maximum number of localities of Wyra lake (SN,

Table : showing the occurrence of cladoceran fauna in different localities of Wyra lake

S. No. Species	Localities								
	SN	LP	WY	SP	LG	MV	NP	RG	BP
1. <i>Diaphanosoma sarsi</i>	+								+
2. <i>Scapheloberis kingi</i>		+	-	+	+				
3. <i>Macrothrix spinosa</i>	+				+	+	+	+	
4. <i>M. laticornis</i>	+			+	+			+	
5. <i>Ceriodaphnia cornuta</i>	+		+		+		+	+	+
6. <i>Alona rectangular rectangular</i>	+		+	+	+	+	+		
7. <i>A. rectangular richardi</i>		+							
8. <i>A. davidi davidi</i>	+			+					+
9. <i>A. davidi punctata</i>					+	+	+		+
10. <i>A. pulchella</i>								+	+
11. <i>Chydorus barroisi</i>	+			+	+	+		+	
12. <i>C. sphaericus</i>	+			+		+		+	
13. <i>C. ventricosus</i>				+					
14. <i>Echinisca triserialis</i>	+			+	+				
15. <i>Ilyocryptus spinifer</i>	+		+	+			+		
16. <i>Camptocercus rectirostris</i>	+								+

WY, LG, NP, RG, BP and SN WY, SP, LG, MV, NP respectively) followed by *Macrothrix spinosa* and *Chydorus barroisi*. The species like *Macrothrix laticornis*, *Alona davidi punctata*, *Chydorus sphaericus* and *Ilyocryptus spinifer* were noticed in four localities each. *Alona rectangular richardi* was found in only one locality (LP), while *Diaphanosoma sarsi* and *Camptocercus rectirostris* was seen in two localities each (both in SN and BP).

SUMMARY

In the present study on Wyra lake that is situated in Khammam District of Andhra Pradesh, 16 species belonging to 9 genera spread over 4 families of Cladocera were observed. This forms the first study on the on cladoceran fauna on the water body.

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AQUATIC INSECTS (HEMIPTERA AND COLEOPTERA)

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INTRODUCTION

In the present study, only two orders of aquatic insects were studied i.e. Hemiptera and Coleoptera. Hemiptera are true "Bugs" In spite of 80 genera and 275 species accommodated in 16 major families of aquatic and semi aquatic Hemiptera known from India (Thirumalai, 2002), very little information on water bugs of Andhra Pradesh is available.

Although aquatic coleopterans commonly known as water beetles are highly diverse and distributed to nearly 14 families, only a few namely Dytiscidae, Gyrinidae and Hydrophilidae are chiefly represented in this wetland. They are minute to large (0.6 to 15 cm) in size and usually sclerotised insects. The water beetles show wide diversity of colour, form and life pattern. (Vazirani, 1968)

The study on Aquatic insects (Hemiptera & Coleoptera) of Wyra lake has revealed 25 species belonging to 2 orders, 8 families and 18 genera. Limited number of studies has also been carried out on general entomofauna of some specific wetlands from taxo-ecological view points which includes the work of Roy (1988), Bhattacharya (2000), Ramakrishna (2000), Ghosh (1996), Tonapi (1959) and Vazirani, (1970, 1973), Deepa, (2010) and Deepa & Rao (2007 & 2011).

Wyra lake: Wyra Lake constructed during Nizam's period between 1922-29. It is located (17° 15'N & 80° 25'E) at about 25 kms southern side of Khammam district of Andhra Pradesh. It is located 2 kms off the Hyderabad-Visakhapatnam high way. Water spread area of the lake is about 18,166 sq.kms. Free catchment area 367.78 km². Length of the dam is 3.98 km and maximum height of the dam is 26.83 m. Wyra reservoir is the main source of water supply to 90 villages.

MATERIAL AND METHODS

During the course of quarterly surveys in connection with faunistic studies on the lake during 2006-2008, collections was made with the help of hand operated nets of varying sizes by randomly netting different areas of wetland. While surface floating/ swimming insects were collected with small circular nets made of either coarsely meshed cotton cloths or finely meshed polyester mosquito curtain cloth. Macrophytes associated insects were collected with help of hand operated 'D' framed sweep net of the size of 50 cm length, 25 cm maximum breadth of the 'D' The frame was attached to a bag net made of fine malmal cloth with mesh size of approximately 200 μ . The design and operation of the net was roughly based on those described by Junk (1977). Insects collected for study were preserved in 4% formalin or 70% alcohol. In order to cover the whole topography of the water body, nine

village spots that are passing around the bank of the lake have been selected from 9 localities around the lake *viz.*, Wyra dam, Lalapuram, Narayanapuram, Mallavaram, Lallurugudem, Reddigudem, Brahmanapalle, Singarayapalem and Siddikhnagar have been selected for study. Aquatic hemiptera in the collections was identified with the aid of standard literature on the group *viz.*, Thirumalai (1999) and Bal and Basu (1994a & 1994 b). Under each species citation for the original description and other accompanying work necessary to understand the taxon or its occurrence in India is given.

SYSTEMATIC LIST

Order : HEMIPTERA

Sub order : HETEROPTERA

Infraorder : NEPOMORPHA

Family : NEPIDAE

Subfamily RANANTRINAE

Tribe : RANATRINI

Genus : *Ranatra* (Fabricius)

1. *Ranatra elongata* (Fabricius)
2. *Ranatra filiformis* (Fabricius)
3. *Ranatra digitata* (Hafiz & Pradhan)

Sub family-Nepinae

Tribe : NEPINI

Genus : *Laccotrephus* (Stal)

4. *Laccotrephus griseus* (Guerin-Meneville)
5. *Laccotrephus ruber* (Linnaeus)
6. *Laccotrephus elongatus*

Family : BELOSTOMATIDAE

Subfamily : BELOSTOMATINAE

Genus : *Diplonychus* (Laporte)

7. *Diplonychus rusticus* (Fabricius)
8. *Diplonycus indicus* (Fabricius)
9. *Lethocerus indicus* (Lepeletier & Serville)

Family : NOTONECTIDAE

Subfamily : ANISOPINAE

Genus : *Anisops*

10. *Anisops bouvieri* (Kirkaldy)
11. *Anisops sardeus sardeus* (Hreeich-Shaffer)

Family : CORIXIDAE

Sub family : MICRONECTINAE

Genus : *Micronecta* (Kirkaldy)

12. *Micronecta scutellaris scutellaris* (Stal)

Infra order : GERROMORPHA

Family : GERRIDAE

Sub family : GERRINAE

Genus : *Limnogonus* (Stal)

13. *Limnogonus (Limnogonus) nitidus* (Mayr)

14. *Limnometra fluviorum* (Fabricius)

Order : COLEOPTERA

I. Family : DYTISCIDAE

Subfamily : HYDROPORINAE

15. *Hydrovatus confertus* (Sharp)

16. *Guignotus flammulatus* (Sharp)

Subfamily : NOTORINAE

17. *Canthydrus laetabilis*. (Walker)

Subfamily : LACCOPHILINAE

18. *Laccophilus elegans*

Subfamily : DYTISCINAE

19. *Cybister tripunctatus*

20. *Cybister convexus*

II. Family : GYRINIDAE

Subfamily : ENHYDRINAE

21. *Dineutus (Protodineutus) indicus*

22. *Gyrinus convexiusculus*

III. Family : HYDROPHILIDAE

Subfamily : HYDROPHILINAE

23. *Hydrophilus olivaceus*

24. *Regimbartia attenuate* (Fabricius)

25. *Helochares anchoralis* (Sharp)

SYSTEMATIC ACCOUNT

Order : HEMIPTERA

Aquatic bugs are living throughout of their life cycle inside the waterbody and they are placed under the series Hydrocorisae while semiaquatic bugs are dwelling on the surface of waterbody and belong to series Amphibicorisae. In spite of 80 genera and 275 species accommodated in 16 major families of aquatic and semi aquatic Hemiptera known from India (Thirumalai,2002), very little information on water bugs of Andhra Pradesh is available.

Sub order : HETEROPTERA
 Infraorder : NEPOMORPHA
 Family : NEPIDAE

The insects belonging to this family are popularly known as “water scorpions” because of fact that forelegs somewhat resemble to the pedipalps of scorpions. The body is dorsoventrally fattened or cylindrical with long slender legs, the anterior pair being raptorial with long and stout femur used mainly for capture of prey. One jointed tarsi and absence of ocelli are the characteristic feature of family. Two long slender non retractile caudal filaments with grooves on median surface and fitted together constitute the respiratory tube. By placing its tip at the surface film, oxygen in the tracheal system is replenished.

Nepids are sluggish in nature and prefer still water. They are usually found in trash and mud or remain entangled with aquatic vegetation in the shallow littoral region of wetlands. Highly predacious insect species feed mainly on live insects and their nymph. The prey is captured with the help of raptorial forelegs. The most important cosmopolitan genus *Ranatra* occurs abundantly in this region.

Subfamily : RANANTRINAE
 1. *Ranatra elongata* (Fabricius)

1790. *Ranatra elongata* Fabricius, Skrif. Nat. Selesk., 1: 228

1994. *Ranatra elongata* Fabricius, Thirumalai, Rec. zool. Surv. India, Occ. Pap. No. 165: 22

Material examined : 1 ex, Reddygudem, SVAC Sekhar & Party, 18-2-06; 2 ex, Singaraypalem, SVAC Sekhar & Party, 2-11-06; 3 ex, Siddiqnagar, C A Nageswara Rao & Party, 26-3-07; 1 ex., Narayanapuram, SVAC Sekhar & Party, 21-08-2007.

Diagnostic characters : It is reported to be feeding on tadpoles, nymph of mayflies and other aquatic Hemipterans and during dry seasons it is known to migrate in search of suitable areas. This species can be identified by the structure of the anterior femur, which is provided with a triangular tooth beyond the middle of its length, and the metasternal process, which is sub triangular.

Distribution : India: Andhra Pradesh, Bihar, Delhi, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Australia, Nepal, Sri Lanka.

2. *Ranatra filiformis* (Fabricius)

1970. *Ranatra filiformis* Fabricius, Skri. Nat. Selsk., 1: 228.

1989. *Ranatra filiformis*: Thirumalai, Rec. zool. Surv. India, Occ. Pap. No. 118: 31.

Material examined : 8 exs., Wyadam, SVAC Sekhar & Party, 15-2-06; 5 exs., Narayanapuram, SVAC Sekhar & Party, 16-2-06; 5 ex., Narayanapuram, SVAC Sekhar & Party, 21-4-06; 11 exs., Mallavaram, SVAC Sekhar & Party, 21-4-06; 10 exs., Brahmanapalle, SVAC Sekhar & Party, 20-8-07.

Diagnostic characters : This species is found in shallow parts of water, clinging to submerged vegetation and feeds on nymphs of dragon flies and mosquito pupae. This

species is smaller in size than *R. elongata*. Head provided with distinct tubercle on the vertex, eyes are more prominent.

Distribution : India: Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Manipur, Meghalaya, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : China, Nepal, Pakistan, Philippines, Srilanka.

3. *Ranatra digitata* (Hafiz & Pradhan)

1947. *Ranatra digitata* ; Hafiz & Pradhan, *Rec. Indian Mus.*, 45: 371

1999. *Ranatra digitata* : Thirumalai, *I.A.A.B.*, 7: 32.

Material examined : 7 exs., Lalapuram, SVAC Sekhar & Party., 19-8-07; 10 ex., Mallavaram,, SVAC Sekhar & Party., 20-8-07; 15 exs., Reddygudem, SVAC Sekhar & Party., 21-8-07; 1 ex., Brahmanpalle, SVAC Sekhar & Party., 22-8-07.

Diagnostic characters : Body length may be 28-31mm while abdominal appendages may be 26-28 mm in adult specimens, metasternat process broadly convexly rounded with a slight median keel posteriorly.

Distribution : India: Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Manipur, Meghalaya, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : China, Nepal, Pakistan, Philippines, Srilanka.

Sub family : NEPINAE

Tribe : Nepin enus : Laccotrephus (Stal)

4. *Laccotrephus griseus* (Guerin-Meneville)

1844. *Nepa griseus* Guerin, *Iconogr. Regne Anim. Ins.*, 352.

1906. *Laccotrephus griseus* (Guerin) : Distant, *Fauna British India*, 5: 314.

1994. *Laccotrephus griseus* (Guerin) : Thirumalai, *Rec.zool. Surv. India, Occ. Pap. No. 165*: 21

Material examined : 5 ex., Brahmanapalle, SVAC Sekhar & Party, 5-11-; 5 exs., Lalaapuram, SVAC Sekhar & Party, 20-8-07; 7 exs. Brahmanapalle, SVAC Sekhar & Party, 22-8-07; 1 exs., Singarayapalem, CAN Rao & Party, 24-1-08; 3 exs., Lallurigudem, SVAC Sekhar & Party, 25-1-08; 3 exs. Brahmanapalle, SVAC Sekhar & Party, 26-1-08.

Diagnostic characters : A very common sluggish species, found at the bottom of slow or stagnant water. It can be identified by the presence of slightly hooked and symmetrical parameres, abdominal appendages shorter than the body, presence of an obtusely rounded tooth at the base of the anterior femora.

Distribution : India: Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Manipur, Meghalaya, Nagaland, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Malaysia, Myanmar, Seychelles, Srilanka, Thailand.

5. *Laccotrephus ruber* (Linnaeus)

1764. *Nepa ruber*. Linnaeus. *Mus. Lud. Ulr.*, 165

1906. *Laccotrephus ruber* (Linn.): Distant, *Fauna British India*, 3: 18.

1994. *Laccotrephus ruber* (Linn.): Thirumalai, *Rec. Zool. Surv. India, Occ. paper No. 165*: 22.

Material examined : 3 exs., Singaraypalem, SVAC Sekhar & Party., 2-11-06 (N/1446; 2 exs., Lallapuram, SVAC Sekhar & Party., 20-8-07; 1 ex, Narayanapuram, SVAC Sekhar & Party., 21-8-07; 1 ex, Siddiqnagar, SVAC Sekhar & Party., 21-8-07; 1 ex, Brahmanapalle, SVAC Sekhar & Party., 7-2-08.

Diagnostic characters : This is a larger species with the abdominal appendices slightly longer than the body. The male parameres are curved and hook shaped. It is a common species with wide distribution in the Indo-Australian region.

Distribution : India: Arunachal Pradesh, Assam, Bihar, Delhi, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Manipur, Meghalaya, Nagaland, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : China, Japan, Nepal, Pakistan, Taiwan.

6. *Laccotrephus elongatus* (Montandon)

1907. *Laccotrephus elongatus*: Montandon, *Buul. Soc. Sci. Buc.*, 15: 330

1910. *Laccotrephus elongatus*: Distant, *Fauna Brit. India*, Rhynchota, 5: 313

2002. *Laccotrephus elongatus*: Bal & Basu, *Fauna of Kabar lake, Wetland Ecosystem series*, 4: 80

Material examined : 2 exs., Lallurigudem, SVAC Sekhar & Party., 16-2-06; 1 ex., Narayanapuram, SVAC Sekhar & Party., 17-2-06; 2 exs., Singaraypalem, SVAC Sekhar & Party., 17-2-06.

Diagnostic characters : This is a larger species with the abdominal appendices slightly longer than the body. The male parameres are curved and hook shaped. It is a common species with wide distribution in the Indo-Australian region.

Distribution : India: Arunachal Pradesh, Assam, Bihar, Delhi, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Manipur, Meghalaya, Nagaland, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : China, Japan, Nepal, Pakistan, Taiwan.

Family : BELOSTOMATIDAE

These insects are commonly known as "Giant water bugs" because of their large size (10-110 mm in length). The body is flat, oval or oblong, brown or dull greenish colour. Antennae 4 segmented and concealed in pockets beneath the head, eyes prominent. The strong and thick front legs are raptorial and used for grasping. The middle and hind legs are broad, flat and fringed with swimming hair. The tarsi are 3 segmented, ocelli absent. The most characteristic feature in adult is presence of retractile strap like appendages at the abdominal apex, which are used to obtain air. These air straps are homologous with respiratory siphon of related family Nepidae, being derived from 8th abdominal tergum, each bearing a basal spiracle. About 150 sps. of Belostomatids are so far known from the world.

Subfamily: BELOSTOMATINAE

Genus: *Diplonychus* (Laporte)7. *Diplonychus rusticus* (Fabricius)

1781. *Nepa rustica* Fabricius, *Ent. Syst.*, 4: 62

1994. *Diplonychus rusticus* (Fab.): Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 165*: 25

Material examined : 3 exs., Reddygudem, SVAC Sekhar & Party., 20-8-07; 1 ex., Narayanapuram, SVAC Sekhar & Party., 21-8-07; 2 exs., Narayanapuram, SVAC Sekhar & Party., 21-8-07; 1 ex., Brahmanapalle, SVAC Sekhar & Party., 22-8-07

Diagnostic characters : This species is voracious feeder on fish fry, mosquito larvae. It has single segmented fore tarsus with claw, pale lateral basal margins of pronotum and its head length is shorter than the intraocular space. Body 15-17 mm long. It is a voracious feeder and has been reported to attack fish fry and fingerlings.

Distribution : India : Andaman & Nicobar Island, Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Rajasthan, Tamil Nadu, West Bengal.

Elsewhere : Malaysia, Myanmar, China, Indonesia, Japan, New Guinea, New Zealand, Srilanka, Thailand.

8. *Diplonychus indicus* (Venkatesan & Rao)

1980. *Diplonychus inicus*: Venkatesan & Rao, *J. Bombay nat. Hist. Soc.*, 77: 229

Material examined : 5 exs., Lallurigudem, SVAC Sekhar & Party, 16-2-06; 2 exs., Narayanapuram, SVAC Sekhar & Party, 4-11-06; 5 ex., Brahmanapalle, SVAC Sekhar & Party, 5-11-06; 5 exs., Lalaapuram, SVAC Sekhar & Party, 20-8-07.

Diagnostic characters : Rostrum long and Segment I of rostrum twice longer than segment II, pronotum with lateral margins nearly straight, anterior tarsus two segmented and terminated by two small and equal claws which are shorter than the width of the tarsal segment.

Distribution : India : Earlier this species was recorded only from its type locality at Chetpet pond, Madras, Tamil Nadu. Andaman & Nicobar Island, Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Rajasthan, Tamil Nadu, West Bengal.

Elsewhere : Malaysia, Myanmar, China, Indonesia, Japan, New Guinea, New Zealand, Srilanka, Thailand.

Subfamily : LETHOCERINAE

Genus: *Lethocerus*9. *Lethocerus indicus* (Lepelletier & Serville)

1825. *Belostoma indica* Lepelletier & Serville, *Encycl. Meth.*, : 272

1909. *Lethocerus indicus* : Montandon, *Bull. Soc. Sci. Buc.*, 17: 138

2002. *Lethocerus indicus*: Bal & Basu, *Fauna of Kabar lake, Wetland Ecosystem Series*, 4: 81

Material examined : 1 ex., Reddygudem, SVAC Sekhar & Party., 18-2-06; (6) 29 exs., Reddygudem, SVAC Sekhar & Party., 4-11-06; 11 ex., Brahmanapalle, C A Nageswara Rao & Party, 25-3-07.

Diagnostic characters : This species is known as Giant Indian water-bugs. Adult insects may be 62-85 mm in body length, head between eyes with parallel sides, pronotum with a transverse fasciae at the basal end and a fine mid-longitudinal carination, hemelytra with distinct membrane which provided with prominent and thick longitudinal veins, posterior legs provided with thick sets of long swimming hairs on the ventral sides.

Distribution : India Andaman & Nicobar Island, Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Rajasthan, Tamil Nadu, West Bengal.

Elsewhere : Malaysia, Myanmar, China, Indonesia, Japan, New Guinea, New Zealand, Srilanka.

Family : NOTONECTIDAE

Subfamily : ANISOPINAE

Genus : *Anisops*

10. *Anisops bouvieri* (Kirkaldy)

1904. *Anisops bouvieri* : Kirkaldy, *Wein. ent. Ztg.*, **23** : 116

2001. *Anisops bouvieri* : Thirumalai, *Fauna of Niligiri Biosphere Reserve, Cons. Area Series*, **11**: 116

Material examined : 1, 2 exs., Reddygudem, SVAC & Party, 20-8-07; 3 exs., Narayanapuram, SVAC & Party, 25-1-08.

Diagnostic characters : Body length of males and females 6.0 to 6.3 mm and 5.5 to 6.0 mm respectively. General body colour perlaceous. Moderately prominent cephalic horn with frons excavate triangularly and bordered laterally by two carinae, rostral prong as long as the 3rd rostral segment, male stimulatory comb of about 12 teeth.

Distribution : India : Andaman & Nicobar Island, Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Rajasthan, Tamil Nadu, West Bengal.

Elsewhere : Myanmar, China, Indonesia, Japan, New Guinea.

11. *Anisops sardeus sardeus* (Herrich - Shaffer)

1850. *Anisops sardea* : Herrich-Shaffer, *Die Wanz. Ins. m.*, **9**: 41

2001. *Anisops sardeus sardeus* : Thirumalai, *Fauna of Niligiri Biosphere Reserve, Cons. Area Series*, **11**: 117

Material examined : 2 exs., Wyadam, SVAC Sekhar & Party, 15-2-06; 5 exs., Narayanapuram, SVAC Sekhar & Party, 16-2-06; 5 ex., Narayanapuram, SVAC Sekhar & Party, 21-4-06; 11 exs., Mallavaram, SVAC Sekhar & Party, 21-4-06; 1 ex., Brahmanapalle, SVAC Sekhar & Party, 20-8-07; 2 exs. Siddiqnagar, SVAC Sekhar & Party, 20-8-07; 2 exs., Brahmanapalle, SVAC Sekhar & Party, 22-8-07.

Diagnostic characters : Males may reach 7.5 to 8.4 mm and females 7.2 to 7.5 mm in body length, general body colour pale yellow or brownish yellow. Much prominent cephalic

horn with frons excavate of its entire length and bordered laterally by two carinae, rostral prong slightly shorter than the 3rd rostral segments, stimulatory comb of male on the first tibiae of about 18 teeth.

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Bihar, Kerala, Tamil Nadu, West Bengal.

Elsewhere : Myanmar, China, Africa, Turkey, Pakistan

Family : CORIXIDAE

The members of this family usually called "Water Boatmen" are medium to small insects usually 2-16 mm in length. Although the family Corixidae is the largest family of aquatic Hemiptera consisting of about 500 species, distributed widely in the world from below sea level to as high as 4575 meters in Himalaya, from arctic water beneath ice to hot springs with temperature around 35°C (Thirumalai, 1989) In India it is represented only 35 species belonging to 4 genera (Thirumalai, 1994). During present investigation only one species was recorded. The body is somewhat flattened above and colour is dark grayish with yellow or black markings. The wing membrane is without veins. Head is triangular with short, unsegmented labium. Antennae short, concealed with 3-4 segments. Front tarsus -1- jointed, flattened and scoop like called "Pala" which is the characteristic of family. Scutellum is concealed and male abdominal segments are asymmetrical. A file like plate called "Strigil" is present in tergum VI of male. Abdominal terga III-IV of nymphs and adults have metathoracic scent glands opening near the 3rd coxae. Dorsum of the abdomen with alternative dark and transverse band.

Sub family : MICRONECTINAE

Genus : *Micronecta* (Kirkaldy)

12. *Micronecta scutellaris scutellaris* (Stal)

1858. *Sigra scutellaris* Stal , *Vetens akad. Forh.*, 15: 319

1940. *Micronecta (Basilonecta) scutellaris* (Stal, 1858) : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, 33: 365

1994. *Micronecta (Basilonecta) scutellaris* (Stal, 1858) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 165*: 9

Material examined : 1 ex, Wyadam, SVAC Sekhar & Party , 19-4-06; 2 exs. Singaraypalem, SVAC Sekhar & party, 19-4-06; 3 exs., Singaraypalem., SVAC Sekhar & Party, 20-4-06; 2 exs., Singaraypalem, SVAC Sekhar & Hakeel, 21-4-06.

Diagnostic characters : This species is very widely distributed in India and mostly found in stagnant pools, pond and ditches. It is the largest species (2.8 to 3.1 mm) of the genus. Pronotum grey or grayish brown, paler margins and with obscure elytral pattern.

Distribution : India : Andhra Pradesh, Himachal Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Malaysia, China, Indonesia, Japan, Srilanka, Vietnam, Africa (Central).

Infra order : GERROMORPHA

Family : GERRIDAE

These are popularly known as "Water Striders" or "Pond Skaters" They are semiaquatic long legged hemipterans. These insects are found skating or leaping about on the surface film of wetlands. When disturbed they scatter widely in all directions. They feed upon a number of microcrustaceans and insects that are caught just below water surface. The family is represented by about 450 species in the world. The body is oval shaped and covered with a velvety hydrofuge hair pile. Both winged and nonwinged forms occur but the latter are more common (Thirumalai, 1986).

Sub family : GERRINAE

Genus : *Limnogonus* (Stal)

13. *Limnogonus (Limnogonus) nitidus* (Mayr)

1865. *Hydrometra nitida* Mayr, *Verh. Zool. Bot. Ges. Wein*, 15: 443

1994. *L. (Limnogonus) nitidus* (Mayr) : Bal & Basu, *Zool. Surv. India, State Fauna, Series 3, Fauna of West Bengal*: 525

Material examined : 1 exs., Mallavaram, SVAC Sekhar & Party, 21-4-06; 3 exs., Brahmanapalle, SVAC Sekhar & Party, 20-8-07; 2 exs. Siddiqnagar, SVAC Sekhar & Party, 20-8-07; 4 exs., Brahmanapalle, SVAC Sekhar & Party, 22-8-07; 1 exs., Narayanapuram, SVAC Sekhar & Party, 25-1-08.

Diagnostic characters : This species can be identified from all the known species of this genus by the presence of fairly, prominent connexival spines and yellow markings at the anterior pronotal lobe. It has been recorded from temporary pools, rice fields, ponds from sea level to 1000 metres and found as winged individual.

Distribution : India: Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Chandigarh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Manipur, Meghalaya, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.

Elsewhere : Malaysia, Myanmar, China, Indonesia, Srilanka, Thailand, Vietnam, Singapore.

14. *Limnometra fluviorum* (Fabricius)

1798. *Cimex fluviorum* Fabricius, *Ent. Syst. Suppl.* 543.

1934. *Limnometra fluviorum* (Fab.): Lundblad, *Arch. Hydrobiol. Suppl.* 12: 371.

1995. *Limnometra fluviorum* (Fab.): Andersen, *Steenstrupia*, 21: 118.

Material examined : 2 exs., Reddygudem, SVAC & Party, 20-8-07; 3 exs., Narayanapuram, SVAC & Party, 25-1-08.

Diagnostic characters : This species can be identified from all the known species of this genus by the presence of spine like projection on the dorsolateral rear margin of the middle coxae. It is commonly found in fresh water habitats of Southern India.

Distribution: India: Karnataka, Kerala, Maharashtra, Pondicherry, Tamil Nadu, West Bengal.

Elsewhere : Philippines, Srilanka.

Order : COLEOPTERA

Although aquatic coleopterans commonly known as "Water beetles" are highly diverse and distributed to nearly 14 families (Pennak'1978). Only a few namely Dytiscidae and Hydrophilidae are chiefly represented in this wetland. They are minute to large (0.6 to 13 cm) in size and usually sclerotised insects. The front wings are much thickened, veinless and meeting in middorsal straight line, the hind wings are membranous with few veins and apex folded beneath when at rest sometimes absent. Mouthparts are typical biting or chewing type in usual case. Antennae 9-11 segmented. Larvae worm like' usually with 3 pairs of thoracic legs, which are 5 or 6 with 10 segments and sometimes with prominent cerci. The pupae are with appendages and donot form a puparium. The water beetles show wide diversity of colour, form and life pattern.

Family : DYTISCIDAE

The members of this family have adapted perfectly well to aquatic life. All adults and larvae are aquatic. These beetles are commonly known as "Predacious diving beetles" as they feed vigorously upon almost all invertebrates and fish eggs and fry. These beetles generally occupy clean and fresh macrophytic leaves near the bottom along littoral zone. They are active swimmers and swift divers. Adult dytiscids range from 1.4 to 3.8 mm in length. The body is covered with an adherent layer of grease which holds dust particles or detritus. They are usually black or brownish colour, sometimes marked with dull yellow, orange or brown shades. The hind coxae is very large and 2nd and third legs are widely separated. Hind legs of dytiscid beetles are very important and contribute mainly to swimming movements. Antennae very long, thread like with 11 segments. Ten pairs of spiracles are present, the first two on thorax, three to nine on the abdominal segments and 10th on tip of abdomen. The spiracles open in subelytral chambers and help in oxygen supply. During submergence these beetles are utilize the oxygen f tracheae and subelytral chambers. De and Sengupta (1993) have recorded 16 species from a few wetlands of Kolkata and surrounding districts.

Subfamily : HYDROPORINAE

Genus : *Hydrovatus confertus* (Sharp)15. *Hydrovatus confertus* (Sharp)

1882. *Hydrovatus confertus* Sharp, Sci. Trans. R. Dublin Soc., 2: 329.

1995a. *Hydrovatus confertus* Biswas et al., Insecta: Coleoptera: Adephaga, In: *State Fauna Series*, 3 : *Fauna of West Bengal*, pt. 6a Zoological Survey of India, Calcutta: 94.

Material examined : 3 exs., Reddygudem, SVAC & Party, 20-8-07; 2 exs., Narayanapuram, SVAC & Party, 25-1-08.

Diagnostic characters: This species inhabits shallow water with aquatic vegetation. Body broadly oval, about 2.2-2.5 mm long; head reddish-brown, head elongate, prothorax reddish brown, punctures irregular, elytra also reddish brown, puncturation somewhat regular, moderate and rather denser than on pronotum.

Distribution: India: Kerala, Tamil Nadu, West Bengal.

Elsewhere : Burma, China, Indonesia, Srilanka, Thailand and Vietnam

16. *Guignotus flammulatus* (Sharp)

1934. *Bidessus* (*Guignotus*) Sharp, *Sci. Trans. R. Dublin Soc.*, 2: 359

1954. *Guignotus flammulatus*, Vazirani, *Rec. Zool. Surv. India, Occ. Paper No. 6* 32

2003. *Guignotus flammulatus*, Mukhopadhyay & Gosh. *Fauna of Sikkim. State Fauna Series, 9 (Part:3)*
27. *Zool. Surv. India*

Material examined : 2 exs. Brahmanapalle, SVAC Sekhar & Party, 25-3-06; 2 exs., Mallavaram, SVAC Sekhar & Party, 20-8-07; 1 exs., Narayanapuram, CAN Rao & Party, 25-1-08; 3 exs. Brahmanapalle, SVAC Sekhar & Party, 21-8-07; 2 exs., Brahmanapalle, CAN Rao & Party, 20-8-07.

Diagnostic characters : Body oblong, about 2.4 mm long, Head with a basal blackish marking, vertex punctate, antennae long and slender. Elytra with black markings and with minute setiferous, dense puncturation, legs with front and middle tarsi armed with spines and hairs, hind tarsi elongate and with hairs.

Distribution: India: Kerala, Tamil Nadu, West Bengal, Uttar Pradesh, Gujarat, Andhra Pradesh.

Elsewhere : China, Indonesia, Thailand and Vietnam

Subfamily : NOTORINAE

17. *Canthydrus laetabilis*. (Walker)

1859. *Hydroporus laetabilis* Walker, *Ann. Mag. Nat. Hist.*, 3 (2): 205.

1995b. *Canthydrus laetabilis*: Biwas *et.al.*, *Insecta : Coleoptera : Adephaga*, In : *State Fauna Series, 3 : Fauna of West Bengal*, pt. 6a *Zoological Survey of India, Calcutta*: 85

Material examined : 3 exs., Lallurigudem, SVAC Sekhar & Party, 16-2-06; 2 exs., Narayanapuram, SVAC Sekhar & Party, 4-11-06; 2 ex., Brahmanapalle, SVAC Sekhar & Party, 5-11-06; 3 exs., Lalaapuram, SVAC Sekhar & Party, 20-8-07; 5 exs. Brahmanapalle, SVAC Sekhar & Party, 22-8-07.

Diagnostic characters : Body oblong-oval, head brownish yellow, eyes large, antennae brownish yellow, short and slender, prothorax with its front margin darker and with dark punctures, elytra streamlined, brownish black with two basal orange yellow spots and one transverse irregular spot situated post medially, legs with front tibiae short and its apical spur curved, hind tarsi with swimming hairs, claws simple.

Distribution : India: Kerala, West Bengal, Andhra Pradesh, Assam, Bihar, Orissa, Punjab, Rajasthan, Uttar Pradesh.

Elsewhere : Philippines, Srilanka.

Subfamily : LACCOPHILINAE

18. *Laccophilus elegans* (Sharp)

1882. *Laccophilus elegans* Sharp, *Sci. Trans. R. Dublin Soc.* 2: 302-303

1977. *Laccophilus elegans*, Vazirani, *Rec. Zool. Surv. India, Occ. Paper No. 6*: 11

1995 *Laccophilus elegans*, Biswas, Mukhopadhyay & Saha, *Zool. Surv. India. State fauna Series 3: Fauna of West Bengal, Part 6 (A)*, pp. 88

Material examined : 5 exs., Narayanapuram, SVAC Sekhar & Party, 15-2-06; 1 ex., Wyadam, SVAC Sekhar & Party, 17-2-06; 2 exs., Mallavaram, SVAC Sekhar & Party, 3-10-06; 3 exs., Reddygudem, SVAC Sekhar & Party, 20-8-06.

Diagnostic characters : Body elongate, about 3.7 to 4.0 mm long, Head brownish yellow, Elytra testaceous reddish with zig-zag double markings. Ventral surface with metacoaxal plate, hind tarsi with swimming hairs and has straight single claw.

Distribution: India: Kerala, West Bengal, Andhra Pradesh, Assam, Bihar, Orissa, Punjab, Rajasthan, Uttar Pradesh.

Elsewhere : Indo-China

Subfamily : DYTISCINAE

19. *Cybister (Meganectes) tripunctatus asiaticus* (Sharp)

1832. *Cybister asiaticus* Sharp, *Sci. Trans. R. Dublin Soc.*, 2: 731

1977. *Cybister tripunctatus asiaticus*, Vazirani, *Rec. Zool. Surv. India, Occ. Paper No. 6*: 62

2003. *Cybister (Meganectes) tripunctatus asiaticus*. Mukhopadhyay & Gosh. *Fauna of Sikkim. State Fauna series*, 9 (Part: 3) 32-33.

Material examined : 7 exs., Lalapuram, SVAC Sekhar & Party, 19-8-07; 3 ex., Mallavaram, SVAC Sekhar & Party, 20-8-07; 2 exs., Reddygudem, SVAC Sekhar & Party, 21-8-07.

Diagnostic characters : Body elongate -oval, about 28 mm long, head blackish, antennae long, narrow yellowish red, prothorax concolourous with head, Scutellum triangular, legs with spines and swimming hairs, ventral surface reddish brown to black. This is the largest species of Dytiscidae, prefers mainly to the less flowing waters of ponds and urban lakes with sparse vegetation.

Distribution : India: Kerala, West Bengal, Andhra Pradesh, Assam, Bihar, Orissa, Rajasthan, Uttar Pradesh, Tamil Nadu

Elsewhere : Nepal, China, Philippines, Srilanka, Afghanistan.

20. *Cybister (Melanectes) convexus* (Sharp)

1832. *Cybister convexus* Sharp, *Sci. Trans. R. Dublin Soc.*, 2: 718

1977. *Cybister convexus*, Vazirani, *Rec. Zool. Surv. India, Occ. Paper No. 6*: 87

1955 *Cybister (Melanectes) convexus*. Biswas, Mukhopadhyay & Saha, *Zool. Surv. India. State fauna Series*, 3: *Fauna of West Bengal*, Part 6 (A), pp. 109

Material examined : 3 exs. Singarayapalem, SVAC Sekhar & Party, 15-2-06; 3 exs., Brahmanapalle, SVAC Sekhar & Party, 16-2-06.

Diagnostic characters:

Distribution : India : Kerala, West Bengal, Manipur, Andhra Pradesh, Assam, Bihar, Orissa.

Elsewhere : China.

Family : GYRINIDAE

Subfamily : ENHYDRINAE

21. *Dineutus (Protodineutus) indicus* (Ochs)

1938. *Dineutus indicus* Aube, *Species coleopteres.*, 6: 772.

1926. *Dineutus (Protodineutus) indicus* Ochs., *Ent. Z. Frankf.*, 40: 13

1984. *Dineutus (Protodineutus) indicus*, Vazirani, *Fauna of India*, Col.: Fam. Gyrinidae and fam. Haliplidae., Govt. of India

Material examined : 1exs., Singarayapalem, SVAC Sekhar & Party, 21-4-06; 5 exs., Siddiqnagar, SVAC Sekhar & Party, 20-4-06; 1 exs., Singarayapalem, SVAC Sekhar & Party, 19-4-06; 2 exs., Mallavaram, SVAC Sekhar & Party, 17-2-06.

Diagnostic characters : Body elongate, black, 8-7 mm in length, antennae very short, epipleural angle extended into a strong spine and apex with fine denticles, legs with front tarsi armed.

Distribution : India: Kerala, Pondicherry, Madhya Pradesh, Maharashtra, West Bengal, Manipur, Andhra Pradesh, Assam, Bihar, Orissa.

Elsewhere : Pakistan

22. *Gyrinus convexiusculus* (MacLeay)

1762. *Gyrinus convexiusculus* Geoffroy. *Hist. ins.* Paris, 1: 93.

1984. *Gyrinus convexiusculus*: Vazirani, *Fauna of British India*, Col.: Fam. Gyrinidae and Fam. Haliplidae., Govt. of India, : 30-32

Material examined : 4 ex., Lallurigudem, SVAC Sekhar & Party, 5-11-06; 1 exs., Singarayapalem, SVAC Sekhar & Party, 19-8-07; 1 ex., Singarayapalem, SVAC Sekhar & Party, 19-8-07.

Diagnostic characters : Shiny black in colour, depressed body, abdomen extending beyond elytra. The middle and hind legs are greatly flattened paddle like and fringed, the third segment of antennae is very much enlarged and the other segments are spindle shaped.

Distribution: India: Kerala, Pondicherry, Madhya Pradesh, Maharashtra, West Bengal, Manipur, Andhra Pradesh, Assam, Bihar, Orissa, Karnataka.

Elsewhere : Sri lanka

Family : HYDROPHILIDAE

The hydrophilids commonly termed as "water scavenger beetles" are characterized by their short-clubbed antennae that generally remain concealed beneath the head and long maxillary palps resembling antennae like Dystiscidae, they also make contact with surface water film with the anterior edge of their body but unlike former, their hind legs move alternatively while swimming and are not very good swimmers. Adults are good fliers and some leave the water and crawl on land. The air supply is through tracheal system and spiracles from subelytral chamber and from silvery film

of air retained on ventral side of the body by hydrofuge hairs. For the renewal of oxygen supply, the beetles come to the surface with body slightly inclined to one side so as to keep the cleft between head and thorax in contact with surface film. The surface film is broken by antennal tip. They feed mainly on detritus, algae and decaying vegetative matter.

Subfamily : HYDROPHILINAE

23. *Hydrophilus olivaceus* (Fabricius)

1781. *Hydrophilus* F. Spec. ins., 1: 289

1995. *Hydrophilus olivaceus*, Biwas and Mukhopadhyay, *State Fauna Series*, 3 : *Fauna of West Bengal*, 3 pt. 6A: 160.

Material : 1 exs., Singaraypalem., SVAC Sekhar & Party, 2-11-06; 2 ex., Mallavaram, SVAC Sekhar & Party, 26-1-08.

Diagnostic characters : Body elongate, blackish brown, convex normally. Antennae 9-segmented, prothorax transverse, tarsi strongly compressed and oar like. Claws of all tarsi dentate at base.

Distribution : India: Maharashtra, West Bengal., Andhra Pradesh, Manipur.

Elsewhere : Nil.

24. *Regimbertia attenuata* (Fabricius)

1801. *Regimbertia attenuata* F., *Syst. Eleuth.*, 1: 253.

1924. *Regimbertia attenuata*, Knisch. Col. Cat., 14 (79): 276

2000. *Regimbertia attenuata*, Ghosh, Mukhopadhyay & Biswas, *Zool. Surv. India, Fauna of Tripura, State Fauna Series*, 7 (Part-3): 49

Material: 2 exs., Wyadam, SVAC Sekhar & Party, 15-2-06 ; 1 exs., Narayanapuram, SVAC Sekhar & Party, 25-1-06; 1 ex., Mallavaram, SVAC Sekhar & Party, 26-1-08.

Diagnostic characters : Body elongate, blackish brown, convex normally. Antennae 9-segmented, prothorax transverse, tarsi strongly compressed and oar like. Claws of all tarsi dentate at base. Elytra strongly narrowed posteriorly, mid and hind tibiae with long swimming hairs on inner side.

Distribution: India: Maharashtra, West Bengal, Andhra Pradesh, Manipur.

Elsewhere : Nil.

25. *Helochares anchoralis* (Sharp)

1890. *Helochares anchoralis* Sharp, *Trans. Ent. Soc. Lond.*, : 352

1924. *Helochares anchoralis* Knisch. Col. Cat., 14 (79): 193

1995. *Helochares anchoralis*, Biwas and Mukhopadhyay *State Fauna Series*, 3 : *Fauna of West Bengal*, 3 pt. 6A: 157.

Material : 1 exs., Singarayapalem, SVAC Sekhar & Party, 21-4-06; 2 exs., Siddiqnagar, SVAC Sekhar & Party, 20-4-06; 4 exs., Mallavaram, SVAC Sekhar & Party, 17-2-06.

Diagnostic characters : Body elongate, about 6 mm in length, dark brown with blackish patches, head densely punctate, Y-shaped frontal suture, 1st joint of hind tarsi very short and the 2nd joint slightly longer and claws with basal swelling and characteristic expodium.

Distribution : India: Maharashtra, West Bengal, Bihar, Andhra Pradesh.

Elsewhere : Srilanka., Indochina, Indonesia, Cambodia, Philippines.

SUMMARY

The aquatic and semi aquatic groups of insects are overall indicators of both recent and long term environmental conditions (Thirumalai & Raghunathan, 1988; Ramakrishna, 2000). The study reports the presence of 25 species belonging to 8 families and 18 genera, which forms the first report of this group from Wyr lake, Khammam Dist., A.P.

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INSECTA : ODONATA

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INTRODUCTION

The odonate diversity of Andhra Pradesh has been well documented and included in the state fauna series (Prasad, 2007). Through this paper the authors wish to put on record the distribution of various odonate species present at the Wyra Reservoir, Khammam district of Andhra Pradesh.

The senior author surveyed the Wyra Reservoir and its vicinity along with the team of scientists from Freshwater Biology Station, Zoological Survey of India Hyderabad in 2007. Observations on odonates were carried out at Wyra (17°12' N, 80°22'E), Singaraipalem (17°14'N, 80°21'E), Siddiqnagar (17°13' N, 80°21'E) and Reddygudem (17°11'N, 80°23'E). Specimens were also collected from these localities and were identified following Subramanian (2005) and Mitra (2006).

A total of 14 species belonging to 13 genera under 4 families were recorded from the Wyra Reservoir and its environs. Below is the list of species belonging to various genera and families followed by a detailed systematic account of each species recorded.

Checklist of Odonates of Wyra Reservoir, Khammam District, Andhra Pradesh

Class : INSECTA

Order : ODONATA

Suborder : ZYGOPTERA

Family : COENAGRIONIDAE

1. *Ceriagrion coromadelianum* (Fabricius, 1798)
2. *Pseudagrion microcephalum* (Rambur, 1842)
3. *Ischnura senegalensis* (Rambur, 1842)

Suborder : ANISOPTERA

Family : GOMPHIDAE

4. *Ictinogomphus rapax* (Rambur, 1842)

Family : AESHNIDAE

5. *Anax guttatus* (Burmeister, 1839)

Family : LIBELLULIDAE

6. *Pantala flavescens* (Fabricius, 1798)
7. *Tholymis tillarga* (Fabricius, 1798)
8. *Orthetrum sabina sabina* (Drury, 1770)
9. *Orthetrum glaucum* (Brauer, 1865)
10. *Diplacodes trivialis* (Rambur, 1842)
11. *Crocothemis servilia servilia* (Drury, 1770)
12. *Rhyothemis variegata* (Linnaeus, 1763)
13. *Trithemis pallidinervis* (Kirby, 1889)
14. *Acisoma panorpoides* (Rambur, 1842)

SYSTEMATIC ACCOUNT

Class : INSECTA

Order : ODONATA

Suborder : ZYGOPTERA

Super Family : COENAGRIONOIDEA

Family : COENAGRIONIDAE

Genus : *Ceriagrion* Selys, 18761. *Ceriagrion coromandelianum* (Fabricius, 1798)1798. *Aciagrion coromandelianum* Fabricius, *Ent. Syst. Suppl.*: 287.

Common Name : Coromandel Marsh Dart.

Material Examined & Morphometrics:

- 1 ♀ (NHM.OU.IN.1.2007): Abdomen: 23.16mm; Forewing: 19.83mm; Hindwing: 18.75mm
- 2 ♀ (NHM.OU.IN.2.2007): Abdomen: 22.62mm; Forewing: 16.93mm; Hindwing: 16.16mm
- 3 ♂ (NHM.OU.IN.3.2007): Abdomen: 28.34; Forewing: 20.12; Hindwing: 18.86mm
- 4 ♂ (NHM.OU.IN.4.2007): Abdomen: 26.76; Forewing: 20.62; Hindwing: 19.20mm; coll.loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu.

Distribution: India: Throughout India; Andhra Pradesh: Hyderabad in Ranga Reddy District; Nandyal in Kurnool District; Nellore district; Suryapeta in Nalgonda district; Palair, Madhira in Khammam district; Rajahmundry in East Godavari district; Chittoor district; Cuddapah district; Kaikalur in Krishna district; Ichchapuram and many localities in Srikakulam district; Vizianagaram in Visakhapatnam district; Araku and other localities in Visakhapatnam district; Kolleru and other localities in West Godavari district; Vijayawada in Krishna district.

Description: Male: Vertex is olivaceous; thorax olive-green; abdomen citron-yellow. Females: Vertex is olivaceous brown, thorax olivaceous and abdomen uniformly olivaceous with dorsum tinted with golden-brown colour.

Remarks: Very commonly encountered species along the edges of the waterbodies. The golden abdomen being clearly visible, this species is easily identifiable.

Genus : *Pseudagrion* Selys, 1876

2. *Pseudagrion microcephalum* (Rambur, 1842)

1842. *Agrion microcephalum* Rambur. *Ins. Neurop.*; : 259.

Common Name: Blue Grass Dartlet

Material Examined & Morphometrics:

- 1 ♂ (NHM.OU.IN.5.2007): Abdomen: 20.79mm; Forewing: 14.78mm; Hindwing: 13.59mm, coll. loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu

Distribution: Throughout the plains of India; Andhra Pradesh: Common throughout, none collected so far, this is the first specimen based record.

Description: Male: Vertex pale azure blue; thorax azure blue fading to pale blue to white below. Abdomen azure blue marked with black at regular intervals, the 10th segment of the abdomen with a broad saddle shaped mark.

Remarks: This species is encountered along the banks of the reservoir among the vegetation.

Genus : *Ischnura* Charpentier, 1840

3. *Ischnura senegalensis* (Rambur, 1842)

1842. *Agrion senegalensis* Rambur. *Ins. Neurop.*, : 276.

Common Name: Senegal Golden Dartlet

Material Examined & Morphometrics:

- 1 ♂ (NHM.OU.IN.18.2007): Abdomen: 24.45mm; Forewing: 17.12 mm; Hindwing: 16.90 mm, 1♂ (NHM.OU.IN.19.2007): Abdomen: 24.79 mm; Forewing: 18.25 mm; Hindwing: 17.19 mm coll. loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu

Distribution: Throughout India; Andhra Pradesh: Nargamangalam in Chittoor, Mutukur, Vontimitta in Cuddapah, Chevella in Ranga Reddy, Sompeta, Palasa, Vajrapukotturu, Sumadevi in Srikakulam, Kolleru in West Godavari, Samsabad in Mahbunagar, Vijayawada in Krishna districts.

Description: Male: Eyes black above, pale greenish below with two bright blue spots behind the eyes. Thorax: On the dorsal surface two narrow green bands are present bordered by thick black bands. Sides of the thorax greenish fading to yellow underneath. Legs black above and pale green on the undersurface. Abdomen: The first segment in green followed by azure blue second segment. Third to 7th segments are blue-black above and yellow underneath. Eighth and 9th segments are azure blue and the 10th segment is black above and yellow below with blue spots on the sides.

Remarks: This species is encountered along the banks of the reservoir among the vegetation.

Suborder : ANISOPTERA
 Superfamily : AESHNOIDEA
 Family : GOMPHIDAE

Genus : *Ictinogomphus* Cowley, 1934

4. *Ictinogomphus rapax* (Rambur, 1842)

1842. *Diastatiomma rapax* Rambur, *Ins. Neurop*: 169

Common Name : Common Clubtail.

Material Examined: None. Sighted but not collected.

Distribution: Throughout India; Andhra Pradesh: Common throughout.

Description: Vertex black; eyes large and widely separated. Thorax black and has a complete mesothoracic collar. Spots on tergum. Abdomen black marked with yellow spots. The 9th segment has a lateral basal yellow stripe, 10th segment with a spot on either side. Anal appendages black.

Remarks: This species is commonly encountered among the vegetation along the banks of the reservoir.

Family : AESHNIDAE
 Genus : *Anax* Leach, 1815

5. *Anax guttatus* (Burmeister, 1839)

1839. *Aeschna guttatus* Burmeister, *Handb. Ent.*, 2: 840

Common Name: Blue-tailed Green Darner

Material Examined: None. Sighted but not collected.

Distribution: Throughout India; Andhra Pradesh: Common throughout.

Description: Face and frons golden yellow or bright greenish-yellow. Thorax pale green. Abdomen: 1st and 2nd segments pale green however, the 2nd segment has turquoise blue colouration dorsally, 3rd segment also pale green and possesses a pair of turquoise blue spots dorsally. Rest of the segments has orange spots dorsally. In 8th and 9th segments the orange spots are confluent while the 10th segment is entirely yellow.

Remarks: This species is commonly encountered among the submerged vegetation in the reservoir and along the banks of the reservoir.

Family : LIBELLULIDAE
 Genus : *Pantala* Hagen, 1861

6. *Pantala flavescens* (Fabricius, 1798)

1798. *Libellula flavescens* Fabricius, *Suppl. Ent. Syst.* : 285.

Common Name: Wandering Glider

Material Examined: 1♂ (NHM.OU.IN.23.2007): Abdomen: 30.81 mm; Forewing: 42.84 mm; Hindwing: 39.19 mm, coll. loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu

Distribution: Throughout India; Andhra Pradesh: Srisailam, Dornala, Chintala, Nallamala in Kurnool, Nizamabad, Rajahmundry, East Godavari, Mutukar, Muddadugi in Cuddapah, Gundipel in Ranga Reddy, Cheepurupalle in Vizianagaram, Anakapalle, Borra, Peddawalair, Anadapuram, Simhachalam in Visakhapatnam, Domopapenta in Prakasam, Samsabad (Umdanagar) in Mahbubnagar, Machilipatnam, Adavinedalam in Krishna, Golconda Fort environs in Hyderabad districts.

Description: Frons and face bright golden yellow or orange. Eyes reddish brown above, bluish grey on the sides and below. Thorax is olivaceous or rusty coated with fine yellowish hair. Abdomen bright reddish brown tinted with brick red colour dorsally. Sides of segments 1-4 are yellowish. Segments 8-10 have black spots dorsally. Base of hindwing light golden yellow.

Remarks: This species is commonly encountered among the submerged vegetation in the reservoir and along the banks of the reservoir.

Genus : *Tholymis* Hagen, 1867

7. *Tholymis tillarga* (Fabricius, 1798)

1798. *Libellula tilalrga* Fabricius, *Suppl. Ent. Syst.*: 285.

Common Name: Coral-tailed Cloudwing

Material Examined: None. Sighted but not collected.

Distribution: Throughout India; Andhra Pradesh: Phoolbagh in Vizianagaram, Domalappenta in Prakasam, Vijayawada in Krishna, Anandapuram in Visakhapatnam.

Description: Frons and face pale crimson-brown. Thorax Reddish above, olivaceous on the sides. Wings are transparent with a broad fan-shaped brown patch that is bordered by a creamish patch on the hindwing. Abdomen bright rusty red.

Remarks: This species is crepuscular in habit being active during dusk till night. It is very fast and commonly encountered on the water and on the vegetation in the reservoir and on the banks of the reservoir and marshy areas.

Genus : *Diplocodes* Kirby, 1889

8. *Diplocodes trivialis* (Rambur, 1842)

1842. *Libellula trivialis* Rambur, *Hist. nat. Ins. Neurop.*: 115.

Common Name: Ground Skimmer

Material Examined & Morphometrics: 1♂ (NHM.OU.IN.20.2007): Abdomen: 20.15 mm; Forewing: 23.71 mm; Hindwing: 22.09 mm, 1♂ (NHM.OU.IN.21.2007): Abdomen: 19.84 mm; Forewing: damaged; Hindwing: 22.44 mm, 1♀ (NHM.OU. IN. 22. 2007) : Abdomen: 20.23mm; Forewing: 23.55 mm; Hindwing: 22.40 mm, coll. loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu

Distribution: Throughout India; Andhra Pradesh: Pakhal forest, Dornakal, Mahbubabad in Warangal, Palair in Khammam, Gadur, Tirupati, Gangasagaram, Sri Venkateshwara National Park, Javakona reserve forest in Chittoor, Nellore in Nellore, Nallamala near

Atmakur, Srisailam in Kurnool, Samsabad, Achampet in Mahbubnagar, Pathamcheru in Medak, Bhongiri, Suryapet in Nalgonda, Nizamabad, Rajahmundry in East Godavari, Mutukur, Siddavatam in Cuddapah, Medchal, Golkonda in Hyderabad, Akbarpura, Chevella in Rangareddy, Kondapalle, Mandavelle in Krishna, Badangiri in Vizianagaram, Ramasingavaram, Rangapuram in West Godavari, Bhimli, Tagarapuvalasa, Araku, Simhachalam, Pedda Waltair Road, Kottavalasa in Visakhapatnam, Vajrapukotturu in Srikakulam, Mannanur in Mahbubnagar, Dornal, Domalapenta in Prakasam, Machilipatnam in Krishna districts.

Description: Frons and face pale azure blue. Thorax greenish yellow or olivaceous. Segments 1-7 are greenish-yellow and have mid-dorsal black markings. Remaining segments completely black.

Remarks: This species is very commonly encountered and is seen everywhere around the reservoir.

Genus : *Orthetrum* Newman, 1833

9. *Orthetrum glaucum* (Brauer, 1865)

1865. *Libellula glauca* Brauer, *Verh. Zool.-bot. Ges. Wien.*, 15: 1012

Common Name: Blue Marsh Hawk

Material Examined & Morphometrics:

1 ♀ (NHM.OU.IN.7.2007): Abdomen: 27.77 mm; Forewing: 34.86 mm; Hindwing: 33.55 mm

1 ♀ (NHM.OU.IN.8.2007): Abdomen: 29.11 mm; Forewing: 33.91 mm; Hindwing: 33.16 mm

1 ♀ (NHM.OU.IN.12.2007): Abdomen: 28.19 mm; Forewing: 34.73 mm; Hindwing: 34.34 mm; coll.loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu.

Distribution: India: Andhra Pradesh, Arunacahl Pradesh, Himachal Pradesh, Maharashtra, Mizoram, Orissa, Sikkim, Uttar Pradesh, West Bengal and the Western Ghats; Andhra Pradesh: Sri Venkateswara University Campus in Chittoor District.

Description: Males: Face is pale brown to glossy black. Thorax dull blue to black with fine blue or black hair. Abdomen is bulged from segments 1-3. Segments 1-8 are hairy and pale blue in colour and the remaining segments are black throughout. Female: Thorax is olivaceous with a broad reddish brown stripe on either side. Wings transparent with base of wings coloured rich amber yellow. Abdomen reddish brown with a broad greenish yellow mid-dorsal stripe. Segments 8-10 are black mid-dorsally.

Remarks: This species is very commonly encountered and is seen everywhere around the reservoir.

10. *Orthetrum sabina sabina* (Drury, 1770)

1770. *Libellula sabina* Drury, *Ill. Exot. Ins.*, 1: 114.

Common Name: Green Marsh Hawk

Material Examined & Morphometrics:

1♂ (NHM.OU.IN.6.2007): Abdomen: 32.68 mm; Forewing: 34.01 mm; Hindwing: 33.42 mm

1♂ (NHM.OU.IN.13.2007): Abdomen: 33.24 mm; Forewing: 33.95 mm; Hindwing: 33.04 mm

1♂ (NHM.OU.IN.17.2007): Abdomen: 35.37 mm; Forewing: 36.18 mm; Hindwing: 35.79 mm; coll.loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu.

Distribution: Throughout India; Andhra Pradesh: Nellore, Tirupati, Gangasagar in Chittoor, Zoological Gardens, Golkonda fort environs, Rajendranagar in Hyderabad, Khammam, Mahbubabad in Warangal, Machilipatnam, Kaikalur, Mandavalli in Krishna, Mutukur, Muddadugi, Madhavaram Reserve Forest in Cuddapah, Chevella in Ranga Reddy, Bendkonda in Srikakulam, Kailasagiri, Anadapuram, Kottavalasa in Visakhapatnam, Kolleru, Ramasingavaram in West Godavari, Samsabad in Mahbubnagar, Bhongir in Nalgonda, Rajahmundry in East Godavari, Nallamala, Srisailam in Kurnool.

Description: Face is yellowish green. Thorax greenish-yellow with black stripes. Wings transparent with the upper edges tinged with yellow. Abdomen is bulged from segments 1-3 and are green with broad black stripes.

Remarks: Most common species seen near and also away from water, near human habitation in the gardens, wastelands.

Genus : *Crocothemis* Brauer, 1868

11. *Crocothemis servilia servilia* (Drury, 1770)

1770. *Libellula servilia* Drury, Ill. ex. Ins., 1: 112.

Common Name: Ruddy March Skimmer

Material Examined & Morphometrics:

1 ♀ (NHM.OU.IN.10.2007): Abdomen: 18.34 mm; Forewing: 26.51 mm; Hindwing: 25.36 mm

1 ♀ (NHM.OU.IN.11.2007): Abdomen: 31.74 mm; Forewing: 44.55 mm; Hindwing: 39.47 mm

1 ♂ (NHM.OU.IN.16.2007): Abdomen: 25.94 mm; Forewing: 32.90 mm; Hindwing: 31.36 mm; coll.loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu.

Distribution: Throughout India; Andhra Pradesh: Nandyal in Kurnool, Khammam, Kaikalur in Krishna, Sompeta, Benkonda in Srikakulam, Kolleru in West Godavari, Madhuvaram Reserve Forest in Cuddapah, Araku in Visakhapatnam districts.

Description: In Males: Face is blood red, thorax and abdomen blood red or orange in colour. Wings transparent and the base is rich amber in colour. In Females: Face is pale

yellow. Thorax dark brown, abdomen yellowish brown with a black mid-dorsal stripe. Wings transparent with the base possessing pale amber marking.

Remarks: Very commonly encountered species, seen perching on the aquatic vegetation.

Genus : *Rhyothemis* Hagen, 1867

12. *Rhyothemis variegata variegata* (Linnaeus, 1763)

1763. *Libellula variegata* Linnaeus, *Amoenitates Acad.*, 6: 412.

Common Name: Common Picture Wing

Material Examined & Morphometrics:

1 ♀ (NHM.OU.IN.9.2007): Abdomen: 21.33 mm; Forewing: 34.28 mm; Hindwing: 32.72 mm

1 ♂ (NHM.OU.IN.14.2007): Abdomen: 23.66 mm; Forewing: 37.88 mm; Hindwing: 35.88 mm

1 ♀ (NHM.OU.IN.15.2007): Abdomen: 20.30 mm; Forewing: 36.98 mm; Hindwing: 32.33 mm; coll.loc. Wyra Reservoir, Khammam District, Andhra Pradesh, 25.03.2007, coll. Dr. C. Srinivasulu.

Distribution: India: Andhra Pradesh, Assam, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Orissa and West Bengal; Andhra Pradesh: Ramapuram in Chittoor, Kolleru Lake in West Godavari, Machilipatnam in Krishna Districts..

Description: Frons dark iridescent green. Thorax iridescent green. Abdomen is completely black. In males the forewings are golden yellow and transparent. The wing tip and the centre of the wing possess dark coffee brown spots. The hindwings possess similar markings and the base of the hindwings possess irregular brown patch. In females the tips of the forewings are transparent. While the brown patch extends from the base of the wing to the centre and encloses a hockeystick shaped yellow marking. In the hindwing the brown colouration is more extensive extending almost up to the wing tips and encloses a broader yellow patch. Small yellow spots on the margins are also seen.

Remarks: This species is always seen in association with water, near ponds, marshes and crop fields. This has been observed on the vegetation on the banks of the reservoir.

Genus : *Trithemis* Brauer, 1868

13. *Trithemis pallidinervis* (Kirby, 1889)

1889. *Sympetrum pallidinervis* Kirby, *Trans. Zool. Soc. Lond.*, 12: 327.

Common Name: Long-legged Marsh Glider

Material Examined: None. Sighted but not collected.

Distribution: Throughout India; Andhra Pradesh: Sompeta, Bendakonda in Srikakulam, Pendurti in Visakhapatnam, Kolleru in West Godavari districts.

Description: Face yellow or pale brown in front and purple above. Eyes are reddish brown above, pale brown on the sides and grayish blue below. Thorax is olivaceous above and bright yellowish brown on the sides with three black stripes on each side. Legs are characteristic to this species in being long, black and spidery. Wings are transparent and the base of the hind wings is amber coloured. Abdomen is bright yellow with median and lateral black markings such that are confluent and enclose a wedge shaped yellow spot.

Remarks: This species is always seen near marshy areas perching on vegetation in the water or in the marshy area.

Genus : *Acisoma* Rambur, 1842

14. *Acisoma panorpoides panorpoides* Rambur, 1842

1842. *Acisoma panorpoides* Rambur, *Hist. nat. Ins. Neurop*: 28

Common Name: Trumpet Tail

Material Examined: None. Sighted but not collected

Distribution: India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Great Nicobar Islands, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bengal; Andhra Pradesh: Hyderabad, Vizianagaram districts..

Description: Face is pale blue. Eyes blue. Thorax azure blue marbled with black. Wings transparent, with pale yellow wing spot. Abdomen: Azure blue in colour with 1-5 segments characteristically dilated, 6th segment onwards the abdomen becoming thin. The underside of the first five segments have a broad black band on the underside. 3-5 segments have large black spots. Segments 6-10 are black in colour however, the 6th and 7th segments have large azure blue spots.

Remarks: This species has a weak and slow flight and can be easily distinguished by its swollen abdominal segments. It is seen among weeds in the reservoir and near marshy areas perching on vegetation in the water or in the marshy areas.

SUMMARY

A total of 14 species of odonates belonging to 13 genera and four families were recorded during the present study. Most species collected and observed are of common and ubiquitous species. Interestingly, common ditch jewel *Brachythemis contaminata*, one of the commonest dragonfly has not been sighted during the study. The damselfly diversity could be more than what has been recorded. Future surveys would add more species diversity.

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CRUSTACEA (CRUSTACEA: DECAPODA: PALAEMONIDAE, GECARCINUCIDAE AND PARA THELPHUSIDAE)

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INTRODUCTION

Although, a good deal of information is available on prawns and crabs of brackish water lakes of India (Kemp, 1915; Joel *et al.*, 1986; Deb, 1995; Anonymous, 1998; Dev Roy and Nandi, 2007 and in press), only a few species of crabs and prawns inhabit freshwater systems and very little is known of these groups from freshwater lakes barring few publications (Radhakrishnan, 1989; Ghosh *et al.*, 2005; Dev Roy and Nandi, 2007) and hence this communication.

In the present study, an inventory of prawns and crabs of Wyara lake of Andhra Pradesh has been made based on materials collected by Freshwater Biological Station, Zoological Survey of India, Hyderabad during the period from 2006-2007. A total of eighty-two examples of these crustaceans have been examined. These consist of two species of prawns and two species of crabs under one and three families respectively.

SYSTEMATIC LIST

Phylum and Subphylum CRUSTACEA Pennant, 1977

Class MALACOSTRACA Latreille, 1806

Subclass EUMALACOSTRACA Grobben, 1892

Order DECAPODA Latreille, 1803

Suborder PLEOCYEMATA Burkenroad, 1863

Infraorder CARIDEA Dana, 1852

Superfamily PALAEMONOIDEA Rafinesque, 1815.

Family PALAEMONIDAE Rafinesque, 1815

1. *Macrobrachium multifrons* (Henderson, 1893)

2. *Macrobrachium malcolmsoni* (H. Milne Edwards, 1844)

Infraorder BRACHYURA Linnaeus, 1758

Section EUBRACHYURA Saint Laurent, 1980

Subsection HETEROTREMATA Guinot, 1977

Superfamily GECARCINUCOIDEA Rathbun, 1904

Family GECARCINUCIDAE Rathbun, 1904

3. *Barytelphusa acunicularis* (Westwood, 1836)

Superfamily PARATHELPHUSOIDEA Colosi, 1920

Family PARATHELPHUSIDAE Colosi, 1920

4. *Oziotelphusa senex* (Fabricius, 1798)

SYSTEMATIC ACCOUNT

A. Family : PALAEMONIDAE Rafinesque, 1815

1. *Macrobrachium altifrons* (Henderson, 1893)

1893. *Palaemon altifrons* Henderson, *Trans. Linn. Soc. Lond. (Zool.)*, (2), 5: 444, pl. 40, figs. 4-6.

2006. *Macrobrachium altifrons*, Ghosh, Ghatak and Roy, *Rec. zool. Surv. India, Fauna of Arunachal Pradesh, State Fauna Series*, 13 (2): 40.

Material examined: 5(M), 12(F), Nalayanapuram, 21. 08. 2007, Coll.: Sekhar & Party; I(M), 4(F), Narayanapuram, 22. 08.2007, Coll.: Sekhar & Party.

Diagnosis: Rostrum short and extended at the end of antennular peduncle, often reaching at the end of antennal scale. Upper edge convex, horizontal or slightly upturned. Rostral formula 5-1411-5 with 1-5 post-orbitalteeth. Carapacevery rough except the juveniles. Second pair of leg strong, unequal or subequal and longer than total length of body in large males, otherwise equal or shorter. Carpus of second leg shorter than merus, mobile finger more than half as long as palm with 5-6 tubercles, immobile finger bearing 4-5 tubercles. Entire leg covered with small dense spinules on upper surface but larger and less dense spinules on lower and inner surface.

Distribution: India - Assam, Arunachal Pradesh, Bihar, Uttar Pradesh, Delhi, Andhra Pradesh. *Outside* - Nepal, Pakistan.

2. *Macrobrachium malcolmsonii* (H. Milne Edwards, 1844)

1844. *Palaemon malcolmsonii* H. Milne Edwards, In: *Jacquemont, Voyage Inde*, 4 (2): 18.

2005. *Macrobrachium malcolmsonii*, Ghosh, Ghatak and Roy, *Rec. zool. Surv. India, Fauna of Arunachal Pradesh, State Fauna Series*, 13(2): 40.

Material examined: 2(F), Sidqanagar, 16.02.2006, Coll.: Sekhar & Party; I(M), Nalayanpalem, 17.02.2006, Coll.: Dr. C. A. N. Rao & Party; 2(M), I(F), Wysadam, 19.04.2006, Coll.: Sekhar & Party; 2(M), Singaraypalem, 20.04.2006, Coll.: Sekhar & Party; 3(M), 3(F), Siddiqnagar, 05.11.2006, Coll.: Dr. C. A. N. Rao & Party; 3(M), 7(~), Singaraypalem, 26.03.2007, Coll.: Sekhar & Party; 3(M), 2(F), Wysadam, 25. 03. 2007, Coll.: Sekhar & Party; I(M), Siddiqnagar, 19.08.2007, Coll.: Sekhar & Party; 3(M), I(F), Singaraypalem, 20.08.2007, Coll.: Sekhar & Party; 3(M), Narayanapuram, 22.08.2007, Coll.: Sekhar & Party.

Diagnosis: Rostrum slightly upturned distally, proximal portion convex and deep, distal portion almost straight and narrower extending upto the antennal scale. Rostral formula 5-9/5-7 with 3 orbital teeth. Carapace smooth. Secondpair of leg strong and well developed in male, merus shorter than carpus, palm swollen, shorter than fingers in young specimens, chela longer than carpus in adult male. Mobile finger covered with pubescent except its tip and provided with two prominent denticles; immobile finger with one strong and two weak denticles. Chelipeds shorter than its total body length and entirely tuberculated.

Distribution: India - Andhra Pradesh, Tamil Nadu, Orissa, Bihar, Madhyaya Pradesh, Gujarat. *Outside*- Myanmar, Bangaldesh, Pakistan.

B. Family : GECARCINUCIDAE Rathbun, 1904

3. *Barytelphusa cunicularis* (Westwood, 1836)

1836. *Telphusa cunicularis* Westwood, In: Sykes and Westwood, *Trans. Entomol. Soc. Lond.*, 1: 183, pl. 19, figs. 1-6.
1869. *Telphusa indica*, A. Milne Edwards, *Nouv. Arch. Mus. Hist. nat., Paris*, 5: 184.
1910. *Potamon (Barytelphusa) jacquemontii*, Alcock, *Cat. Ind. Decap. Crust. Ind. Mus.*, 1(2): 79, pl. 12, fig. 55.
1970. *Barytelphusa (Barytelphusa) cunicularis*, Bott, *Abh. Senckenb. Naturforsch. Ges., Frankfurt*: 526, pl. 2, figs. 18-20 and pl. 26, fig. 13.
2005. *Barytelphusa (Barytelphusa) cunicularis*, Ghosh, Ghatak and Roy, *Rec. zool. Surv. India, State Fauna Series 5: Fauna of Andhra Pradesh (Part 5)*, 556.
2008. *Barytelphusa cunicularis*, Dev Roy and Nandi, *J Environ. & Sociobiol.*, 5(2): 201.

Material examined: 3M, I(F), Bramanapalla, 22.04.2006, Coll.: Dr. C. A. N. Rao & Party; I(M), Wyradam, 25.03.2007, Coll.: Dr. C. A. N. Rao & Party; I(M), Siddiquinagar, Wayra Lake 19.08.2007, Coll.: Dr. C. A. N. Rao & Party.

Diagnosis: Carapace distinctly broader than long, convex, surface smooth, regions not areolated, cervical groove bold, deep and broadly V-shaped. Post-orbital crests not distinctly separated from the latest epibranchial tooth. Front broad, deflexed and broadly bilobed. Lateral epibranchial tooth extremely small. Merus of external maxillipeds quadrangular, anterior margin less oblique. Chelipeds massive, unequal, dactylus longer than palm, fixed finger of larger cheliped armed with a strong molariform tooth proximally at its base.

Distribution: Andhra Pradesh, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Tamil Nadu, Uttarakhand, West Bengal.

C. Family : PARATHELPHUSIDAE Colosi, 1920

4. *Oziotelphusa senex* (Fabricius, 1798)

1798. *Cancer senex senex* Fabricius, *Entom. Syst. (Suppl.)*: 340.
1837. *Telphusa indica*, H. Milne Edwards, *Hist. nat. Crust.*, 2: 13.
1904. *Potamon (Potamon) senex* Rathbun, *Nouv. Arch. Mus.*, (4), 6: 292.
1910. *Paratelphusa (Oziotelphusa) hydrodromus*, Alcock, *Cat. Ind. Decap. Crust. Ind. Mus.*, 1(2): 97 (in partim).
1970. *Oziotelphusa senex senex*, Bott, *Ark. Zool., Stockholm*, (2) 22: 632, T 1, F. 23, T 2, F. 5, T 5, F. 12, Abb. 2.
2008. *Oziotelphusa senex* Ng, Guinot and Davie, *Raffles Bull. Zool., Supplement*, 17:

Material examined: 4(F), Siddiquadam, 24. 08. 2007, Dr. C. N. Rao & Party; I(M), I(F), Singaryedem, Wyra Lake, 19.08.2007, Dr. C. N. Rao & Party; 2(M), 2(F), Wayrdem, Wyara Lake, 22. 08. 2007, Dr. C. N. Rao & Party; 2(M), 2(F), Siddiquadem, 21. 08. 2007, Dr. C. N. Rao & Party.

Diagnosis: Carapace strongly convex, its length two-third its greatest breadth in adult male. Cervical groove distinct rather superficial. Front in adult nearly a third the greatest breadth of carapace with convergent sides. Orbits broad, external orbital teeth blunt. Antero-lateral borders of carapace convex, smooth and cristiform. Well formed lateral epibranchial

teeth, blunt and postero-lateral borders convergent and not well defined. Epigastric crest sub-trenchant, overlapping and little advance of the post orbital crests. Male abdomen broadly triangular. Mandibular palp consisting of two prominent joints. Chelipeds unequal in both sexes, carpus with a strong sharp spine. Pleopods short with broad base.

Distribution: West Bengal, Maharashtra, Pondicherry, Tamil Nadu, Kerala, Uttar Pradesh.
Outside: Sri Lanka.

SUMMARY

Two species of palaemonid prawn and two species of brachyuran crabs have been recorded for the first time from Wyara lake of Andhra Pradesh, India.

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FRESHWATER MOLLUSCS

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INTRODUCTION

Molluscs are one of the important group of animals in the animal kingdom, which are habituated in almost all the habitats from the deeper waters in the sea to the high altitudes such as Himalayas on the earth. Our knowledge on the Indian Molluscs was based on several workers, which is well scattered in the literature. There is no comprehensive work on marine molluscs which occupies the largest number of species among this group except publication of a "Hand book on Indian Sea Shells Part-1 by Subba Rao (2003). In the case of land and freshwater mollusks (1882-1914, 1920) Gude (1914,1920) and by Preston (1915) under Fauna of British India, and most recently by Subba Rao 'Handbook on Indian Freshwater Mollusca' (1989) and by Ramakrishna and Dey (2007).

Aquatic molluscs play important role in the ecosystems especially especially in the freshwater. Their role as food to the other animals including human beings and as 'vectors' to the trematodes which cause diseases to the animals, even human beings as 'systosomaiasis' Hence studies on the freshwater molluscs are very important to know their role and resources under this aspect, studies are being under taken by the Zoological Survey of India.

Under the wetland ecosystem series, works on chilka lake by Subba Rao *et al.* (1995), Ujani (2000), Renuka (2002a), Kabar lake (2002 b) by Surya Rao *et al.*, Asan by Mitra *et al.* (2003), Sambar Lake (2004), Nath sagar (2005), Pichola lake (2007) and Pichoram by Surya Rao (in Press) so far known. The present study on "Wyra Lake" in Andhra Pradesh is one of them taken during the period 2005-2008.

Wyra Lake

Wyra Lake is of a medium size water reservoir formed by construction of a dam on the river, wyra one of the tributary of the river Krishna, located at 17°-15 N and 80°-25'E and is about 25 kms from Khammam town in the Khammam distict, and is 200 kms South East from Hyderabad in Andhra Pradesh, during the Nizams Period between 1922-1929, between the two hills on either side of the Wyra river. The reservoir has been made for the purpose of irrigation and for drinking to the people of the area. It is serving 24 villages and about 22,000 acres of land under cultivation. It spreads three mandals viz. Konijerla, Wyra and Thallada of the district Khammam.

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The lake is surrounded by hills and forest on one side and the cultivated lands and villages on the other side. The source of water is being received from the South West Monsoon rainfall. The depth of the lake is about 17.075 m. and the average temperature varies from 26-44°C. The water temperature ranges between 26-35°C.

The lake is rich fishery potential for both fishes like Catle, Rahu and Prowns. Govt. of Andhra Pradesh is encouraging the development of fisheries and declared as tourism spot in 2005, constructed a recreation park.

MATERIAL AND METHODS

During the study period 2005-2008, seven surveys were undertaken by the Scientist at Fresh water Biological Station and established nine collection stations around the lake, viz. Wyra, Brahmana pale, Reddigudem, Mallavaram, Narayanapuram, Singarayapalem, Lallapuram, Lallagudem and Siddiqnagar. Faunal samples are taken at random samples from the periphery of the lake, banks as well as water body by using water nets especially cast net and molluscs were picked up by hand.

Key to the families is provided. Classification is followed as per Vaught (1989). Under the wetland ecosystem series, works on Chilika lake. (Subba Rao *et al.*, 1995,) Ujani (Surya Rao *et al.*, 2000), Renuka (Surya Rao *et al.*, 2002a) , Kaber Lake (Surya Rao *et al.*, 2002b,) Asan (Mitra *et al.* 2003) and Pocharam (Surya Rao, in Press) are known so far.

The present study on Wyra Lake in Andhra Pradesh another wetland of importance taken up for studies during 2005-2008.

SYSTEMATIC ACCOUNT

Class : GASTROPODA

Sub class : PROSOBRANCHIA

Order : MESOGASTROPODA

I. Family : VIVIPARIDAE

Sub family : BELLAMYINAE

Genus : *Bellamyia* Jousseau, 1886

1. *Bellamyia bengalensis* form *typica* (Lamarck)
2. *Bellamyia bengalensis* form *annandalei* (Kobelt)
3. *Bellamyia bengalensis* form *colairensis* (Annandale)
4. *Bellamyia bengalensis* form *doliaris* (Gould)
5. *Bellamyia bengalensis* form *eburnea* (Annandale)
6. *Bellamyia crassa* (Benson)
7. *Bellamyia dissimilis* (Mueller)

II Family AMPULLARIIDAE

Genus *Pila* (Bolten) Roeding, 1798

8. *Pila virens* (Lamarck)

III Family : BITHYNIIDAE

Genus : *Bithynia* Leach, 1818Subgenus *Digoniostoma* Annandale, 19209. *Bithynia (Digoniostoma) pulchella* (Benson)10. *Bithynia (Digoniostoma) cerameopoma* (Benson)Genus *Gabbia* Tryon, 186511. *Gabbia travancorica* (Benson)

Superfamily : CERITHIOIDEA

IV Family : THIARIDAE

Subfamily : THIARINAE

Genus : *Thiara* Roeding, 1798Subgenus : *Thiara* s.st.12. *Thiara (Thiara) scabra* (Mueller)Genus : *Melanooides* Olivier, 180413. *Melanooides tuberculata* (Mueller)Genus : *Tarebia* H. and A. Adams, 185414. *Tarebia granifera* (Lamarck)15. *Tarebia lineata* (Gray)

Subclass : PULMONATA

Order : BASOMMATOPHORA

Super family : LYMNOIDEA

V Family : LYMNAEIDAE

Genus : *Lymnaea* Lamarck, 1799Subgenus : *Pseudosuccinea* Baker, 190816. *Lymnaea (Pseudosuccinea) acuminata* form *gracilor* Martens17. *Lymnaea (Pseudosuccinea) acuminata* form *rufescens* Gray

Super family : PLANORBIOIDEA

VI Family : PLANORBIDAE

Subfamily : PLANORBINAE

Genus : *Gyraulus* Agassiz in Chairpentier, 183718. *Gyraulus convexiusculus* (Hutton)19. *Gyraulus labiatus* (Benson)

VII Family : BULLINIDAE

Sub family : BULLININAE

Genus : *Indoplanorbis* Annandale & Prashad, 192020. *Indoplanorbis exustus* (Deshayes)

Class : BIVALVIA
 Order : UNIONOIDA
 Super Family : UNIONOIDEA
 VIII Family : UNIONIDAE
 Genus : *Lamellidens* Simpson, 1900

21. *Lamellidens consobrinus* (Lea)

22. *Lamellidens marginalis* (Lamarck)

Genus: *Parreysia* Conrad, 1853

Subgenus: *Parreysia* s.st.

23. *Parreysia (Parreysia) favidens f. deltae* (Benson)

Subgenus : *Radiatula* Simpson, 1900

24. *Parreysia (Radiatula) caerulea* (Lea)

25. *Parreysia (Radiatula) pachysoma* (Benson)

KEY TO THE FAMILIES

1. Shell with Single valued, spirally coiled..... 2
 Shell with two valves attached by hinge and ligament at dorsal Margin 8
2. Shell with operculum; animal with gills 3
 Shell without operculum; animal with gills and wings Air breathes 6
3. Operculum with concentric growth lines 4
 Operculum with spiral growth lines 5
4. Shell large, body whoral much inflated; spike very short in
 proportion in body; aperture oval, with Calcarcas operculum.....Ampullaridae (*Pilidae*) *Pila*
 Shell small, whoralis gradually increase in size; Spike elevated;
 aperture either rounded or oval; operculum horny.....*Viviparidae Bellamya*
5. Shells small, less than 10 mm in height; Either comical or
 globose; operculum Calcareas as large as aperture, cannot withdrawn;
 Shell smooth *Bithynidae*
 Shell large, more than 10 mm height, turriated; operculum horny,
 slightly smaller than aperture, oblong with terminal nucleus;
 shell sculptured with spines/granules/or ridges *Thiaridae*
6. Shell thin, oval with prominent spike; columella twisted,
 dentrally coiled, body whorls large and smooth..... *Hymnaeidae*
 Shell discoidal; spike depressed; collumella not twisted
 synstrally coiled; body whorls large either rounded or carinate..... 7
7. Shell thick, large more than 5 mm in diameter, body whorals
 rounded; Aperture large, reflected at its end..... *Buliminidae -Indoplanorbis*
 Shell thin, small less than 5 mm in diameter; Body whorls either
 angulate or carinate; aperture not reflected at its end..... *Planorbidae*

8. Shell with prominent beak; surface sculptured with radiating markings extending beyond beak and dorsal area. All the four gills marsupialAmblemidae
Shell with less prominent beak, surface with concentric lines; only outer gills marsupial.....Unionidae

Class : GASTROPODA
Subclass : PROSOBRANCHIA
Order : MESOGASTROPODA
I. Family: VIVIPALDAE
Genus: *Bellamyia* Jousseaume 1886.

1. *Bellamyia bengalensis* form. *Typica* (Lamarck)

1822. *Paludina bengalensis* Lamarck, *Hist. Nat. Anim.Sans. Vert.*, 6(2): 174.

1989. *Bellamyia bengalensis* f. *tyica* : Subba Rao, *Handbook of fresh water molluscs of India*, p. 45, fig. 55.

2005. *Bellamyia bengalensis* f. *typical*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh. Zool. Surv. India. State Fauna Series*, 5 (part - 5), p. 188.

2007. *Bellamyia bengalensis* f. *Typica*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Mollusks*: p. 79–80, fig. 39 A and B.

Materials examined.: 50 exs. Brahmanapalle, 24.3.2007, 22.8.2007; 1 ex. Wyradam, 22.8.2007; 3 exs. Narayanapuram, 17.2.2006; 3 exs. Singarayapalem, 16.2.2006, 26.3.2007; 3 exs. Reddygudem, 4.11.2006, 26.3.2007; 6 exs. Ramachandrapuram (Lallurgudem) 16.2.2006, 25.1.2008; 1 ex. Lallapuram, 15.2.2006; 10 exs. 17.2.2006, 3.11.2006, 20.8.2007; 8 exs. Siddiqnagar, 16.2.2006, 26.3.2007, 19.8.2007, 21.1.2008.

Diagnosis: Shell thin, more or less smooth, ovately conoid; body whorl as high as spire; whorls tumid, body whorl evenly convex in profile, not biangulate; umbilicus narrow; aperture sub circular with a narrow black margin; dark bands variable and irregular with alternating broad and narrow bands.

Remarks: One of the shells found an abnormal growth on its body, with an irregular white and at halfway to the body. This species has been reported earlier from this lake by Mitra et. al (2005).

Annandali (1921) studied the ornamentation of the shell and systematics and Sewell (1921) discussed about anatomy and bionimics.

Distribution: India: Andhra Pradesh (Cuddapah, Hyderabad, Khammam, Kurnool, Medak, Srikakulam, Vizianagaram, Vishakapatnam). Common throughout the country.

2. *Bellamyia bengalensis* form. *Annandalei* (Kobelt, 1908)

1909. *Paludina bengalensis* f. *annandalei* Kobelt, *Malak. Ges.*, 60: 161. (Type locality: Vishakapatnam, Andhra Pradesh).

1989. *Bellamyia bengalensis* form *annandalei*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 46 fig. 57.

2005. *Bellamyia bengalensis* form *annandalei*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India. State Fauna Series, 5* (part - 5) , p. 188.

2007. *Bellamyia bengalensis* form *annandalei*: Ramakrishna and Dey Anirudha, *Handbook on Indian fresh water molluscs*: p. 80– 81, fig. 40 A and B.

Material examined: 2exs. Wyra Dam, 3.11.2006; 1 ex. Brahmanapalle, 5.11.2006; 6 exs. Narayanapuram, 4.11.2006, 25.1.2008; 3 exs. Singarayapalem, 24.1.2008; 1 ex. Reddygudem, 18.2.2006; 8 exs. Mallavaram, 3.11.2006, 26.1.2008.

Diagnosis: Shell thinner, whorls gradually increasing, less rounded and with rather straight sides, suture shallow.

Remarks: This species is reported to the first time from Wyra Lake.

Distribution: India: Andhra Pradesh, Bihar, Jharkhand; Santhal Paragan; Manipur; Imphal, Jiribam, Bishenpur, Meghalaya: Garohills (East & West), Khasi Hills (east), Jaintia Hills; Orissa, Rajasthan, Tamil Nadu, West Bengal.

3. *Bellamyia bengalensis* form. *Cleolairensis* (Annandale)

1921. *Vivipara benalensis* form. *Cleolairensis* Annandale, *Rec. Indian Mus.*, **22** : 275, pl. 1, figs. 5 & 6 (Type locality Sr iparptipada, colair Lake, Andhra Pradesh).

2005. *Bellamyia bengalensis* form. *Cleolairensis*: Mitra, Dey and Ramkarishna, *Fauna of Andhra Pradesh, Zoo. Surv. India. State Fauna Series, 5* (part - 5), p.. 189.

2007. *Bellamyia bengalensis* form. *Cleolairensis*: Ramakrishna and Dey, Anirudha, *Handbook on Indian fresh water molluscs*: p. 82-83 fig. 43 A and B.

Material examined: 8 exs. Wyra dam, 27.1.2008, 1 ex. Reddygudem, 21.1.2008; 2 exs. Siddiqnagar, 16.2.206.

Diagnosis: Shell thin, elongate, translucent; aperture relatively small, almost circular; shell with deep and dull in colour.

Remarks: Its existence in the lake shown the extension of its distribution other than the typed locality.

Distribution: India Andhra Pradesh (Ananthapur, Khammam, Krunool,) Maharashtra, West Bengal.

Elsewhere: Myanmar.

4. *Bellamyia bengalensis* form. *Doliaris I* (Gould)

1843. *Paludina doliaris* Gould, *Proc. Boston Soc. Nat. Hist*, **1**: 144.

1989. *Bellamyia bengalensis* form. *doliaris*: Subba Rao, *Handbook of fresh water Molluscs of India*, p. 46.

2005. *Bellamyia bengalensis* form. *doliaris*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series, 5* (part-5), p. 189.

2007. *Bellamyia bengalensis* form. *Doliaris*: Ramakrishna and Dey. Anirudha, *Handbook on Indian fresh water Molluscs*: p.83-84, figs. 43 A and B.

Material examined: 1 ex. Wyra dam, 15.2.2006; 4 exs. Brahmanapeta, 27.1.2008; 4 exs. Narayanapuram, 21.8.2007; 4 exs. Singarayapalem, 19.8.2007.

Diagnosis: Shell elongate, smaller and more conical, thin, with a small sub circular aperture, last whorl distinctly biangulate.

Remarks: Recorded from this lake for the first time.

Distribution: India: Andhra Pradesh (Ananthapur, Khammam, Kurnool,) Maharashtra, West Bengal.

Elsewhere: Myanmar.

5. *Bellamyia bengalensis* form. *Eburnea* (Annandale)

1921. *Viviparus bengalensis* race *eburnea* Annandale, *Rec. Indian Mus.*, **22**: 274. pl.2, figs. 1-2 (type locality: Kaligiri (= Kanigiri) reservoir, Nellore, Andhra Pradesh).

1989. *Bellamyia bengalensis* form *eburnea*: Subba Rao, *Handbook of fresh water Molluscs of India*, p. 47, fig. 59.

2005. *Bellamyia bengalensis* form *eburnea*: Mira, Dey and Ramakrishna, *Fauna of Andhra Pradesh Zool. Surv. India State Fauna Series*, **5** (part-5), p. 190.

2007. *Bellamyia bengalensis* form *eburnea*: Ramakrishna and Dey, Anirudha, *Handbook on Indian fresh water molluscs*: p.83-84, figs. 43 A and B.

Material examined: 1 ex. Wyra dam, 24.3.2007; 6 exs. Brahmanapalle, 18.2.2006, 5.11.2006; 1 ex. Singarayapalem, 19.8.2007; 6 exs. Reddygudem, 26.3.2007, 21.8.2007, 26.1.2008;

Diagnosis: Shell narrow with smaller aperture, whorls much less inflated with distinct flattening below the sutures; body whorl showing a tendency to become biangulate.

Remarks: Widely distributed species varying in slender and degree of sculpture along to its habitat.

Distribution: India: Andhra Pradesh (Hyderabad, Colaor Lake Krishna, Nellore) Jharkand, Madhya Pradesh, Orissa, Tamil Nadu, West Bengal: S. 24 Paraganass, Hugli, Puruliya.

6. *Bellamyia crassa* (Benson)

1836. *Paludina crassa* (Hutton MS) Benson, *J. Asiat. Soc. Beng.*, **5**: 745.

1988. *Bellamyia crassa*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 48, figs. 61,62.

2005. *Bellamyia crassa* Mueller: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India. State Fauna Series*, **5** (part -5) , p. 190-191.

2007. *Bellamyia crassa* Mueller: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: 90-91, fig. 50 A and B.

Material examined: 2 exs. Brahmanapalle, 27.1.2008; 1 ex. Ramachandrapuram, 25.1.2008; 2 exs, Reddygudem, 26.1.2008; 4 exs., 24.1.2008, Khammam District, Andhra Pradesh,; 1 ex. Lallapuram, 15.2.2006.

Diagnosis: Shell thick, globose, olive brown, with fine transverse striations. Spire short, apex blunt; umbilical opening prominent, suture deep, often canaliculated, aperture sub oval.

Remarks: Thin is reported for the 1st time from this lake.

Distribution: India: Andhra Pradesh (Khammam, Kurnool), Assam, Meghalaya, Orissa, Uttar Pradesh, West Bengal.

7. *Bellamyia dissimilis* (Mueller)

1744. *Nerita dissimilis* Mueller, *Hist. Verm. Test.*, pt. 2: 184.

1862. *Paludina variata*: Fraunefeld, *Verhandl. Zool. Bot. Ges. Wien.*: 1163, (Type Locality Pondicherry)

1989. *Bellamyia dissimilis*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 48. figs. 64-67.

2005. *Bellamyia dissimilis* Mueller: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 190-191.

2007. *Bellamyia dissimilis* Mueller: Ramakrishna and Dey, Anirudha, *Handbook in Indian Fresh water Molluscs*: p.90-91, fig. 50 A and B.

Material examined: 5 exs. Wyradam, 15.2.2006, 3.11.2006, 22.08.2007, 27.1.2008; 4 exs. Brahmanapalle, 18.2.2006, 22.8.2007; 3 exs. Narayanapuram, 21.8.2007, 25.1.2008; 6 exs. Singarayapalem, 24.1.2008; 4 exs. Reddygudem, 4.11.2006, 26.1.2008; 5 exs. Rmachandrapuram,, 25.1.2008; 7 exs. Lallapuram, 15.2.2006, 25.3.2007, 22.8.2007; 8 exs. Mallavaram, 20.8.2007, 24.1.2008, 26.1.2008; 1 ex. Ramachandrapuram; 2 exs. Reddygudem, 22.8.2007; 3 exs. Wyra Dam, 3.11.2006, 2 exs. 15.2.2006, Khammam District, Andhra Pradesh, Coll. S.V. A. C. Sekar

Dignosis: Shell small, high and narrow, spire swollen, suture deeply impressed, without dark spiral bands, body whorl with one slightly elevated ridge or broadband obscure, pale spiral band. Rim of the aperture often black operculum thicker and muscular scar better developed. In adult edge of the mantle is smooth.

Remarks: This species has reported earlier form this lake by Mitra *et. al.* (2005).

Distribution: Common throughout India, Andhra Pradesh (Anantapur, Cuddapah, Hyderabad, Khammam, Kurnool, Medak, Rangareddy).

Elsewhere: Bangladesh, Malaysia, Myanmar, Pakistan, Sri Lanka

II. Family : AMPULLARIIDAE

Genus : *Pila* (Bolten) Roeding, 1788

Diagnosis: Medium to large dextral, globose, with convex non angular whorls, aperture large expanded, body whorl inflated, umbilicus open or closed; operculum with an inner calcareous layer, radula; lateral teeth with 5 cusps, central one the largest and innermost reduced. Cluster of eggs with brittle calcareous shell are deposited above the water.

8. *Pila virens* (Lamarck)

1822. *Ampullaria virens* Lamarck, *Hist. Nat. Nim. Sans. Ver. 6* (2): 179.

1856. *Ampullaria maura*: Reeve, *Conch. Icon.*, **10**; *Ampullaria*, sp. no. 57, pl. xiii fig. 57.

1921. *Pachylabra nevilleiana*: Annandale and Prashad, *Rec. Indian Mus.*, **22**: 11, fig. 2. Type locality: Tranquebar.

1989. *Pila virens*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 60. fig. 87.

2007. *Pila virens*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, **5** (part-5), pp. 191-192

Material examined: 4 exs. Wyra dam, 3.11.2006, 5.11.2006, 24.3.2007; 3 exs. Brahmanapalle, 18.2.2006, 22.8.2007; 3 exs. Reddygudem, 18.2.2006, 4.11.2006; 1 ex. Mallevaram, 3.11.2006; 1 ex. Siddiqnagar, 26.3.2007.

Diagnosis: Shell large, globes, imperforate or superforate., body whorl highly inflated and shouldered above; spire short, suture deep and distinctly canaliculated, aperture ovate.

Remarks Some shells may have close affinity with *P. globosa*, careful examination is essential to identify this species. It has been reported earlier from this lake by Mitra et. al (2005).

Distribution: India: Andhra Pradesh (Cuddapah, Khammam , Krishna, Prakasam, Srikakulam, Vishakapatnam). A common species throughout peninsular India.

III Family : BITHYNIDAE

Genus : *Bithynia* Leach, 1818

9. *Bithynia (Digoniostoma) cerameopoma* (Benson)

1830. *Paludina cerameopoma* Benson, *Gleaning in Science, Calcutta*, **2**: 125

1989. *Digoniostoma cerameopoma*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 79. fig. 121.

2005. *Bithynia (Digoniostoma) cerameopoma* (Benson): Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, **5** (part-5), P. 192-193

2007. *Bithynia (Digoniostoma) cerameopoma* (Benson): Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 118. fig. 72. A and B.

Material examined: 4 exs. Naryanapuram, 4.11.2006; 5 exs. Singrayapalem, 2.11.2006, 26.3.2007; 5 exs. Lallapuram, 25.3.2007; 1 ex. Siddiquinagar, 26.3.2007 Collection: C. A. N. Rao

Diagnosis: Shell oblong-ovate, whorls 5, regularly and rather rapidly increasing, sculpture with very fine, weak, spiral striae and weak growth lines, suture well impressed, umbilicus moderately narrow and deep, peristome continuous and slightly reflected aperture oval oblique. Columella strongly reflected.

Remarks: This species has earlier reported Key Mitra et. al. (2005).

Distribution: India: Andhra Pradesh (Ananthapur, Khammam, Medak, Prakasam, Srikakulam); Assam, Bihar, Madhya Pradesh, Meghalaya, Punjab, Rajasthan, West Bengal.

Elsewhere: Pakistan

10. *Bithynia (Digoniostoma) pulchella* (Benson)

1836. *Plaudina pulchella* Benson, *J. Asiat. Soc. Beng.*, 5: 125

1876. *Paludina pulchella*: Hanley and Theobald, *Conch. Indica*, pl. 38, figs. 5,6.

1989. *Digoniostoma pulchella* Benson: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 80, figs. 113, 114, 119, 120.

2005. *Bithynia (Diagniostoma) pulchella* (Benson): Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 192-193

2007. *Bithynia (Diagniostoma) pulchella* (Benson): Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 120-121, figs. 74. A and B.

Material examined: 1 ex. Wyradam, 15.2.2006; 1 ex. Singarayapalem, 2.11.2006; 2 exs. Sidiquenagar, 2.11.2006

Diagnosis: Shell small, elongate, spire longer than the body whorl, suture depressed, umbilicus almost closed, and aperture oval.

Remarks: This species is reported for first time from this lake.

Distribution: India: Andhra Pradesh (Chittoor, Vishakapatnam, Khammam) Common throughout.

Elsewhere: Malaya Archipelago, Myanmar, Pakistan.

Genus : *Gabbia* Tryon, 1865

Diagnosis: Shell globose with tumid whorls; body whorl large, suture wide, imperforate or sub umbilicate, columellar fold ridge like but not so prominent; operculum thick, calcareous but usually hyaline or sub hyaline, distantly spiral and with slightly concentric nucleus, ornamented round the margin with cocentric line.

11. *Gabbia travancorica* (Benson)

1860. *Bithynia travancorica* Benson, *Ann. Mag. Nat Hist.*, (3) 6: 259.

1876. *Bithynia travancorica*: Hanley and Theobald, *Conch. Indica*, pl. 38, figs. 2, 3.

1989. *Gabbia travancorica*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 78, figs. 145, 146.

2005. *Gabbia travancorica*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India, State Fauna Series*, 5 (part-5), P. 195.

2007. *Gabbia travancorica*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 126, figs. 79. A and B.

Material examined: 1 ex. Mallavaram, 3.11.2006;

Diagnosis: Shell conically globose, typically narrow, whorls 4-5, suture impressed, imperforate, aperture oval, columellar margin ridge like.

Remarks: This species is reported for the first time from this Lake.

Distribution: India: Andhra Pradesh (Cuddapah, Kurnool, East Godavari, Srikakulam, Khammam, Vishakapatnam) Kerala

IV Family : THIARIDAE

Genus : *Thiara*

Diagnosis: Shell high elongate turreted; whorls rounded; suture deep sculptured with spiral striae with beeded appearance; Imperforate; aperture ovate; operculum smaller the paure with acentric nucleus at base.

KEY TO THE GENERA

1. Height of body whorl often exceeds height of spire; shell sculptured with either granules, nodules or spines..... 2
- Height of body whorl less than height of spire; shell sculptured with both axial and spiral striae.....*Melanoides*
2. Shell sculptured wither spinose or nodulose; whorls angular..... *Thiara*
- Shell granulose or tessellated; whorls rounded..... *Tarebia*

12. *Thiara scabra* (Mueller)

1774. *Buccinum scabrum* Mueller. *Hist. Verm. Terr. Fluv.*, 2: 136

1850. *Melania acanthica*: Lea, *Proc. Zool. Soc. Lond.*, 1850: 194.

1973. *Thiara (Thiara) scabra*: Pace, *Malac. Revies Suppl.*, 1: 52, pl. 12 figs. 1, 2, pl. 13,

1989. *Thiara (Thiara) scabra*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 96, figs. 185, 186, 189.

2005. *Thiara scabra* (Mueller): Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 196-197.

2007. *Thiara (Thiara)scabra*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 153 figs. 100. A and B.

Material examined: 1 ex. Narayanapuram 21.08.2007, Khammam District, Andhra Pradesh

Diagnosis: Shell rather short and broad, whorls slightly flattened above and rounded below, regularly increasing in size; rows of spines present on whorls; spire as high as body whorl, spiral striae on the shell surface strong near umbilical region. Pale brown in colour.

Remarks: Reported from this lake by Mitra *et. al.* (2005)

Distribution: India: Andhra Pradesh (Cuddapha, Khammam , Kurnool, Medak, Nellore, Srikakulam) Throughout, except Kashmir.

Elsewhere: Indonesia, Java, Japan, Malaya Archipelago, Mauritius, Myanmar, Philippines, seychelles, Timor.

Genus : *Thelanoides* Olivier, 1804

Diagnosis: Shell elongate, whorls regularly increase in size; sculptured with axial and spiral striate with granular appearance; operculum relatively large with pointed parking end pauci spiral

13. *Melanoides tuberculata* (Mueller)

1774. *Nerita tuberculata* Mueller, *Hist. Verm. Terr. Fluv.*, 2: 191
1936. *Melania pyramis*; Benson, *J. Asiat. Soc. Beng.*, 5: 254 (Type locality: Ganges)
1976. *Melanoides (Melanoides) tuberculata*: Starmuchlner, *Ann. Natur. Hist. Mus. Wien.*, 80: 591.
1989. *Thiara (Melanoides) tuberculata*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 103, figs. 183, 184.
2005. *Melanoides turberculata* (Mueller): Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series, 5 (part-5)*, P. 198.
2007. *Melanoides tuberculata* (Mueller): Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 161-162 figs. 108. A and B.

Material examined: 1 ex. Mallavaram 3.11.2006; 2 exs. Narayanpuram 21.8.2007; 1 ex. Siddique nagar, 2.11.2006; 1 ex. Singarayapalem 19.08.2007, Khammam district, Andhra Pradesh.

Diagnosis: Shell with a high spire and moderately large body whorl; spire five times the height of the aperture; whorls 10-14, moderately convex, evenly rounded, dark red brown dots and flames, either ireegularly distributed of longitudinally arranged on shell surface; scultptured conspicuously with vertical ribs and spiral striae, distinct and raised on the upper whorls, but flatter on the lower ones.

Remarks: Already reported from this lake by Mitra *et al.* (2005)

Distribution: India: Andhra Pradesh (Ananthapur, Cuddapah, East Godavari, Khammam, Kurnool, Nellore, Srikakulam, Vizianagaram). Throughout, except Khashmir.

Elsewhere: North and South Africa

Genus : *Tarebia* H and A. Adam 1854

Diagnosis: Shell coarsely scumplured with elevated axial and spiral with granular or nodulose appearance;

14. *Tarebia granifera* (Lamarck)

1822. *Melania granifera* Lamarck, *Hist. Nat Anim. Sans. Vert.*, 6 (2): 167.
1973. *Thiara (Tarebia) granifera*: pace, *Malac. Review Suppl.*, 1: 62, pl. 12, fig. 3, pl. 13, fig. 4.
1976. *Tarebia granifera*: Starmuchlener, *Ann. Natur. Hist. Mus Wien.*, 80: 569, fig. 72-75, pl. 16, fig. 175-179.
1989. *Thiara (Tarebia) granifera*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 101, figs. 212, 213.
2005. *Tarebia granifera*: Mitra, Dey and Ramakrishna, *Fauna of Andhira Pradesh, Zool. Surv. India State Fauna Series, 5 (part-5)*, P. 199-200.
2007. *Tarebia granifera*: Ramakrishna and Dey, Anirudha, *Handbook on Indian fresh water molluscs*: p. 168 figs. 113. A and B.

Material examined: 1 ex Narayanpuram, 21.8.2007; 1 ex. Wyra Dam, 3.11.2006, Khammam District, Andhra Pradesh.

Diagnosis: Shell elongated conical; sculptured with distinct spiral rows of nodules throughout the shell, spire sharp with a rather blunt apex and flat whorls, height of the body whorl more than half of the total length.

Remarks: It is reported for the first time from this lake.

Distribution: India: Andhra Pradesh (Prakasam, Kurnool, Srikakulam, Khammam) Bihar, Madhya Pradesh, West Bengal.

Elsewhere: Malagasy, Malaysia, Phillippines, Formosa and the Pacific Islands.

15. *Tarebia lineata* (Gray)

1828. *Helix lineata* Gray in Woods index test. Suppl. p. 24. fig. 68.

1915. *Thiara (Tarebia) lineata*: Preston, *Fauna Brit. India*, Molluscs (FreshWater Gastropoda and Pelecypoda): 34

1989. *Thiara (Tarebia) lineata*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 101, figs. 191.

2005. *Tarebia lineata*: Mitra, Dey and Ramakrishna, *Fauna of Andhira Pradesh, Zool. Surv. India State Fauna Series, 5 (part-5)*, P. 200.

2007. *Tarebia lineata*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 168 figs. 114. A and B.

Material examined: 1 ex. Reddygudem, 18.2.2006, Khammam District, Andhra Pradesh.

Diagnosis: Shell elongate, conical, rows of nodules less distinct, rather obsolete on the lower whorls, dark spiral lines distinct, apex acute. Similar to that of proceeding species but, thinner.

Remarks: Reported earlier from this lake by Maitra *et. al.* (2005).

Distribution: India: Andhra Pradesh (Cuddapah, Khammam, Kurnool, Prakasam, Srikakulam) Assam, Bihar, Maharashtra, Madhya Pradesh, Uttar Pradesh, West Bengal.

Elsewhere: Bhutan, Myanmar, Sri Lanka.

Sub class : PULMONATA

Order : BASOMMATOPHORA

V Family : LYMNAEIDAE

Genus : *Lymnaea* Lamarck, 1799

Diagnosis: Shell thin, body whorls large; spire exserted; columella spirally twisted

Subgenus : *Pseudosuccinea* Baker, 1908

16. *Lymnaea (Pseudosuccinea) acuminata* form *gracilior* Martens

1881. *Lymnaea acuminata* var. *gracilior* von Martens, *Conch. Mittheil*, 1: 77. Type locality: Bengal.

1989. *Lymnaea (Pseudosuccinea) acuminata* form *gracilior*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 127, figs.262-263.

2005. *Lymnaea (Pseudosuccinea) acuminata* form *gracilior*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 203.

2007. *Lymnaea (Pseudosuccinea) acuminata* form *gracilior* Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 201-202 figs. 144. A and B.

Material examined 1 ex. Wyradam, 24.3.2007; 1 ex. Singrayapalem, 19.8.2007; 3 exs. Reddygudem, 18.2.2006, 26.3.2007; 2 exs. Ramachandrapuram, 15.2.2006, 22.8.2007; 1 ex. Mallavaram, 3.11.2006.

Diagnosis: Shell linear with a long narrow spire, colour of shell varies between grayish to light pink.

Remarks: It is recorded for the first time from this lake.

Distribution: India: Andhra Pradesh (Medak, Khammam) Assam, Jharkhand, Maharashtra, Kerala, Uttar Pradesh, Orissa, West Bengal.

Elsewhere: Myanmar.

17. *Lymnaea (Pseudosuccinea) acuminata* form *rufescens* Gray

1822. *Lymnaea acuminata* form *rufescens* Gray in Sowerby, *Gen. Rec. Foss. Shells*, 1: pl. 178, fig. 2. Type Locality India.

1829. *Lymnaea (Pseudosuccinea) acuminata* form *tonapii*: Ray and Roychoudhri *Proc. Zool. Soc. Calcutta*, 22(1): 47-48, fig 1-2, Type locality Mula Multha river, Poona, Maharashtra.

1989. *Lymnaea (Pseudosuccinea) acuminata* form *rufescens*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 127, figs. 254-255.

2005. *Lymnaea (Pseudosuccinea) acuminata* form *rufescens*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 203-204.

2007. *Lymnaea (Pseudosuccinea) acuminata* form *rufescens*: Ramakrishna and Dey, Anirudha, *Handbook on Indian fresh water molluscs*: p. 205-206 figs. 148. A and B.

Material examined: 7 exs. Brahmanapalle, 18.2.2006, 5.11.2006, 24.3.2007.

Diagnosis: Shell narrower than in typical form, spire longer, aperture uniformly less expanded; columellar fold is feebly developed; reddish in colour.

Remarks: It has been reported earlier by Mitra *et. al* (2005).

Distribution: India: Andhra Pradesh (Ananthapur, Cuddapah, Hyderabad, Khammam, Prakasam, Visakhapatnam) Throughout.

Elsewhere: Bangladesh, Myanmar, Pakistan.

VI Family : PLANORBIDAE
Genus : *Gyralus* Charpenter, 1837

Diagnosis: Shell thin; fragile, semi transparent, coiled and depressed, rounded; whorls rapidly increasing in size; Body whorl more rounded and dilated at its extremity; Aperture oblique; Sculptured with fine longitudinal striae.

18. *Gyralus convexiusculus* (Hutton)

1849. *Planorbis convexiusculus* Hutton, *J. Asiat. Soc. Beng.*, 18 (2): 657
1864. *Planorbis saigonensis*: Crosse et Fischer *J. conchyl.*, 11: 362, pl. 13, fig. 7.
1867. *Planorbis compressus*: Von martens in Weber, *Zool. Ergebn. Niederi. Ost. India*, 4: 13. pl. 1, figs. 17-22, pl. 12. figs. 7-10. Type Locality: Jawa.
1885. *Planorbis demissus*: Westerlund, *Ur. Vega. Expeditionens Vetenskaplig Jakattagelser*, 4: 204, pl. 4, fig. 16. Type locality. Point de Galle. Ceylon.
1956. *Gyraulius convexiusculus*: Benthem Jutting, *Treubia*, 23 (2): 463.
1989. *Gyraulius convexiusculus*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 154, figs.362-364.
2005. *Gyraulius convexiusculus*: Mitra, Dey and Ramakrishna, *Fauna of Andhira Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 209.
2007. *Indoplanorbis exustus*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 234-236 figs. 172 173. A and B.

Material examined: 2 exs. Wyra dam, 15.2.2006, 3.11.2006; 1 ex. Brahmanapalem, 27.1.2008; 3 exs. Singarayapalem, 16.2.2006 26.3.2006, 26.3.2007.

Diagnosis: Shell small discoidal, with 4-5 depressed whorls, not more than 5 mm in diameter, umbilicus wide, transparent, periphery subangulate, closely and obliquely striatulate aperture ovate, lunate.

Distribution: India: Andhra Pradesh, (Chittoor, Cuddapah, Kurnool, East Godavari, Khammam, Hyderabad, Medak, Vizianagaram) Throughout.

Elsewhere: Philippines.

19. *Gyralus labiatus* (Benson)

1850. *Planorbis labiatus* Benson *Ann. Mag. Nat. Hist.*, 2 (5): 330. Type locality: "In stgne propeurem. Moradabad"
1915. *Planorbis (Gyraulius) abiatu*s: Preston *Fauna Brit India Mollusca*, (Freshwater Gastropoda and Pelecypoda). p. 119. fig. 5.
1925. *Gyraulius labiatus*: Annandale, *Rec. Indian Mus.*, 27: 109.
1989. *Gyraulius labiatus*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 155, figs.342-344.
- 2005: *Gyraulius labiatus*: Mitra, Dey and Ramakrishna, *Fauna of Andhira Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 210.

2007. *Gyraulus labiatus*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 237-238 figs. 175. A, B and C.

Material examined: 5 exs. Singarayapalem, 2.11.2006, Khammam District, Andhra Pradesh.

Diagnosis: Shell depressed with 3 1/2 whorls, obliquely striate, aperture oblique and a little descending in front, body whorl with remarkable deviation from main axis, a whitish rib present within the aperture.

Remarks: It closely agrees with *Gyraulus convexiusculus*, but has less number of whorls and a conspicuous ridge in inner surface of the lip.

Distribution: India: Andhra Pradesh (Ananthapur, Cuddapah, Kurnool, Rangareddy), Himachal Pradesh, Madhya Pradesh, Maharashtra, Mizoram, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.

VII Family : BULLINADEAE

Genus : *Indoplanorbis*

Diagnosis: Shell long, thick, sutures deeply impressed, aperture ear-shaped.

20. *Indoplanorbis exustus* (Deshayes)

1834. *Planorbis exustus* Deshayes in Balanger, *voy Index Orientales*, p. 417, pl. 1, figs. 11-13. Type locality Malabar coast.

1956. *Indoplanorbis exustus* : Benthem Jutting, *Treubia*, 23 (2): 471.

1989. *Indoplanorbis exustus*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 142, figs. 326, 327.

2005. *Indoplanorbis exustus*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), pp. 208-209.

2007. *Indoplanorbis exustus*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 253, 254 figs. 190. A and B.

Material examined: 5 exs. Wyra dam, 15.2.2006, 3.11.2006, 27.1.2008; 3 exs. Brahmanapalle, 18.2.2006, 24.3.2007; 2 exs. Narayanapalem, 17.2.2006, 25.1.2008; 6 exs. Singarayapalem, 2.11.2006, 24.1.2008; 3 exs. Reddygudem, 26.3.2007, 21.8.2007; 2 exs. Mallavarem, 3.11.2006, 20.8.2007; 4 exs. Siddiqnagar, 16.2.2006, 2.11.2006, 24.1.2008

Diagnosis: Shell large, thick, discoidal, sinisstral, rounded at oeriophery, aperture ear shaped, suture deeply impressed, globosely conical, typically narrow, whorls 4-5, suture impressed, imperforatre, aperture, oval, columellar margin ridge like.

Remarks: It serves as intermediate host for a number of trematodes found in goat, sheep, horse, dog, camel and other cattle. Found in large numbers in the allotted to the plants in the lake.

Distribution: India: widely distributed Andhra Pradesh (Ananthapur, Chittoor, Cuddapah, Hyderabad, Khammam, Prakasam, Kurnool, Ranga reddy, Srikakulam, Visakhapatnam, Vizianagaram).

Class : BIVALVIA
 Order : UNIONOIDA
 VIII Family : UNIONIDAE
 Genus : *Lamellidens* Simpson, 1900

Diagnosis: Shell elongate, elliptical, contains margin narrowly rounded positively broader with a slight dorsal with; umbo with concentric ridges; Periostrawn smooth, shiny, brownish or dark often with concentric light bands; Nacreas bluish white to straw color; left valve with the elongated cardinal and two laterals; Right valve with two parallel lamellar cardinals and one lateral;

21. *Lamellidens consobrinus* (Lea)

1859. *Lamellidens consobrinus* Lea, *Proc. Acad., Nat. Sci. Philad.*, 3: 331

1989. *Lamellidens consobrinus*: Subba Rao, *Handbook of fresh water molluscs of India*, p. 164, figs. 364-365.

2005. *Lamellidens consobrinus*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 211-212.

2007. *Lamellidens consobrinus*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 281-282 figs. 190. A and B.

Material examined: 1 ex. Brahmanapalle, 24.3.2007, Khammam District, Andhra Pradesh.

Diagnosis: Shell thick, rhomboidal, umbones more inflated than *L. marginalis*; dorsal margin curved are obliquely truncate, posterior side obtusely angled, anterior side rounded, left valve with 2 cardinals, anterior larger.

Remarks: It is reported earlier by Mitra *et. al.* (2005) from this lake.

Distribution: India: Andhra Pradesh, (Khammam, Medak, Prakasam), Maharashtra, Pondicherry, Tamil Nadu.

Elsewhere: Bangladesh, China, Sri Lanka.

22. *Lamellidens marignalis* (Lamarck)

1819. *Unio marginalis* Lamarck, *Hist. Nat. Anim. Sans. Vert.* 4: 79

1900. *Lamellidens marginalis*: Simpson, *Proc. U.S. nain. Mus.*, 22: 854.

1921. *Lamellidens marginalis*: Prasad, *Rec. Indian Mus.*, 22: 606, fig. 29 A.

1989. *Lamellidens marginalis*: Subba Rao, *Handbook of Fresh water Molluscs of India*, pp.168, figs. 404-405.

2005. *Lamellidens marginalis*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P.212-213.

2007. *Lamellidens marginalis*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 288-289 figs. 211. A and B.

Material examined: 2 exs. Reddygudem, 18.2.2006, 4.11.2006, Khammam District, Andhra Pradesh.

Diagnosis: Shell smooth, oblong-ovate; posterior end broad, roundly angular, produced, wing narrow; dorsal margin little curved; ventral margin slightly contracted; periostracum blackish brown; cardinal teeth two on right valve.

Remarks: This species is reported for the first time from the Lake it is a common in South India.

Distribution: India: Andhra Pradesh (Ananthapuram, Cuddapah, East Godavari, Hyderabad) Common throughout.

Elsewhere: Bangladesh, Myanmar, Srilanka

IX Family : AMBLEMIIDAE

Subfamily : PARRESIINAE

Genus : PARREYSIA

Subgenus : *Parreysia* S.S

Diagnosis: Shell heavy and impated, sub rhomboidal umbo prominent with radial zig-zag ribs; periostracum smooth dark; cardinals heavy, ventrically striate, lamellar teeth short;

23. *Parreysia (Parreysia) favidens f. deltae* (Benson)

1862. *Unio favidens var. deltae* Benson Ann. Mag. Nat. Hist., (3) 10: 189.

1876. *Parreysia favidens var. deltae*: Hamley and Theobald, *Conch Indica*: 19, pl. 62, fig. 2.

1989. *Parreysia (Parreysia) favidens sub. Sp. Deltae.*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p.181, figs.470, 471.

2005. *Parreysia (Parreysia) favidens deltae*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series, 5 (part-5)*, P.217-215.

2007. *Parreysia (Parreysia) favidens sub. Sp. Deltae*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 303-304 figs.225, 226. A and B.

Material examined: 2 exs. 1 ex. Brahmanapalle, 24.3.2007, Khammam District, Andhra Pradesh.

Diagnosis: Shell less elongate, periostracum olive green and yellow, posterior margin subangulate; lunule broad; umbonal region strongly sculptured; cardinal teeth narrower.

Remarks: This species is not reported by Mitra et. al (2005) from Andhra Pradesh

Distribution: India: Andhra Pradesh (Khammam, Srikakulam) Orissa, , Uttar Pradesh, West Bengal.

Elsewhere: Bangladesh, Myanmar, Sri Lanka.

Subgenus: *Radiatula* Simpson 1990

24. *Parreysia (Radiatula) caerulea*

1831. *Unio caerulea* Lea, *Trans. Amer. Phil. Soc.*, 4: 95, pl. 13, fig. 25. Type locality: Hooghly river, 100 miles above Calcutta.

1915. *Nodularia (Nodularia) caerulea*: Preston, *Fauna Brit India Mollusca, (Freshwater Gastropoda and Pelecypoda)*. P. 136.

1989. *Parryesia (Radiatula) caerulea*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p. 188, figs. 516, 517.

2005. *Parryesia (Radiatula) caerulea*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P. 216.

2007. *Parryesia (Radiatula) caerulea*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 316 figs. 237. A and B.

Material examined: 2 ex. Brahmanapalle, 18.2.2006, 24.3.2007; 2 exs. & 2 val. Reddygudem, 4.11.2006, 26.3.2007; 1 ex. Siddique nagar, 19.2.2007, 1 ex. Wyra Dam, 21.3.2007, Khammam District, Andhra Pradesh.

Diagnosis: Shell elongate, variable in shape, sculpture restricted to the upper half of the valves in the adult whereas in the young one the whole shell surface sculptured, posterior umbonal carina very distinct.

Remarks: It is not reported earlier from this lake.

Distribution: Andhra Pradesh (Nalgonda, Prakasam, Godavari) Assam, Jharkhand, Meghalaya; Mizoram, Orissa, Punjab, Rajasthan, Uttar Pradesh, West Bengal.

Elsewhere: Bangladesh, Myanmar, Nepal, Pakistan.

25. *Parryesia (Radiatula) pachysoma* (Benson)

1862. *Unio pachysoma* Benson *Ann. Mag. Nat. Hist.* (3): 186. Type locality: Brahmapooter river, Assam.

1915. *Nodularia (Nodularia) pachysoma*: Preston, *Fauna Brit India Mollusca*, (Freshwater Gastropoda and Pelecypoda) p. 139.

1989. *Parryesia (Radiatula) pachysoma*: Subba Rao, *Handbook of Fresh water Molluscs of India*, p.192, figs. 540, 541.

2005. *Parryesia (Radiatula) pachysoma*: Mitra, Dey and Ramakrishna, *Fauna of Andhra Pradesh, Zool. Surv. India State Fauna Series*, 5 (part-5), P.216.

2007. *Parryesia (Radiatula) pachysoma*: Ramakrishna and Dey, Anirudha, *Handbook on Indian Fresh water Molluscs*: p. 325-326. figs. 247. A and B.

Material examined: 1 ex. Brahmanpalle, 24.3.2007, Khammam District Andhra Pradesh.

Diagnosis: Shell more elongate, inflated; umbo pronounced, with much Stronger hinge, radial sculpture absent.

Remarks: It differs from *Parryesia Radiatula caerulea* by its much brightened more inflated shell, lacking of radial sculpture on the sides.

Distribution: India: Andhra Pradesh (Khammam) Assam, Meghalaya, Orissa, Tripura, and West Bengal.

Elsewhere: Bangladesh, Myanmar.

SUMMARY AND DISCUSSION

The study reveals that a total of 25 species including forms under 13 genera and 10 families of both gastropoda and bivalves are listed from the Wyra Lake after consulting the literature too. Recently Mitra et. al. (2005) studied the fauna of Andhra Pradesh included a total of 43 species under 23 genera and 13 families in the state fauna series. Mitra et. al. (opcit) while studyship the freshwater molluscs of Andhra Pradesh, they reported the

species viz. *Bellamya bengalensis* form. *Typica*, *Bellamya dissimilis*, *Pila virens*, *Bithynia cerameopoma*, *Thiara scabra*, *Melanoides tuber rufescens* and *Indoplanorbis exustus* among gastropods and *Lamellidens consobrinus*, *Parreysia (Parreysia) favidens deltae* and *Parreysia (Radiatula)*, *pachysome* among bivalvia are collected and studied from WYRA lake. Which are presently represented in the studies. But the species viz. *Gabbia orcula*, of the class gastropoda and *Parreysia (Parreysia) favidens marcaus*, *Parreysia (Radiatula) bonneauda* and *corbicula striatella* which are not represented in the present studies and treated as literature records only.

Our studies revealed that the following species viz. *Bellamya bengalensis* form. *Annandalei*, *Bellamya bengalensis* form *colirensis*, *Bellamya bengalensis* form *doliaris*, *Bellamya bengalensis* form *eburnean*, *Bellamya crassa*; *Bithynia pulchella*, *Gabbia travancorica*, *Tarebia lineata*, *Lymnaea (Pseudosuccinea) acuminata gracilior*, *Gyraulus labiatus*, *Indopanobis exustus* of the gastropods and *Parreysia (Parreysia) favidens deltae*, *Parreysia (Radiatula) caerulea* of the bivalvia are recorded from this lake for the first time.

Majority of the species studied here are of common in their distribution both in the state of Andhra Pradesh as well as other parts of the country. It is noticed that the species, *Lymnaea (Pseudosuccinea) luteola* with their forms are very common in the other parts of the state is not represented in this lake. *Bellamya bengalensis* form *Colairensis* which is not so far reported other than Colair lake, indicates the extension of distribution. The studies indicated that there is no endemism is seen.

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Table - List of Species as per Stationwise

	Name of the species	WyraDam	Brahmanapalle	Narayanapuram	Singarayapalem	Reddygudem	Ramachandrapura	Lallapuram	Mallapuram	Siddiquenagar
1.	<i>Bellamyia bengalensis f. typical</i>	+	+	+	+	+	+	+	+	+
	<i>B. bengalensis f. annandalei</i>	+	+	+	+	+			+	
	<i>B. bengalensis f. colairensis</i>	+				+				+
	<i>B. bengalensis f. doliaris</i>	+	+	+	+					
	<i>B. bengalensis f. eburnean</i>	+	+		+	+				
2.	<i>B. crassa</i>		+			+	+	+		+
3.	<i>B. dissimalis</i>	+	+	+	+	+	+	+		+
4.	<i>Pila virens</i>	+	+			+			+	+
5.	<i>Bithyna cerameopoma</i>			+	+			+		+
6.	<i>B. pulchella</i>	+			+					+
7.	<i>Gabbia travancorica</i>								+	
8.	<i>Thiara scabra</i>			+						
9.	<i>Tarebia granifera</i>	+		+						
10.	<i>T. lineata</i>					+				
11.	<i>Melanoides tuberculatus</i>		+	+					+	+
12.	<i>Lymnaea (Pseudosuccinea) acuminata gracilior</i>	+			+	+	+		+	
	<i>L. (Pseudosuccinea) acuminata rufescens</i>		+							
13.	<i>Gyraulus convexiusculus</i>	+	+		+		+			+
14.	<i>G. labiatus</i>				+					
15.	<i>Indoplanorbis exustus</i>	+	+	+	+	+	+	+	+	+
16.	<i>Lamellidens consobrinus</i>		+							
17.	<i>L. marginatus</i>					+				
18.	<i>Parreysia (Parreysia) favidens deltae</i>		+							
19.	<i>Parreysia (Radiatula) caerulea</i>	+	+			+				+
20.	<i>Parreysia (Radiatula) pachysoma</i>		+							

ICHTHYOFAUNA

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INTRODUCTION

Andhra Pradesh having 34 rivers is generally known as the river state. The largest river Godavari and second largest river Krishna of the Indian peninsula pass through this state. Besides these two major river systems, there are many smaller rivers, reservoirs, lakes, tanks and ponds scattered throughout the state which provide an immense opportunity for the development of fish and fisheries in the economy of the state. The present study, 'Limnological and faunistic studies on Wyra lake, Khammam district, Andhra Pradesh', has been assigned to Freshwater Biology Regional Centre, Zoological Survey of India, Hyderabad. As a part of the work, faunal diversity of fish fauna of this lake has been studied. Wyra Lake constructed during Nizam's period between 1922-29. It is located (17° 15'N & 80° 25'E) at about 25 kms southern side of Khammam district of Andhra Pradesh. It is located 2 kms off the Hyderabad-Visakhapatnam high way. Water spread area of the lake is about 18,166 sq.kms. Free catchment area 367.78 km². Length of the dam is 3.98 km and maximum height of the dam is 26.83m. Wyra reservoir is the main source of water supply to 90 villages. Margins of the lake are over grown with vegetation but the deeper portions are clear. At one end of the reservoir there are big hills; over grown by beautiful deciduous forest with a scenic beauty. From ecological point of view it is one of the finest spots in the district and within easy reach. State Government recently declared it as a recreation spot. A beautiful park has also been constructed on lake basin for people who go there for sight seeing. Amusement for children and speed boats are arranged for visitors. The inventory comprises of 26 species accommodated under 21 genera, 7 orders and 12 families. Under each species, citation for original description and other important and recent works are given.

MATERIAL AND METHODS

Fish collections were made with the help of hand operated nets by randomly netting different areas of wetland. It is noticed that fishermen were using fishing crafts made by tying thermocole planks/blocks and bamboo sticks, then forming a flat floating body of size 3x6'. Mostly fishing is done by using cast net in the low depth areas *viz.*, periphery and in the deeper region fishing is done by gill net and hooks. Fishermen were engaged to operate cast net. Fish specimens also collected at the time of fish harvesting in the lake. The specimens were fixed in 10% formalin solution. Larger specimens of species like *Mastacembelus armatus*, *Aorichthyes seenghala* and *Labeo sps* were

fixed by injecting 10% formalin into muscles and the abdomen.. Fixed specimens were kept in containers following standard procedures and with proper labeling. The surveys were conducted in three seasons for a period of two years during 2005-07 from 9 localities around the lake *viz.*, Wyra dam, Lallapuram, Narayanapuram, Mallavaram, Lallurugudem, Reddygudem, Brahmanapalle, Singarayapalem and Siddiqnagar selected for study and recorded 26 species under, 12 families, 21 genera and 7 orders from the total of 1482 fish specimens collected. Fishes were identified with available standard literature *viz.*, Jayaram (1999), Talwar & A.G. Jhingran (1991) and. Menon (1999).

List of freshwater fishes of Wyra Lake, Andhra Pradesh

Class : OSTEICHTHYES

Order I: OSTEOGLOSSIFORMES

Family 1 : NOTOPTERIDAE

1. *Notopterus notopterus* (Pallas)

Order II : CYPRINIFORMES

Family 2 : CYPRINIDAE

2. *Salmostoma bacaila* (Hamilton)
3. *Chela laubuca* (Hamilton)
4. *Parluciosoma danicōnis* (Hamilton)
5. *Osteobrama vigorsii* (Hamilton)
6. *Puntius sophore* (Hamilton)
7. *Puntius ticto* (Hamilton)
8. *Catla catla* (Hamilton)
9. *Labeo rohita* (Hamilton)

Order III : SILURIFORMES

Family 3 : BAGRIDAE

10. *Mystus vittatus* (Hamilton)
11. *Mystus cavasius* (Hamilton)
12. *Sperata seenghala* (Sykes)

Family 4 : SILURIDAE

13. *Wallago attu* (Schneider)

Order IV : BELONIFORMES

Family 5 : BELONIDAE

14. *Xenentodon cancila* (Hamilton)

Order V : SYNBRANCHIFORMES

Family 6 : MASTACEMBELIDAE

15. *Macrogathus punctatus* (Bloch)

16. *Mastacembelus armatus* (Hamilton)

Order VI : PERCIFORMES

Family 7 : CHANDIDAE / AMBASSIDAE

17. *Chanda nama* (Hamilton)18. *Pseudambassis ranga* (Hamilton)

Family 8 : CICHLIDAE

19. *Etroplus maculatus* (Bloch)20. *Etroplus suratensis* (Bloch)

Family 9 : GOBIIDAE

21. *Glossogobius giuris* (Hamilton)

Family 10 : BELONTIDAE

22. *Polyacanthus fasciatus* (Schneider)

Order VII : MUGILIFORMES

Family 11 : MUGILIDAE

23. *Rhinomugil corsula* (Hamilton)

Sub Order : CHANNOIDEI

Family 12 : CHANNIDAE

24. *Channa punctatus* (Bloch)25. *Channa striatus* (Bloch)26. *Channa gachua* (Hamilton)**SYSTEMATICS**

Order I : OSTEOGLOSSIFORMES

Family 1 : *Notopteridae*
(Feather backs or Knife fishes)Genus *Notopterus* Lacepede 18001. *Notopterus notopterus* (Pallas)1769. *Gymnotus notopterus* Pallas, *Specil. Zool.*, Petersburg, 7: 40, pl.6, fig. 2, (Type-locality: Ponds and rivers of Bengal).1878. *Notopterus kaporat*, Day, *Fish. India*: p.653, pl.159, fig.4. (Fresh and brackishwaters of India to the Malay Archipelago). Day, *Faun. Brit. India Fish*, 1: 406, fig. 129, 1889.1936. *Notopterus osmani* Rahimullah and Das, *Bull. Soc. Port. Nat.*, 12 (18): 136, pl. 23, (Type-locality: Rivers of Hyderabad Deccan).1999. *Notopterus notopterus* Jayaram, *HBFW Fish, India*: p.19. (Distribution and key to species).*Common name*: Feather back

Material examined: 1 ex, Reddygudem, SVAC Sekhar & Hakeel Md., 18-2-06 (N/1541); 2 ex, Singaraypalem, SVAC Sekhar & Hakeel Md., 2-11-06(N/1447); 3 ex, Siddiqnagar, C A Nageswara Rao & Hakeel Md., 26-3-07 (N/1451); 1 ex., Narayanapuram, SVAC Sekhar & Hakeel Md., 21-08-2007 (N/1474).

Diagnosis: Body oblong and strongly compressed. Head compressed, its length about 4.5 times in standard length; mouth moderate. Dorsal fin small, its origin midway between the snout tip and end of caudal fin, far behind the pelvic fin region. Pelvic fin very short. Anal fin united with the caudal fin. Pectoral fin moderate, extend beyond anal fin origin. Scales minute. Double serration on the abdomen.

Measurements (Total Length): 120-200 mm

Distribution & Habitat: This species thrives well in lentic waters. Inhabits fresh and brackish waters. It is common in tanks throughout the India.

Order II : CYPRINIFORMES

Family 2 : CYPRINIDAE

Genus *Salmostoma* Swainson 1839

2. *Salmostoma bacaila* (Hamilton)

1822. *Cyprinus bacaila* Hamilton, *Fish Ganges*, 265, 384, pl. 8, fig. 76. (Type locality: Gangetic Provinces).

1878. *Chela laubuca*, Day, *Fish. India*: 603, pl. 152, fig. 5; 1889, Day, *Faun. Br. India, Fish*, 1: 367.

1999. *Salmostoma bacaila* Jayaram, *The Freshwater Fishes of the Indian Region*: 74, 75 (Distribution and key to species).

Common Name: Large razor belly minnow.

Material examined: (1) 8 exs., Wyadam, SVAC Sekhar & Hakeel Md., 15-2-06 (N/1507); (2) 5 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1530); (3) 5 ex., Narayanapuram, SVAC Sekhar & Hakeel Md., 21-4-06 (N/1391); (4) 11 exs., Mallavaram, SVAC Sekhar & Hakeel Md., 21-4-06 (N/1383); (5) 10 exs., Brahmanapalle, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1495); (6) 2 exs. Siddiqnagar, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1503); (7) 7 exs., Brahmanapalle, SVAC Sekhar & Hakeel Md., 22-8-07 (N/1481); (8) 6 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 25-1-08 (N/1428).

Diagnosis: elongate, compressed body. Lower jaw longer with symphyial knob. Dorsal fin inserted well in advance of anal fin. Scales very small; lateral line straight, de-curved with 86-110 scales. Anal fin with 11-14 branched rays.

Measurements: 60-110 mm (TL)

Distribution: Inhabits slow running streams and reservoirs. Brahmaputra, Ganga, Mahanadi river systems.

Genus : *Chela* Hamilton 1822

3. *Chela laubuca* (Hamilton)

1822. *Cyprinus (Chela) laubuca* Hamilton, *Fish. Ganges*, 260, 384 (Type-locality: Ponds in Northern parts of Bengal).

1999. *Chela laubuca* Jayaram, *The Freshwater Fishes of the Indian Region.* : 73, 74 (Distribution and key to species).

Common name: Indian glass barb/Indian hatchet fish

Material examined: (1) 2 exs., Reddygudem, SVAC & Hakeel Md, 20-8-07 (N/1504); (2) 3 exs., Narayanapuram, SVAC & Hakeel Md, 25-1-08(N/1429).

Diagnosis: Body deep and greatly compressed. Abdomen keeled only between and behind anal fins. Mouth slightly oblique. Pectoral fin long and wing like. Outer pelvic fin ray strongly produced. Lateral line complete with 31-37 scales.

Measurements: 50 mm (TL)

Distribution: Inhabits Ponds, tanks and streams in India.

Genus : *Rasbora* Bleeker 1859

4. *Parluciosoma daniconius* (Hamilton)

1822. *Cyprinus daniconius* Hamilton, *Fish Ganges*, P. 327, pl. 15, Fig. 89 (Type-locality: Rivers of Southern Bengal).

1999 *Parluciosoma daniconius*, Menon, *Rec. zool. Surv. India, Occ. Paper No.*, 175; 366.

Common name: Black line Rasbora

Material examined: (1) 5 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1531); (2) 82 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 4-11-06(N/1375); (3) 5 ex., Brahmanapalle, SVAC Sekhar & Hakeel Md., 5-11-06 (N/1453); (4) 5 exs., Lalaapuram, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1496); (5) 7 exs. Brahmanapalle, SVAC Sekhar & Hakeel Md., 22-8-07 (N/1483); (6) 1 exs., Singarayapalem, CAN Rao & Hakeel Md., 24-1-08 (N/1418); (7) 3 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 25-1-08 (N/1425); (8) 3 exs. Brahmanapalle, SVAC Sekhar & Hakeel Md., 26-1-08 (N/1431); (9) 1 exs., Singarayapalem, CAN Rao & Hakeel Md., 26-1-08 (N/1435); (10) 1 ex., Brahmanapalle, SVAC Sekhar & Hakeel Md., 7-2-08 (N/1437)

Diagnosis: Body oblong and compressed. Mouth small, eyes large. A black lateral line stripe along center of body present. No scales on head, single dorsal fin present. Body laterally very compressed and no barbells. Dorsal notch on lower jaw present. Anal rays are three simple and five branched rays.

Measurements: 57-80 mm (TL)

Distribution: Throughout India. Very common all over Andhra Pradesh.

Genus : *Osteobrama* Heckel 1842

5. *Osteobrama vigorsii* (Sykes)

1841. *Rohtee vigorsii* Sykes, *Trans. Zool. Soc. Lond.*, 2: 364, pl. 63, fig. 3 (Type locality: Bheema River at Paingam Maharashtra).

1843. *Leuciscus durancelli* Valenciennes (in c & v), *Hist. Nat. Poiss.*, 17:77, p.488 (Bombay).

1889. *Rohtee vigorsii* Day, *Fauna Br. India, Fish. 1.*: 342.

1999. *Osteobrama vigorsii* Jayaram, *Handbk, Freshw. Fish. India* : 102, 103 (Distribution and key to species).

Common name: Deccan cotio, Bheema osteobrama

Material examined: (1) 12 exs., Wyra, SVAC Sekhar & Hakeel Md., 15-2-06 (N/1508); (2) 35 exs., Singarayapalem, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1527); (3) 40 ex., Lalapuram, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1526); (4) 20 exs., Siddiqnagar, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1518); (5) 4 exs. Brahmanapalle, SVAC Sekhar & Hakeel Md., 25-3-06 (N/1486); (6) 2 exs., Mallavaram, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1465); (7) 1 exs., Narayanapuram, CAN Rao & Hakeel Md., 25-1-08 (N/1425); (8) 3 exs. Brahmanapalle, SVAC Sekhar & Hakeel Md., 21-8-07 (N/1473); (9) 12 exs., Brahmanapalle, CAN Rao & Hakeel Md., 20-8-07 (N/1489).

Diagnosis: Body compressed. Mouth small; a pair of rudimentary maxillary barbells present. Dorsal spine very long. Lateral line with 73-85 scales.

Measurements: 45-70 mm (TL)

Distribution: India: Godavari, Krishna river systems and Mahanadi River.

Habitat: Very common in streams.

Subfamily : CYPRININAE

Genus : *Puntius sophore* Hamilton 1822

6. *Puntius sophore* (Hamilton)

1822. *Cyprinus sophore*, Hamilton, *Fish Ganges*, Pp. 310, 389, P19, fig. 86. (*Type-locality: Ponds and rivers in Gangetic provinces*).

1962. *Puntius sophore* Misra, *Rec. Indian Mus.*, 57: 115.

1878. *Barbus sophore* Day, *Fish, India*: 566, pl.143, fig. 4.

1999. *Puntius sophore* Jayaram, *The Freshwater Fishes of the Indian Region*: 120. (Distribution and key to species).

Common name: Stigma barb, Softfin swamp barb.

Material examined: (1) 1 ex., Singarayapalem, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1522); (2) 2 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 17-2-06 (N/1537); (3) 1 ex., Mallavaram, SVAC Sekhar & Hakeel Md., 18-2-06 (N/1546); (4) 5 exs., Brahmanapalle, SVAC Sekhar & Hakeel Md., 18-2-06 (N/1502); (5) 13 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 20-4-06 (N/1390); (6) 30 exs. Siddiqnagar, SVAC Sekhar & Hakeel Md., 20-4-06 (N/1360); (7) 35 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 20-4-06 (N/1367); (8) 15 exs., Mallavaram, SVAC Sekhar & Hakeel Md., 21-4-06 (N/1393); (9) 5 exs., Narayanapuram SVAC Sekhar & Hakeel Md., 21-4-06 (N/1476); (10) 22 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 21-4-06 (N/1378); (11) 62 exs., Reddy gudem, SVAC Sekhar & Hakeel Md., 22-4-06 (N/1376); (12) 2 exs., Brahmanapalle, SVAC Sekhar & Hakeel Md., 22-4-06 (N/1386); (13) 57 exs., Brahmanapalle, SVAC Sekhar & Hakeel

Md., 5-11-06 (N/1452); (14) 7 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 5-11-06 (N/1443).

Diagnosis: A deep black round blotch at base of caudal fin, a similar black blotch on anterior of body adjacent to dorsal fin. One posterior dark blotch on 22-24 scales. No scales on heads. Barbels absent. Body laterally compressed. No horny covering on inner side of lips which are distinct. Lateral line complete.

Measurements: 40–75 mm (TL)

Distribution: Predominant species of Krishna river system. Freshwaters of India.

7. *Puntius ticto* (Hamilton)

1822. *Cyprinus ticto* Hamilton, *Fish Ganges*, Pp. 310, 389, P19, fig. 86. (Type locality: Ponds and rivers in Gangetic provinces).

1878. *Barbus ticto* Day, *Fish. India*: 576, pl. 144, fig. 7; 1889, Day, *Fauna Br. India, Fish*, 1: 325.

1999. *Puntius ticto* Jayaram, *the Freshwater Fishes of the Indian Region*: 120. (Distribution and key to species).

Common name: Stigma barb/ Arc fin barb

Material examined: (1) 5 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 15-2-06 (N/1510); (2) 1 ex., Wyadam, SVAC Sekhar & Hakeel Md., 17-2-06 (N/1539); (3) 22 exs., Mallavaram, SVAC Sekhar & Hakeel Md., 3-10-06 (N/1377); (4) 53 exs., Reddygudem, SVAC Sekhar & Hakeel Md., 20-8-06 (N/1502); (5) 1 ex., Narayanapuram, SVAC Sekhar & Hakeel Md., 21-8-07 (N/1472); (6) 10 exs. Singaraypalem, SVAC Sekhar & Hakeel Md., 24-1-08 (N/1416); (7) 10 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 25-1-08 (N/1423); (8) 22 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 25-1-08 (N/1426); (9) 44 exs., Mallavaram, SVAC Sekhar & Hakeel Md., 26-1-08 (N/1430); (10) 50 exs., Reddygudem, SVAC Sekhar & Hakeel Md., 26-1-08 (N/1453); (11) 22 exs., Brahmanapalle, SVAC Sekhar & Hakeel Md., 27-1-08 (N/1437); (12) 14 exs., Wyadam, SVAC Sekhar & Hakeel Md., 27-1-08 (N/1438).

Diagnosis: No scales on head. Single dorsal fin. Body laterally compressed. No horny covering on inner side of the lips, which are distinct. No barbells. No scales on head, single dorsal fin.

Measurements: 20–38 mm

Distribution: Freshwaters of India (except Kerala & South Tamil Nadu), Very common all over Andhra Pradesh.

Genus : *Catla* Cuvier & Valenciennes 1844

8. *Catla catla* (Hamilton)

1822. *Cyprinus catla* Hamilton, *Fish Ganges*: 287; pl. 13, fig. 81. (Type-locality: rivers and tanks of Bengal).

1878. *Catla buehanani*, Day, Fish. India: 553, pl.134, fig.5; 1889, Day, *Fauna Br. India, Fish*, 1: 287, fig. 99.

1999 *Catla catla* Jayaram, *The Freshwater fishes of the Indian Region*: 131 (Distribution and key to species).

Common Name: Catla.

Material examined: 1 ex, Mallavaram, SVAC Sekhar & Hakeel Md., 17-2-06 (N/1533).

Diagnosis: Barbles absent. Caudal fin forked. 51/2 to 61/2 rows of scales between lateral line and base of pelvic fin. Head enormously large. Mouth wide and upturned, with prominent protruding lower jaw. Lower lip thick. Pectoral fin long, extend to pelvic fin. Lateral line complete

Measurements (Total length): 200 mm (It is told by the local fishermen that, 18 kgs of *catla catla* has also been captured in Wyra Lake).

Distribution: *Catla* is non-predatory and its feeding is restricted to surface and mid water. *Catla* breeds in rivers, which are its natural habitats. It is one of the renowned and the fastest growing of the Indian major carps. Being a commercially important fish, it is introduced in to almost all parts of India and is reared in the tanks & rivers. The species has been transplanted in to several rivers in Peninsular India.

Genus: *Labeo* Cuvir

9. *Labeo rohita* (Hamilton)

1822. *Cyprinus rohita* Hamilton, *Fish Ganges* pp. 301, pl. 36, fig 85 (Type-locality: Gangetic provinces).

1877. *Labeo rohita* Day, *Fish. India*: 508, pl. 127. fig. 4; 1889. Day, *Fauna Br. India Fish*, 1: 262.

1999. *Labeo Rohita* Jayaram, *HBFW Fish. India*: 136 pl.VI, Fig.6 (Distribution & key to species).

Common Name: Rohu.

Material examined: 3 exs. Singarayapalem, S.V.A.C Sekhar & Hakeel Md.,15-2-06 (N/1515); 3 exs., Brahmanapalle, S.V.A.C Sekhar & Hakeel Md.,16-2-06 (N/1547).

Diagnosis: Lips thick and fringed, with distinct inner fold. Snout fairly depressed, projects beyond mouth. Mouth small and inferior. Barbels short, small. Dorsal fin originates almost midway between tip of snout and base of caudal fin. Caudal fin deeply forked.

Measurements: 150-190mm (TL)

Distribution: It is one of the major carps of India. Rohu is natural inhabitant of freshwater sections of north India, the rivers Narmada, Tapi, and Mahanadi in central India. It has been transplanted in to some of the rivers of Peninsular India, Andamans and Powai Lake, Bombay.

Order III : SILURIFORMES

Family 3 : BAGRIDAE

Subfamily : BAGRINAE

Genus : *Mystus* Scopoli 177710. *Mystus vittatus* (Hamilton)

1797. *silurus vittatus* Bloch, *Ichth. Hist. Nat.*, 11: 40, pl. 371, fig. 2 (Type locality: Tranquebar, S. India).

1877. *Macrones vittatus*, Day, *Fish. India*: 448, pl.98, fig. 3 and pl. 99, fig. 4.

1999. *Mystus cavasius*, Jayaram, *The Freshwater Fishes of the Indian Region*, p. 199.

Common name: Rohu.

Material examined: (1) 10 exs., Singarayapalem, SVAC Sekhar & Hakeel Md., 21-4-06 (N/1394); (2) 5 exs., Siddiqnagar, SVAC Sekhar & Hakeel Md., 20-4-06 (N/1396); (3) 6 exs., Singarayapalem, SVAC Sekhar & Hakeel Md., 19-4-06 (N/1371); (4) 4 exs., Mallavaram, SVAC Sekhar & Hakeel Md., 17-2-06 (N/1534).

Diagnosis: Mouth terminal, transverse, the upper jaw longer. Barbells 4 pairs; maxillary pair extends beyond pelvic fins, often to end of anal fin. Skin without scales, outer most ray of pectoral fin modified into hard ray. Adipose fin small, inserted much behind rayed dorsal fin but in advance of anal fin. Anal fin short with less than 20 rays. A dark shoulder spot present. 3 or 4 longitudinal colour bands below and above lateral line.

Measurements: 75-95 mm (TL)

Distribution: Throughout India. Widely distributed species found throughout Andhra Pradesh within tidal influence also.

11. *Mystus cavasius* (Hamilton)

1822. *Pimelodus cavasius*, Hamilton, *Fish Ganges*: 203, 397; P II, fig. 67. (*Type-locality*: Gangetic provinces).

1878. *Macrones cavasius* Day, *Fish. India*: P. 447, pl. 100, fig. 1

1999. *Mystus cavasius*, Jayaram, *The Freshwater Fishes of the Indian Region*, p. 199.

Common Name : Gangetic mystus/Dwarf catfish

Material examined : (1) 7 exs., Lallapuram, SVAC Sekhar & Hakeel Md., 15-2-06 (N/1514); (2) 3 exs., Siddiqnagar, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1520); (3) 2 exs., Mallavaram, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1462); (4) 1 exs., Reddy gudem, SVAC Sekhar & Hakeel Md., 15-2-06 (N/1514); (5) 3 exs, Wyadam, SVAC Sekhar & Hakeel Md., 22-8-07 (N/1455).

Diagnosis: Body elongate and compressed. Barbels 4 pairs. Maxillary barbells extend posteriorly beyond caudal fin base in adults. Adipose fin large, inserted close behind base of rayed dorsal fin. Dorsal spine weak, often feebly serrated. A dark shoulder spot at the anterior base of dorsal fin.

Measurements: 100-180 mm (TL)

Distribution: Inhabits freshwater and tidal rivers and lakes, ponds, and inundated fields. Widely distributed in India.

12. *Sperata seenghala* (Sykes)

1839 *Platystoma seenghala* Sykes, *Trans. Zool. Soc. Lond.*, 2: 371, pl. 65, fig. 2 (Type-locality: Mota Mula river, Poona).

1878. *Macrones seenghala* Day, *Fish. India*: P. 444, pl. 99, fig. 1; 1889 Day, *Faun. Brit. India*, Fish.1: 150.

1999 *Aorichthyes seenghala* Jayaram, *The Freshwater fishes of the Indian Region*: 205 (Distribution and key to species).

Common Name: Giant river cat fish.

Material examined : (1) 3 exs., Singaraypalem, SVAC Sekhar & Hakeel Md., 2-11-06 (N/1446); (2) 2 exs., Lallapuram, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1491); (3) 1 ex, Narayanapuram, SVAC Sekhar & Hakeel Md., 21-8-07 (N/1461); (4) 1 ex, Siddiqnagar, SVAC Sekhar & Hakeel Md., 21-8-07 (N/1462); (5) 1 ex, Brahmanapalle, SVAC Sekhar & Hakeel Md., 7-2-08 (N/1450); (6) 1 ex, BP, SVAC Sekhar & Hakeel Md., 25-3-08 (N/1450).

Diagnosis : barbells 4 pairs extend posteriorly to pelvic fins or beyond to anal fin; adipose fin base short, dark well-defined spot on adipose dorsal fin.

Measurements: 140-270 mm (TL)

Distribution: Inhabits Rivers, canals, beels, ditches, inundated fields, etc. The Indus, Ganga, Yamuna, Brahmaputra, Mahanadi, Narmada, Tapati; Cauvery, Krishna & Godavari river systems.

Family 4 : SILURIDAE

Genus : *Wallago* Bleeker

13. *Wallago attu* (Schneider)

1801. *Silurus attu* Schneider, *Syst. Ichth.*, p. 378; pl. 75 (Type-locality: Malabar).

1878. *Wallago attu* Day, *Fish. India*: P. 497, pl. 111, fig. 4 (India, Ceylone, Burma, Calcutta); 1889 Day, *Faun. Brit. India*, Fish. 1: 126, fig. 54.

1999. *Wallago attu* Jayaram, *The Freshwater fishes of the Indian Region*: 246 (Distribution and key to species).

Common Name: Boal/Freshwater shark

Material examined: 1ex, Siddiqnagar, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1516).

Diagnosis : Mouth wide, its gape extends posterior to beyond eyes. Barbels two pairs. Maxillary pair long extends beyond the origin of anal fin. Dorsal fin short, inserted slightly in advance of pelvic fins. Caudal fin deeply forked. Weak pectoral fin, not surpassing pelvic fin rays.

Measurements: 100 mm (TL)

Distribution: It is one of the largest, voracious and predatory catfish, inhabiting large rivers, tanks and lakes. The fish prefers muddy tank subject to periodical flooding.

Widely distributed in the freshwaters of India.

Order IV : BELONIFORMES

Family 5 : BELONIDAE

Genus : *Xenentodon* Regan, 1911

14. *Xenentodon cancila* (Hamilton)

1822. *Esox cancila* Hamilton, *Fish Ganges*, 213, 215, 380; pl. 27, fig. 70. (Type-locality: Gangetic provinces).

1878. *Belone cancila* Day, *Fish. India*: 511, pl. 118, fig. 5; 1889, Day, *Faun. Brit. India*, Fish, 1: 420, fig. 136.

1999 *Matacembelus pancalus* Jayaram, *The Freshwater fishes of the Indian Region*: 292 (Distribution and key to species).

Common Name: Freshwater garfish

Material examined : (1) 2 exs., Wyadam, SVAC Sekhar & Hakeel Md., 15-2-06 (N/1505); (2) 2 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1528); (3) 1 ex., Narayanapuram, SVAC Sekhar & Hakeel Md., 17-2-06 (N/1536); (4) 2 exs., Singaraypalem, SVAC Sekhar & Hakeel Md., 17-2-06 (N/1368); (5) 3 exs., SN, SVAC Sekhar & Hakeel Md., 2-11-06 (N/1372); (6) 6 exs., SP, SVAC Sekhar & Siddiqnagar Hakeel Md., 2-11-06 (N/1373); (7) 1 ex., Narayanapuram, SVAC Sekhar & Hakeel Md., 25-1-06 (N/1429); (8) 1 ex., Mallavaram, SVAC Sekhar & Hakeel Md., 26-1-08 (N/1432).

Diagnosis : Body eel like. Both jaws prolonged into a beak; lower jaw slightly longer. Dorsal fin and anal fin about equal and inserted in opposite position. Caudal fin truncate.

Measurements: 155-260 mm (TL)

Distribution: It is a surface living fish, attaining length of 30 cm. It is a larvivorous and good aquarium fish. Distributed mostly in all states of India.

Order V : SYNBRANCHIFORMES

Family 6 : MASTACEMBELIDAE

Genus : *Macrognathus* Lacepede 1800

15. *Macrognathus pancalus* (Hamilton)

1822. *Macrognathus pancalus* Hamilton, *Fish Ganges.*, 30, 364, pl. 223, fig. 7. (Type locality: Bengal).

1878. *Matacembelus pancalus* Day, *Fish. India*: 340, pl.72, fig. 4; 1889, Day, *Faunal Brit. India*, Fish, 2: 333.

1999 *Matacembelus pancalus* Jayaram, *The Freshwater fishes of the Indian Region*: 360 (Distribution and key to species).

Common Name: Lesser Spiny eel.

Material examined: (1) 4 exs., Wyadam, SVAC Sekhar & Hakeel Md., 15-2-06 (N/1506); (2) 2 exs., Singaraypalem, SVAC Sekhar & Hakeel Md., 16-2-06 (N/1525); (3) 1 ex., Narayanapuram, SVAC Sekhar & Hakeel Md., 21-4-06 (N/1355); (4) 3 exs., Reddygudem, SVAC Sekhar & Hakeel Md., 4-11-06 (N/1442); (5) 1 ex., Singaraypalem, SVAC Sekhar & Hakeel Md., 19-8-07 (N/1457); (6) 3 exs., Reddygudem, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1500) (7) 1 ex., Narayanapuram, SVAC Sekhar & Hakeel Md., 21-8-07 (N/1469); (8) 2 exs., Narayanapuram, SVAC Sekhar & Hakeel Md., 21-8-07 (N/1470); (9) 1 ex., Brahmanapalle, SVAC Sekhar & Hakeel Md., 22-8-07 (N/1497).

Diagnosis: Body long, compressed. Cleft of mouth narrow, a long fleshy snout with a trilobed extremity. Dorsal fin inserted above middle of pectoral fin. No pelvic fins. Fins yellowish to black spots. One strong pre orbital spine, and 2-5 spines on preoperculum present.

Measurements: 95-123 mm (TL)

Distribution : Inhabits Rivers and estuaries. Generally prefers slow and sluggish waters. Widely distributed in India.

Genus : *Matacembelus* Lacepede 1800

16. *Matacembelus armatus* (Lacepede)

1800. *Macrogathus armatus* Lacepede, *Hist. Nat. Poiss.*, 2: 286

1878. *Matacembelus armatus* Day, *Fish. India*: 340, pl. 73, fig. 2; 1889 *Matacembelus armatus*, Day, *Faun. Brit. India*, Fish 2: 334.

1999. *Matacembelus armatus* Jayaram, *The Freshwater fishes of the Indian Region*: 360 (Distribution and key to species).

Common name : Spiny eel.

Material examined : 2 exs., Singaraypalem., SVAC Sekhar & Hakeel Md., 2-11-06 (N/1448).

Diagnosis: Body eel like. Caudal fin merged with dorsal and anal fins. Ventral fin absent. There is a row of rounded black spots along the base of the dorsal fin. There are many round blotches on the body.

Measurements: 200-350 mm (TL)

Distribution: Inhabits fresh and brackish waters in plains and hills. It is common during summer months This fish also found commonly at quite high altitudes in river Tawi (Jammu) and its tributaries.

ORDER VI : PERCIFORMES

Family 7 : AMBASSIDAE

Genus: *Chanda* Hamilton17. *Chanda nama* (Hamilton)1822. *Chanda nama* Hamilton, *Fish Ganges*: 109; 371, pl.39, fig. 37. (Type locality: N.E. Bengal).1999. *Chanda nama*, Menon, *Rec. zool. Surv. India, Occ, Paper No.*, 175: 366.*Common Name*: Elongate glass perchlet.

Material examined : (1) 10 exs., Lallurigudem, SVAC Sekhar & Hakeel Md., 16-2-06(N/1532); (2) 12 exs., Singarayapalem, SVAC Sekhar & Hakeel Md., 16-2-06(N/1521); (3) 15 ex., Mallavaram, SVAC Sekhar & Hakeel Md., 17-2-06(N/1535); (4) 2 exs., Brahmanapalle, SVAC Sekhar & Hakeel Md., 18-2-06(N/1549); (5) 1 ex., Reddygudem, SVAC Sekhar & Hakeel Md., 18-2-06(N/1544); (6) 29 exs., Reddygudem, SVAC Sekhar & Hakeel Md., 4-11-06(N/1441) (7) 11 ex., Brahmanapalle, C A Nageswara Rao & Hakeel Md., 25-3-07(N/1490).

Diagnosis: Body ovate and strongly compressed. Mouth large with prominent lower jaw. Teeth villiform on jaws with three canines on either side of lower jaw. Scales minute, often irregularly arranged. Lateral line with 100 - 107 scales. A dark blotch on dorsal fin upper edge generally present. A forwardly directed procumbent spine present in the dorsal fin.

Measurements : 30 - 63 mm (TL)

Distribution : Widely distributed in India. Also in Pakistan, Bangladesh, Nepal and Myanmar.

Habitat: Commercially known as 'Glass fish', used in aquariums. Inhabits fresh and brackish waters. It attains a length of 11 cm.

18. *Pseudambassis ranga* (Hamilton) 18221822. *Chanda ranga*, Hamilton, *Fish Ganges*; 113, 371, pl.6. Fig.38. (Type-Locality: Gangetic provinces)1991. *Pseudambassis ranga*, Talwar & Jhingran, *Inland fisheries*, 2:805.*Common name*: Indian glassy fish

Material examined: (1) 17 exs., Singarayapalem, SVAC Sekhar & Hakeel Md., 15-2-06(N/1511); (2) 5 exs., Reddygudem, SVAC Sekhar & Hakeel Md., 18-2-06(N/1545); (3) 4 ex., Lallurigudem, SVAC Sekhar & Hakeel Md., 5-11-06(N/1443); (4) 6 exs., Singarayapalem, SVAC Sekhar & Hakeel Md., 19-8-07(N/1459); (5) 10 ex., Singarayapalem, SVAC Sekhar & Hakeel Md., 19-8-07 (N/1460); (6) 7 exs., Lalapuram, SVAC Sekhar & Hakeel Md., 19-8-07 (N/1461) (7) 10 ex., Mallavaram, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1466); (8) 15 exs., Reddygudem, SVAC Sekhar & Hakeel Md., 21-8-07 (N/1470); (9) 1 ex., BP, SVAC Sekhar & Hakeel Md., 22-8-07 (N/1467).

Diagnosis: Body stout, deep and compressed. Preopercular hind edge smooth with one or two serrations at angle. Lateral line with 47-63 scales. A dorsal shoulder spot present.

Measurements: 20-43 mm (TL)

Distribution : Widely distributed in India, Pakistan, Bangladesh, Nepal and Myanmar.

Habitat: It is a good aquarium fish. It makes nests and guards its young. It attains a maximum length of 7 cm. It is a monsoon breeder.

Family 8 : CICHLIDAE

Genus : *Etroplus* Cuvier 1830

19. *Etroplus maculatus* (Bloch)

1785. *Chaetodon maculatus* Bloch, Syst., Ichth., Pl. 427, fig.-2 (Type Locality: India).

1877. *Etroplus macculatus* Day, Fish. India: 415, pl. 89, fig. 4; 1889 *Etroplus aculatus*, Day, Faun. Brit. India, Fish, 2: 429.

1999. *Etroplus macculatus* Jayaram, The Freshwater fishes of the Indian Region: 400 (Distribution and key to species).

Common name: Pearl spot.

Material examined: (1) 10 exs, Singaraypalem, SVAC Sekhar & Hakeel, 16-2-06 (N/1524); (2) 4 exs. Siddiqnagar, SVAC Sekhar & party, 16-2-06 (N/1517); (3) 2 exs., Narayanapuram., SVAC Sekhar & Party, 17-2-06 (N/1540); (4) 4 exs., Mallavaram., SVAC Sekhar & Hakeel, 17-2-06 (N/1534); (5) 20 exs., Brahmanapalle, SVAC Sekhar & Hakeel 18-2-06 (N/1548); (6) 10 exs, Reddy gudem, SVAC Sekhar & Hakeel Md., 18-2-06 (N/1543); (7) 2 exs, S.P., SVAC Sekhar & Hakeel Md., 20-4-06 (N/1398); (8) 5 exs, S. N., SVAC Sekhar & Hakeel Md., 20-4-06 (N/1396); (9) 5 exs., N.P., SVAC Sekhar & Hakeel Md., 21-4-06 (N/1395); (10) 3 exs., S.P., SVAC Sekhar & Hakeel Md., 2-11-06 (N/1444); (11) 1 ex, L.G., C A Nageswara Rao & Hakeel Md., 25-3-07 (N/N/1389); (12) 3 exs, S.P., S.P., SVAC Sekhar & Hakeel Md., 13-8-07 (N/1456); (13) 2 exs., M.V., SVAC Sekhar & Hakeel Md., 20-8-07 (1463); (14) 1 ex, L.P., SVAC Sekhar & Hakeel Md., 20-8-07 (N/1493); (15) 2 exs., R.G., SVAC Sekhar & Hakeel Md., 20-8-07 (N/1498); (16) 1 ex, Br. P., SVAC Sekhar & Hakeel Md., 22-8-07 (N/1478); (17) 1 ex., S. P., SVAC Sekhar & Hakeel Md., 24-1-08 (N/1417); (18) 2 exs., N.P., SVAC Sekhar & Hakeel Md., 25-1-08 (N/1427); (19) 2 exs., R.G., SVAC Sekhar & Hakeel Md., 26-1-08 (N/1434).

Diagnosis: Body elevated and compressed. Three dark blotches along the lateral line and few others on dorsal, anal and abdomen. Caudal fin lunate. Dorsal fin single with spinous and soft part. Pelvic fins deep black. Anal fin with reddish edge in live conditions.

Measurements: 33-68 mm (TL)

Distribution: Inhabits fresh and brackish waters along coastal areas. It has been introduced in to Andhra and Maharashtra waters.

20. *Etroplus suratensis* (Bloch)

1785. *Chaetodon suratensis* Bloch, Syst., Ichth., Pl. 217 (Type locality: Surat).

1877. *Etroplus suratensis* Day, Fish. India: 415, pl.89, fig.6; 1889 *Etroplus maculatus*, Day, Faun. Brit. India, Fish, 2: 430.

1999. *Etroplus suratensis* Jayaram, The Freshwater fishes of the Indian Region: 400 (Distribution and key to species).

Common name: Banded Pearl spot.

Material examined: (1) 1 ex, Wyadam, SVAC Sekhar & Hakeel, 19-4-06 (N/1374); (2) 12 exs. Singaraypalem, SVAC Sekhar & party, 19-4-06 (N/1371); (3) 3 exs., Singaraypalem., SVAC Sekhar & Party, 20-4-06 (N/1392); (4) 10 exs., Singaraypalem, SVAC Sekhar & Hakeel, 21-4-06 (N/1475); (5) 2 exs., Brahmanapalle, SVAC Sekhar & Hakeel 2-11-06 (N/1445); (6) 10 exs, Lallapuram, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1492); (7) 2 exs, Reddy gudem, SVAC Sekhar & Hakeel Md., 20-8-07 (N/1499); (8) 4 exs, Narayanapuram., SVAC Sekhar & Hakeel Md., 21-8-07 (N/1468).

Diagnosis: Body compressed, cleft of mouth small. Lateral line interrupted at 14-18th scales; 35-40 scales in longitudinal SERIES. Some irregular black spots/stripes on abdomen.

Measurements: 90-190 mm (TL)

Distribution : Very common in brackish waters of the coastal regions of Kerala, Tamil Nadu, Andhra Pradesh and Orissa. This species is extensively cultivated in ponds and tanks where they breed naturally. They thrive well where luxurious growth of aquatic vegetation is available.

Family 9 : GOBIIDAE

Genus : *Glossogobnius* Gill 1859

21. *Glossogobius giuris* (Hamilton)

1822. *Gobius giuris* Hamilton, Fish Ganges: 51, 306.

1999. *Glossogobius giuris*, Menon, Rec. zool. Surv. India, Occ, Paper No., 175: 366.

Common name: Tank goby.

Material examined: (1) 13 exs, Lallapuram, SVAC Sekhar & Hakeel, 15-2-06 (N/1513); (2) 2 exs. Wyradam, SVAC Sekhar & party, 15-2-06 (N/1509); (3) 4 exs., Lallurigudem., SVAC Sekhar & Party, 16-2-06 (N/1529); (4) 2 exs., Siddiqnagar, SVAC Sekhar & Hakeel, 16-2-06 (N/1523); (5) 3 exs., Narayanapuram., SVAC Sekhar & Hakeel 2-11-06 (N/1445); (6) 2 exs, Reddygudem, SVAC Sekhar & Hakeel Md., 18-2-06 (N/1542); (7) 3 exs, Brahmanapalle, SVAC Sekhar & Hakeel Md., 18-2-06 (N/1550); (8) 2 exs, Lallapuram., SVAC Sekhar & Hakeel Md., 19-4-06 (N/1359). (9) 1 exs, Lallurigudem, SVAC Sekhar & Hakeel, 20-4-06 (N/1388); (10) 12 exs. Brahmanapalle, SVAC Sekhar & party, 22-4-06 (N/1367); (11) 2 exs., Singaraypalem., SVAC Sekhar & Party, 2-11-06 (N/1387); (12) 5 exs., Singaraypalem, CA Nageswara Rao & Hakeel, 25-3-07 (N/1484); (13) 3 exs., Reddygudem.,

CA Nageswara Rao & Hakeel 26-3-07 (N/1477); (14) 6 exs., Singaraypalem., SVAC Sekhar & Hakeel 19-8-07 (N/1458).

Diagnosis: Body elongate and somewhat compressed. A long tapering fish with vertically compressed head, lower jaw prominent. Two dorsals placed closely, pelvics united forming a disk, olive to lighter green above lighter below; 4 to 6 black blotches on body along the lateral line. Dorsal, pectoral and caudal fins mottled with dark spots. Spots darkest along spine of second dorsal fin.

Measurements: 68–170 mm (TL)

Distribution: Widely distributed in India. Also Bangladesh, Pakistan, Nepal, Sri Lanka, Malaysia, Thailand, China, Japan, Philippines, Australia.

Habitat: Rivers, tanks and ponds. Commercially not important. It is tasteless, but it is a beautiful aquarium fish. It attains a length of about 30 cm.

Family 10 : BELONTIDAE

Genus: *Colisa* Cuvier & Valenciennes 1831

21. *Polyacanthus fasciatus* (Schneider)

1801. *Trichogaster fasciatus* Schneider, *Syst. Ichth.*: 164, pl. 36 (Type locality: Tranquebar).

1881. *Trichogaster fasciatus*, Day, *Fauna Bri. India*, Fish, 2: 372, fig. 123.

1999. *Polyacanthus fasciatus*, Menon, *Rec. zool. Surv. India, Occ, Paper No.*, 175: 366

Common name: Giant gourami

Material examined: (1) 2 exs, Lallapuram, SVAC Sekhar & Hakeel Md., 19-4-06(N/1360); (2) 6 exs, Reddygudem, SVAC Sekhar & Hakeel, 20-8-07(N/1504) (3) 2 exs, Narayanapuram, SVAC Sekhar & Hakeel Md., 21-8-07(N/1469).

Diagnosis: Body strongly compressed. Pelvic fins thread like. Dorsal and anal fins long-based. Caudal fin slightly cut square. Fish red coloured with many bands and a rudimentary adnate spine present. Dorsal fin with more than seven spines (between 15-18). Dorsal fin with spines and rays.

Measurements: 35–52 mm (TL)

Distribution: North India, Coromondal coast as far as the river Krishna, Pakistan, Bangladesh, Nepal, Myanmar.

Habitat : Abundantly found in beds, mostly areas than lakes, rivers and ponds. Popular food and aquarium fish; carnivorous.

Order VII : MUGILIFORMES

Family 11 : MUGILIDAE

23. *Rhinomugil corsula* (Hamilton)

1822. *Mugil corsula*, Ham-Buch., *Fish Ganges*; 221, 381, pl. 9. Fig. 77. (Type-Locality: Rivers of Gangetic provinces in the soutjern parts of Bengal).

1878. *Mugil corsula* Day, *Fish. India*: 354, pl. 71, fig. 6; 1889 Day, *Faun. Br. India, Fish*, 2: 349.

1999. *Rhinomugil corsula* Talwar and Jhingran

Common name : Corsula mullet.

Material examined : (1) 1 ex., Singaraypalem, SVAC Sekhar & Hakeel Md., 20-4-06 (N/1440).

Diagnosis: Head slightly depressed anteriorly, eyes bulging, dorso lateral in position. Two dorsal fins well separated, first dorsal fin in between pelvic and anal fin. Pre-dorsal scales 28. Caudal fin slightly emerginate.

Measurements: 190 mm (TL)

Distribution : Rivers and estuaries, found above tidal influence in freshwater. Inadvertently introduced in peninsular river systems. Punjab, UP, West Bengal, Orissa, Gujarat. It is introduced in Tamil Nadu and Andhra Pradesh.

Suborder : CHANNOIDEI

Family 12 : CHANNIDAE

Genus : *Channa* Scopoli 1777

24. *Channa punctatus* (Bloch)

1793. *Ophiocephalus punctatus* Bloch. *Natur Aus. Fische*, 7: 139, pl. 358. (Type locality: Coromandal coast).

1878. *Ophiocephalus punctatus* Day, *Fish. India*: 367, pl. 78, fig.1; 1889 Day, *Faun. Br. India, Fish*, 2:364.

1999. *Channa punctatus*, Jayaram, *HBFW Fish. India*: 306, 307 (Distribution and key to species).

Common name : Spotted snakehead.

Material examined : 2 exs, Narayanapuram, SVAC Sekhar & Hakeel Md., 21-8-07(N/1470).

Diagnosis: Body elongate. Pre-dorsal scales 12. lower jaw slightly longer. A dark stripe along side of head and several short cross bands from back to middle of body. Fins spotted. Pectoral fin extends to anal fin. Caudal fin rounded.

Measurements: 110-170 mm (TL)

Distribution: It inhabits ponds, irrigation canal, paddy fields (during monsoon seasons), tanks etc. Widely distributed in India. This fish is the most common species found throughout Andhra Pradesh.

25. *Channa striatus* (Bloch)

1793. *Ophiocephalus striatus* Bloch. *Naturg Ausland, Fische*, 2: 141, pl. 359. (Type locality: Malabar).

1878. *Ophiocephalus striatus* Day, *Fish. India*: 366 ; 1889 Day, *Faun. Br. India, Fish*, 2: 363.

1999. *Channa striatus*, Jayaram, *HBFW Fish. India*: 307 (Distribution and key to species).

Common Name: Striped snakehead murrel.

Material examined: 3 exs, Singaraypalem, SVAC Sekhar & Hakeel Md., 19-8-07 (N/1459).

Diagnosis: 9 rows of scales between the orbit and angle of pre-opercle. 18-20 pre-dorsal scales. L 1 curves below the 12th dorsal fin ray. Greyish to black lateral bands sides to abdomen.

Measurements: 135–200 mm (TL).

Distribution: Throughout India.

26. *Channa gachua* (Bloch)

1793. *Ophiocephalus punctatus* Bloch. *Natur Aus. Fische*, 7: 139, pl. 358. (Type locality: Coromandal coast).

1878. *Channa orientalis* Day, *Fish. India*: 368, pl. 78, fig. 2; 1889 Day, *Faun. Br. India, Fish*, 2: 365.

1999. *Channa orientalis*, Jayaram, *HBFW Fish. India*: 306, 307 (Distribution and key to species).

Common Name : Brown snakehead murrel.

Material examined: (1) 2 exs, Wyadam, SVAC Sekhar & Hakeel Md., 15-2-06(N/1509); (2) 1 ex., Brahmanapalle, SVAC Sekhar & Hakeel Md., 22-4-06 (N/1367).

Diagnosis : Maxilla extends below posterior margin of the orbit. Dorsal fin long, origin just behind pectoral fin origin. Anal fin commences behind tip of pectoral fin. Pre-dorsal scales 12 to 13. pelvic fin less than half the length of pectoral fin. Some darkish spots on body and fins. Pectoral fins with vertical bands on its rays.

Measurements : 85–109 mm (TL)

Distribution: Widely distributed in India.

DISCUSION

The present work has recorded 26 species under 21 genera, 12 families and 7 orders from the Wyra Lake. It has been noted that among the highly priced commercially important fishes of this reservoir are the (species of) *Labeo rohita*, *Catla catla*, *Sperata seenghala*, *Channa punctatus*, *Channa striatus*.

Common fishes of the lake: *Notopterus notopterus*, *Chela laubuca*, *Parluciosoma daniconius*, *Puntius* sps., *Mystus* sps., *Chanda* sps., and *Glossogobius giuris*.

Dominant fishes of the lake: *Chanda* sps., *Puntius* sps., and *Mystus* sps

Rare fishes of the lake: *Osteobrama vigorsii* and *Rhinomugil corsula*.

The ichthyofauna of Wyra lake is dominated by cyprinids (Order cypriniformes) followed by the species of perches (Order Perciformes).

In recent times fishes, especially freshwater fishes of the Indian Region, are threatened due to loss of habitat, as rivers are being dammed or diverted and wetlands are cleared for agriculture and other purposes. Deleterious effects also

result from over fishing, catching of breeding fish and fry, pollution of rivers and streams. Fishes are very much important from biodiversity point of view enjoying different ecosystems, habitats, and niches of aquatic environment. Among these high population of *Channa* species viz., *Channa punctatus*, *Channa striatus* and *Channa gachua* are found in this wetland (fish of littoral zone). Wyra lake is very suitable for carp culture viz., *Catla* and *Rohu* and cat fishes of 2-3 feet length are found in the water body frequently. *Sperata seenghala* is an important giant catfish of India. It is observed that, in the local fish market this fish has high demand and is available in big sizes (100cm). It is told by the local fishermen that, *Catla* of 3 ft. and over are not uncommon amongst the catches. Maximum size with 18 kgs weight of *Catla catla* has also been caught. This shows the healthy condition of the lake. This water body also found to be good for prawn fishing as *Macrobrachium* sp. Of one foot length and above are also noticed in the fishing catches. *Osteobrama vigorsii* is an endemic fish, very common in streams and lakes of south India. Fishes belongs to order Mugiliformes are mostly marine; these economically valuable fishes are found often entering estuaries and tidal rivers.

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HERPETOFAUNA

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INTRODUCTION

The herpetofauna of Wyra Reservoir has been surveyed for the first time to prepare a comprehensive species diversity of the area. The author had surveyed the area along with a team of scientists from the Freshwater Biology Station, Zoological Survey of India, Hyderabad during 2006 and 2007. Surveys were carried out at Wyra (17°12' N, 80°22'E), Singaraipalem (17°14'N, 80°21'E), Siddiqnagar (17°13' N, 80°21'E) and Reddygudem (17°11'N, 80°23'E). Species that are observed and or collected are enumerated below with remarks in brief. The Red List status of taxa dealt herewith are following IUCN (2010).

The systematic arrangement adopted follows broadly that of Srinivasulu and Das (2008).

SYSTEMATIC ACCOUNT

Class : AMPHIBIA

Family : BUFONIDAE

Genus : *Duttaphrynus* Frost *et al.*, 2006

1. *Duttaphrynus stomaticus* (Lutken, 1862)

Marbled Toad

1862. *Bufo stomaticus* C. F. Lutken. *Vidensk. Meddr. Danske Naturh. Foren.*: 305.

Distribution: Many locations in the catchment area of Wyra Reservoir. Elsewhere: Throughout most of India; Afghanistan, Iran, Nepal, Bangladesh, and Pakistan.

Remarks: Uncommon. Based on sightings in agricultural fields and village groves in the catchment area of the lake.

Status: LC

2. *Duttaphrynus melanostictus* (Schneider, 1799)

Common Asian Toad

1799. *Bufo melanostictus* J. G. Schneider. *Hist. Amph.*: 216.

Distribution: Many locations in the catchment area of Wyra Reservoir. Elsewhere: Throughout India; Bangladesh, Cambodia, China, Hong Kong, Indonesia, Lao People's

Democratic Republic, Macau, Malaysia, Myanmar, Nepal, Papua New Guinea, Pakistan, Singapore, Sri Lanka, Thailand, Taiwan (Province of China), and Viet Nam.

Remarks: Common. Inhabits scrub jungles and agricultural fields.

Status: LC

Family : DICROGLOSSIDAE

Genus : *Euphlyctis* Fitzinger, 1843

3. *Euphlyctis cyanophlyctis* (Schneider, 1799)

Indian Skipping Frog

1799. *Rana cyanophlyctis* J. G. Schneider. *Hist. Amph.*: 137.

Distribution: Many locations in the catchment area of Wyra Reservoir. Elsewhere: Throughout India; Afghanistan, Bangladesh, Iran, Nepal, Pakistan and Sri Lanka.

Remarks: Common. Inhabits agricultural fields in the catchment area of the lake and lake edge and other small puddles all around the Lake.

Status: LC

4. *Euphlyctis hexadactylus* (Lesson, 1834)

Indian Green Frog

1834. *Rana hexadactyla* R. P. Lesson. *Voyage Indes*: 331.

Distribution: Many locations in the catchment area of Wyra Reservoir. Elsewhere: Throughout India, except north and northwest; Bangladesh and Sri Lanka.

Remarks: Uncommon. Based on sightings in agriculture fields in the catchment area of the lake and the lakebed area.

Status: LC

Genus : *Fejervarya* Bolkay, 1915

5. *Fejervarya* cf. *limnocharis* (Gravenhorst, 1829)

Cricket Frog

1829. *Rana limnocharis* J. L. C. Gravenhorst. *Rept. Mus. Zool. Vratis. Delic. Mus. Zool.*: 42.

Distribution: Many locations in the catchment area of Wyra Reservoir. Elsewhere: Throughout India; Bangladesh, Brunei Darussalam, Cambodia, China, Hong Kong, India, Indonesia, Japan, Lao People's Democratic Republic, Macau, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan (Province of China), Thailand and Viet Nam.

Remarks: Common. Inhabits agricultural fields in the catchment area of the lake and lake edge and other small puddles all around the Lake, based on sightings by the author.

Status: LC

Genus : *Hoplobatrachus* Peters, 1863

6. *Hoplobatrachus tigerinus* (Daudin, 1803)

Indian Bull Frog

1803. *Rana tigerina* F.-M. Daudin. *Hist. Nat.*: 64; Pl. XX.

Distribution: Many locations in the catchment area of Wyra Reservoir. Elsewhere: Throughout India; Afghanistan, Bangladesh, India, Madagascar, Myanmar, Nepal, and Pakistan.

Remarks: Uncommon. Based on single sighting in rocky area along the downstream canal near Wyra dam.

Status: LC

Family : RHACOPHORIDAE

Genus : *Polypedates* Tschudi, 1838

7. *Polypedates maculatus* (Gray & Hardwicke, 1834)

Indian Tree Frog

1834. *Hyla maculata* J. E. Gray & R. Hardwicke. III. *Indian Zool.*: Pl. LXXXII; Fig. 1.

Distribution: Many locations in the catchment area of Wyra Reservoir. Elsewhere: Throughout India, except northwest; Bangladesh, Bhutan, India, Nepal and Sri Lanka.

Remarks: Uncommon. Based on reports by the locals.

Status: LC

Class : REPTILIA

Order : CHELONIA

Family : BATAGURIDAE

Genus : *Melanochelys* Gray, 1834

1. *Melanochelys trijuga* (Schweigger, 1812)

Indian Black Turtle

1812. *Emys trijuga* A. F. Schweigger. *Prod. Monogr. Chel.*: 310.

Distribution: Siddiqnagar, Wyra Reservoir. Elsewhere: Throughout northeastern and peninsular India; Sri Lanka, Nepal, Bangladesh, Maldives, Myanmar, and Thailand. caught in fishing nets. No collections made.

Status: NT

Order : SQUAMATA

Family : AGAMIDAE

Genus : *Calotes* (Daudin, 1802)

2. *Calotes versicolor* (Daudin, 1802)

Indian Garden Lizard

1802. *Agama versicolor* F.-M. Daudin. *Hist. nat. Rept.*, 3: 395; Pl. XLIV.

Distribution: Many localities around the Wyra Reservoir. Elsewhere: Throughout India, Nepal, Bangladesh, Sri Lanka and Pakistan.

Remarks: Common. Found on rocky outcrops in open and scrub forests, and agricultural fields around the Lake and its catchment area.

Status: NT

Genus : *Sitana* Cuvier, 1829

3. *Sitana ponticeriana* Cuvier, 1829

Fan-throated Lizard

1829. *Sit.* (= *Sitana*) *ponticeriana* G. J.-L.-N.-F. D. Cuvier. *Règne Anim.* 2nd ed. 11, p. 43

Distribution: In the lakebed area of the Wyra Reservoir. Elsewhere: Throughout India, Nepal, Pakistan and Sri Lanka.

Remarks: Uncommon. Based on sightings in the rocky outcrops in open and scrub forests along the lakebed area.

Status: LC

Family : CHAMAELEONIDAE

Genus : *Chamaeleo* Linnaeus, 1758

4. *Chamaeleo zeylanicus* Laurenti, 1768

Indian Chamaeleon

1768. *Chamaeleo zeylanicus* J. N. Laurenti. *Syn. Rept.*: 46.

Distribution: In scrub forests in the catchment area of Wyra Reservoir. Elsewhere: Throughout India, Sri Lanka and eastern Pakistan.

Remarks: Uncommon. Based on reports by the locals and a single sighting in March 2007 at Wyra village.

Status: VU

Family : GEKKONIDAE

Genus : *Hemidactylus* Oken, 1817

5. *Hemidactylus flaviviridis* Rüppell, 1835

Yellow-green House Gecko

1835. *Hemidactylus flaviviridis* E. Rüppell. *Neue Wirbelth.-Fauna Abyss., Amph.*, 18: Pl. 6; Fig. 2.

Distribution: In the dilapidated Pump House and other man-made structures near Wyra dam. Elsewhere: Found distributed in northern and eastern India; and southern Asia, Middle East and northern Africa.

Remarks: Uncommon. Human commensal, often found in houses and other man-made structures.

Status: LC

6. *Hemidactylus giganteus* Stoliczka, 1871
Giant South Indian Tree Gecko

1871. *Hemidactylus giganteus* F. Stoliczka. *Proc. Asiatic Soc. Bengal*, 1871(9): 193.

Distribution: In the dilapidated Guest House and other man-made structures near Wyra village, and on rocky outcrops near dam. Elsewhere: Endemic to India

Remarks: Common. Inhabits rocky outcrops and other dilapidated man-made structures all around the Wyra Reservoir.

Status: NT

Family : SCINCIDAE
Genus : *Eutropis* Fitzinger, 1843

7. *Eutropis carinata* (Schneider, 1801)
Keeled Grass Skink

1801. *Scincus carinatus* J. G. Schneider. *Hist. Amphib.*: 183.

Distribution: Rocky outcrops and near the Pump House. Elsewhere: Bangladesh, India, Maldives and Nepal.

Remarks: Common. Frequently sighted in the scrub, open forests and near agricultural fields in the catchment area of the Wyra Reservoir.

Status: NT

Genus : *Lygosoma* Gray, 1828

8. *Lygosoma punctata* (Gmelin, 1799)
Spotted Supple Skink

1799. *Scincus punctatus* Gmelin, *Hist. Amphib.*: 197, based on Seba's fig. ii, pl. 12, fig. 6.

Distribution: Rocky outcrops and near the Pump House. Elsewhere: Bangladesh, India, Maldives and Nepal.

Remarks: Uncommon. Based on infrequent sightings in the scrub, open forests and near agricultural fields in the catchment area of the Wyra Reservoir.

Status: NT

Family : VARANIDAE
Genus : *Varanus* Merrem, 1820

9. *Varanus bengalensis* (Daudin, 1802)
Bengal Monitor Lizard

1802. *Tupinambis bengalensis* F.-M. Daudin. *Hist. nat. Rept.*, 3: 67.

Distribution: Near Reddygudem and Singaraipalem, Khammam district. Elsewhere: Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka.

Remarks: Uncommon. Near scrub and village groves, based on reports by the locals.

Status: VU

Order : SERPENTES

Family : BOIDAE

Genus : *Python* Daudin, 1803

10. *Python molurus* (Linnaeus, 1758)

Indian Rock Python

1758. *Coluber Molurus* C. Linnaeus. 1758. *Syst. Nat. 10th ed.*, 1: 225.

Distribution: Scrub forest downstream of the dam along the canal. Elsewhere: Peninsular India, Pakistan and Sri Lanka.

Remarks: Uncommon. Based on reports by the locals.

Status: NT

Family : COLUBRIDAE

Genus : *Ptyas* Fitzinger, 1843

11. *Ptyas mucosa* (Linnaeus, 1758)

Indian Rat Snake

1758. *Coluber mucosus* C. Linnaeus. *Syst. Nat. 10th ed.*, 1: 216.

Distribution: Many localities in the catchment area of the Wyrā Reservoir. Elsewhere: Throughout India, Sri Lanka, Bangladesh and Myanmar.

Remarks: Common. Based on a few sloughed skins sighted in the scrub jungle of the lakebed area and along agricultural fields in the catchment area of the Wyrā Reservoir.

Status: NT

Genus : *Xenochrophis* Günther, 1864

12. *Xenochrophis piscator* (Schneider, 1799)

Checkered Keelback Water Snake

1799. *Hydrus Piscator* J. G. Schneider. *Hist. Amphib.*, 1: 247.

Distribution: Along lake fringes, agricultural fields and also downstream along the canals. Elsewhere: Throughout India, and Indo-Malayan region.

Remarks: Common. Based on reports by the locals.

Status: LC

Family : ELAPIDAE

Genus : *Naja* Laurenti, 1768

13. *Naja naja* (Linnaeus, 1758)

Spectacled Cobra

1758. *Coluber naja* C. Linnaeus. *Syst. Nat. 10th ed.*, 1: 221.

Distribution: In scrub jungles and agricultural fields in the catchment area. Elsewhere: Throughout India and Sri Lanka.

Remarks: Common. Based on reports by the locals.

Status: NT

Table 1 - Herpetofauna of Wyra Lake, Andhra Pradesh

S. No.	Class/Order	Family	Genus	Species
	AMPHIBIA			
1.	Anura	Bufo	2	2
2.		Dicroglossidae	3	4
3.		Rhacophoridae	1	1
	<i>Subtotal</i>	3	6	7
	REPTILIA			
1.	Chelonia	Bataguidae	1	1
2.	Squamata	Agamidae	2	2
3.		Chamaeleonidae	1	1
4.		Gekkonidae	1	2
5.		Scincidae	2	2
6.		Varanidae	1	1
7.	Serpentes	Boidae	1	1
8.		Colubridae	2	2
9.		Elapidae	1	1
	<i>Subtotal</i>	9	11	13
	Total	12	17	20

SUMMARY

A total of 20 species of herpetofauna belonging to 4 orders, 12 families and 17 genera was recorded during the present study (Table 1). Among the amphibians, the species richness was dominated by dicroglossids, followed by bufo. Among the reptilians, lizards were more diverse than snakes (8 vs 4 species). Inclusion of *Python molurus* (Linnaeus, 1758) is based on information gathered by locals.

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AVES

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INTRODUCTION

Several authors since early 20th century have documented the avifaunal diversity of Andhra Pradesh (some of the major works include that of Whistler & Kinnear (1930-37), Abdulali (1945 & 1953), Raju & Price (1973), Price (1978, 1979 & 1990), Ripley *et al.* (1987-88) Srinivasulu & Nagulu (2002) and Srinivasulu (2004, 2006).

The present study aims at documenting the diversity of bird using the aquatic and terrestrial habitats at Wyra reservoir. The author surveyed the area along with the team of scientists from Freshwater Biology Station, Zoological Survey of India Hyderabad between 2006 and 2007. Surveys were carried out at Wyra (17°12' N, 80°22'E), Singaraipalem (17°14'N, 80°21'E), Siddiqnagar (17°13' N, 80°21'E) and Reddygudem (17°11'N, 80°23'E). The following list includes species that have been observed during study period.

The following systematic account follows recent classification and the common names are following Manakadan and Pittie (2001). The status of threatened category of birds is provided.

SYSTEMATIC ACCOUNT

Order : PODICIPITIFORMES

Family : PODICIPEDIDAE

Genus : *Tachybaptus* Reichenbach, 1849

1. (5) *Tachybaptus ruficollis* (Pallas 1764)

Little Grebe

1764. *Colymbus ruficollis* Pallas, in Vroeg, *Cat. D'Ois., Adumbr.*: 1-7.

Type Locality: Holland

Remarks: Uncommon, resident breeder; numbers vary from season to season, sometimes absent totally.

Order : PELICANIFORMES

Family : PHALACROCORACIDAE

Genus : *Phalacrocorax* Brisson, 1760

2. (26) *Phalacrocorax carbo* (Linnaeus, 1758)

Great Cormorant

1758. *Pelecanus Carbo* Linnaeus, *Syst. Nat. ed. 10, 1*: 133.

Type Locality: China

Remarks: Uncommon, locally migrating species, breeding not recorded.

3. (27) *Phalacrocorax fuscicollis* Stephens, 1826

Indian Shag

1826. *Phalacrocorax fuscicollis* Stephens, in Shaw's Gen. Zool. 13 (1): 91.

Type Locality: China

Remarks: Uncommon, locally migrating species, breeding not recorded.

4. (28) *Phalacrocorax niger* (Vieillot, 1817)

Little Cormorant

1817. *Hydrocorax niger* Vieillot, Nouv. Dict. Hist. Nat. 8: 88

Type Locality: Bengal (East Indies)

Remarks: Common, resident breeder.

Family : ANHINGIDAE

Genus : *Anhinga* Brisson, 1760

5. 29. *Anhinga melanogaster* Pennant, 1769

Darter

1769. *Anhinga melanogaster* Pennant, Indian Zool.: 13, pl. 12

Type Locality: Ceylon and Java

Remarks: Uncommon, locally migrating species, breeding not recorded.

Status: NT (Birdlife International, 2008).

Order : CICONIIFORMES

Family : ARDEIDAE

Genus : *Ardea* Linnaeus, 1758

6. (36) *Ardea cinerea* Linnaeus, 1758

Grey Heron

1758. *Ardea cinerea* Linnaeus, Syst. Nat. ed. 10, 1: 143.

Type Locality: Europe (restricted to Sweden)

Remarks: Uncommon, locally migrating species, breeding not recorded.

7. (37) *Ardea purpurea* Linnaeus, 1766

Purple Heron

1766. *Ardea purpurea* Linnaeus, Syst. Nat. ed. 12, 1: 236.

Type Locality: 'Oriente' (restricted to France)

Remarks: Uncommon, locally migrating species, breeding not recorded.

Genus : *Ardeola* Boie, 1822
8. (42) *Ardeola grayii* (Sykes, 1832)
Indian Pond Heron

1832. *Ardea grayii* Sykes, *Proc. Zool. Soc. London*: 158.

Type Locality: Dukhun

Remarks: Common, resident breeder.

Genus : *Bubulcus* Bonaparte, 1855
9. (44) *Bubulcus ibis* (Linnaeus, 1758)
Cattle Egret

1758. *Ardea ibis* Linnaeus, *Syst. Nat. ed. 10*, 1: 144.

Type Locality: Coromandel

Remarks: Common, resident breeder.

Genus : *Casmerodius* Gloger, 1842
10. (45) *Casmerodius albus* (Linnaeus, 1758)
Large Egret

1758. *Ardea alba* Linnaeus, *Syst. Nat. ed. 10*, 1: 144.

Type Locality: in *Europa* (restricted to Sweden)

Remarks: Uncommon, locally migrating species, numbers increase in rainy and winter seasons, breeding not recorded.

Genus : *Mesophoyx* Sharpe, 1894
11. (47) *Mesophoyx intermedia* (Wagler, 1829)
Median Egret

1829. *Ardea intermedia* Wagler, *Isis von Oken, col.*, 659.

Type Locality: Java

Remarks: Uncommon, locally migrating species, numbers increase in rainy and winter seasons, breeding not recorded.

Genus : *Egretta* Forster, 1817
12. (49) *Egretta garzetta* (Linnaeus, 1766)
Little Egret

1766. *Ardea garzetta* Linnaeus, *Syst. Nat., ed. 12*, 1: 237.

Type Locality: 'Oriente' (restricted to northeast Italy)

Remarks: Common, resident breeder.

Genus : *Nycticorax* Forster, 1817
13. (52) *Nycticorax nycticorax* (Linnaeus, 1758)
Night Heron

1758. *Ardea nycticorax* Linnaeus, *Syst. Nat. ed. 10*, 1: 142.

Type Locality: Southern Europe

Remarks: Uncommon, resident breeder.

Genus : *Ixobrychus* Billberg, 1828

14. (56) *Ixobrychus cinnamomeus* (Gmelin, 1789)
Chestnut Bittern

1789. *Ardea cinnamomea* Gmelin, *Syst. Nat.*, 1 (2): 643.

Type Locality: China

Remarks: Uncommon, locally migrating species, possibly breeding in the vicinity of the Wyra reservoir.

Family : CICONIIDAE

Genus : *Mycteria* Linnaeus, 1758

15. (60) *Mycteria leucocephala* (Pennant, 1769)
Painted Stork

1769. *Tantalus leucocephalus* Pennant, *Indian Zool.*: 11, pl. 10.

Type Locality: Ceylon

Remarks: Common, locally migrating species, breeding not recorded.

Status: NT (Birdlife International, 2008).

Genus : *Anastomus* Bonnaterre, 1791

16. (61) *Anastomus oscitans* (Boddaert, 1783)
Openbill Stork

1783. *Ardea oscitans* Boddaert, *Table des Planches enluminées d'histoire naturelle, de M.D'Aubenton*, p. 55.

Type Locality: Pondicherry

Remarks: Common, locally migrating species, breeding not recorded.

Genus : *Ciconia* Brisson, 1760

17. (62) *Ciconia episcopus* (Boddaert, 1783)
White-necked Stork

1783. *Ardea episcopus* Boddaert, *Table des Planches enluminées d'histoire naturelle, de M.D'Aubenton*, p. 54.

Type Locality: Coromandel Coast

Remarks: Common, locally migrating species, numbers increase in winter season.

Family : THRESKIORNITHIDAE

Genus : *Threskiornis* Gray, G. R., 1842

18. (69) *Threskiornis melanocephalus* (Latham, 1790)
Oriental White Ibis

1790. *Tantalus leucocephalus* Latham, *Index Orn.* 2: 709.

Type Locality: India

Remarks: Common, locally migrating species, numbers increase in winter season.

Status: NT (Birdlife International, 2008).

Genus : *Pseudibis* Hodgson, 1844

19. (70) *Pseudibis papillosa* (Temminck, 1824)

Black Ibis

1824. *Ibis papillosa* Temminck, *Pl. Col., livr. 51, pl. 304.*

Type Locality: India

Remarks: Common, locally migrating species, numbers increase in winter season.

Genus : *Plegadis* Kaup, 1829

20. (71) *Plegadis falcinellus* (Linnaeus, 1766)

Glossy Ibis

1766. *Tantalus Falcinellus* Linnaeus, *Syst. Nat., ed. 12:* 241.

Type Locality: Austria and Italy

Remarks: Uncommon, winter migrant, numbers increase in winter season.

Genus : *Platalea* Linnaeus, 1758

21. (72) *Platalea leucorodia* Linnaeus, 1758

Eurasian Spoonbill

1758. *Platalea leucorodia* Linnaeus, *Syst. Nat. ed. 10, 1:* 139.

Type Locality: Japan

Remarks: Common, winter migrant.

Order : ANSERIFORMES

Family : DENDROCYGNIDAE

Genus : *Dendrocygna* Swainson, 1837

22. (88) *Dendrocygna javanica* (Horsfield, 1821)

Lesser Whistling-Duck

1821. *Anas javanica* Horsfield, *Trans. Linn. Soc. London, 13:* 199, pl. 1.

Type Locality: Java

Remarks: Uncommon, local migrant.

Family : ANATIDAE

Genus : *Anser* Brisson, 1760

23. (82) *Anser indicus* (Latham, 1790)

Bar-headed Goose

1790. *Anas indicus* Latham, *Index Orn., 2:* 839.

Type Locality: Taimyr (reassigned to India)

Remarks: Common, winter migrant.

Genus : *Tadorna* von Oken, 1817

24. (90) *Tadorna ferruginea* (Pallas, 1764)

Brahminy Shelduck

1764. *Anas (ferruginea)* Pallas, in Vroeg, *Cat. D'Ois., Adumbr.:* 5.

Type Locality: Tartary

Remarks: Uncommon, winter migrant.

25. (91) *Tadorna tadorna* (Linnaeus, 1758)

Common Shelduck

1758. *Anas Tadorna* Linnaeus, *Syst. Nat. ed. 10, 1: 122.*

Type Locality: Sweden

Remarks: Rare, winter migrant.

Genus : *Anas* Linnaeus, 1758

26. (93) *Anas acuta* Linnaeus, 1758

Northern Pintail

1758. *Anas acuta* Linnaeus, *Syst. Nat. ed. 10, 1: 126.*

Type Locality: Sweden

Remarks: Common, winter migrant.

27. (94) *Anas crecca* Linnaeus, 1758

Common Teal

1758. *Anas crecca* Linnaeus, *Syst. Nat. ed. 10, 1:126.*

Type Locality: Sweden

Remarks: Uncommon, winter migrant.

28. (97) *Anas poecilorhyncha* J. R. Forester, 1781

Spot-billed Duck

1781. *Anas poecilorhyncha* J. R. Forester, *Indian Zool.:* 23, pl. 13, f. 1.

Type Locality: Ceylon

Remarks: Common, resident breeder.

29. (101) *Anas strepera* Linnaeus, 1758

Gadwall

1758. *Anas strepera* Linnaeus, *Syst. Nat. ed. 10, 1: 125.*

Type Locality: Sweden

Remarks: Common, winter migrant.

30. (103) *Anas penelope* Linnaeus, 1758

Eurasian Wigeon

1758. *Anas penelope* Linnaeus, *Syst. Nat. ed. 10, 1: 126.*

Type Locality: Sweden

Remarks: Common, winter migrant.

31. (104) *Anas querquedula* Linnaeus, 1758
Garganey

1758. *Anas querquedula* Linnaeus, *Syst. Nat. ed.* 10, 1: 126.

Type Locality: Sweden

Remarks: Uncommon, winter migrant.

32. (105) *Anas clypeata* Linnaeus, 1758
Northern Shoveller

1758. *Anas clypeata* Linnaeus, *Syst. Nat. ed.* 10, 1: 124.

Type Locality: Sweden

Remarks: Common, winter migrant.

Genus : *Rhodonessa* Reichenbach, 1853
 33. (107) *Rhodonessa rufina* (Pallas, 1773)
Red-crested Pochard

1773. *Anas rufina* Pallas, *Reise Russ. Reichs*, 2: 713.

Type Locality: Caspian Sea

Remarks: Common, winter migrant.

Genus : *Aythya* Boie, 1822
 34. (108) *Aythya ferina* (Linnaeus, 1758)
Common Pochard

1758. *Anas ferina* Linnaeus, *Syst. Nat. ed.* 10, 1: 126.

Type Locality: Sweden

Remarks: Common, winter migrant.

35. (109) *Aythya nyroca* (Guldenstadt, 1770)
Ferruginous Pochard

1770. *Anas nyroca* Guldenstadt, *Novi Comm. Sci. Petropol.*, 14: 403

Type Locality: ('...regionibus Tanaicensibus inter gradum 54° - 55°...') = South Russia

Remarks: Common, winter migrant.

Status: NT (Birdlife International, 2008).

36. (111) *Aythya fuligula* (Linnaeus, 1758)
Tufted Pochard

1758. *Anas fuligula* Linnaeus, *Syst. Nat. ed.* 10, 1: 128.

Type Locality: Sweden

Remarks: Common, winter migrant.

Genus : *Nettapus* Brandt, 1836

37. (114) *Nettapus coromandelianus* (Gmelin, 1789)

Cotton Teal

1789. *Anas coromandelianus* Gmelin, *Syst. Nat.*, 1 (2): 522.

Type Locality: Coromandel, India

Remarks: Common, local migrant.

Genus : *Sarkidiornis* Eyton, 1838

38. (115) *Sarkidiornis melanotos* (Pennant, 1769)

Comb Duck

1769. *Anser melanotos* Pennant, *Ind. Zool.*: 12, pl. 11.

Type Locality: Ceylon

Remarks: Common, local migrant.

Order : FALCONIIFORMES

Family : ACCIPITRIDAE

Genus : *Elanus* Savigny, 1809

39. (124) *Elanus caeruleus* (Desfontaines, 1789)

Black-shouldered Kite

1789. *Falco caeruleus* Desfontaines, *Histoire de l'Académie Royale des Sciences, Paris* (1787): 503, pl.15.

Type Locality: Algiers.

Remarks: Common, resident breeder.

Genus : *Milvus* Lacépède, 1809

40. (132-134) *Milvus migrans* (Boddaert, 1783)

Pariah Kite

1783. *Falco migrans* Boddaert, *Table des Planches enluminées d'histoire naturelle, de M.D'Aubenton*, p. 28.

Type Locality: France.

Remarks: Common, resident breeder.

Genus : *Haliastur* Selby, 1840

41. (135) *Haliastur indus* (Boddaert, 1783)

Brahminy Kite

1783. *Falco Indus* Boddaert, *Table des Planches enluminées d'histoire naturelle, de M.D'Aubenton*, p. 25.

Type Locality: Pondicherry

Remarks: Uncommon, local migrant.

Genus : *Accipiter* Brisson, 1760

42. (138) *Accipiter badius* (Temminck, 1824)

Shikra

1824. *Falco dussumeri* Temminck, *Pl. Col. Livr. 52, text to pl. 308 (adult), pl. 336 (immature)*.

Type Locality: India, type from Bengal

Remarks: Uncommon, local migrant.

Genus : *Butastur* Hodgson, 1843

43. (157) *Butastur teesa* (Franklin, 1831)

White-eyed Buzzard

1831. *Circus teesa* Franklin, *Proc. Zool. Soc. London*, pt 1: 115.

Type Locality: Farther India (= Ganges-Nerbudda)

Remarks: Uncommon, local migrant.

Genus : *Aquila* Brisson, 1760

44. 168. *Aquila rapax* Temminck, 1828

Tawny Eagle

1828. *Aquila rapax* Temminck, *Nouveau recueil de planches coloriées d'oiseaux*, livr.77, pl. 455.

Type Locality: Farther India (= Ganges-Nerbudda)

Remarks: Uncommon, local migrant.

45. (171) *Aquila pomarina* Brehm, 1831

Lesser Spotted Eagle

1831. *Aquila Pomarina* Brehm, *Handbuch der Naturgeschichte aller Vögel Deutschlands*: 27.

Type Locality: Bengal

Remarks: Rare, local migrant.

Genus : *Circus* Lacepede, 1799

46. (190) *Circus macrourus* (S.G. Gmelin, 1770)

Pallid Harrier

1770. *Falco macrourus* S.G. Gmelin, *Reise d. Russl. Th.* 1: 48.

Type Locality: Voronezh, southern Russia

Remarks: Uncommon, winter migrant. Infrequently sighted in the catchment area of the Wyrá reservoir.

Status: NT (Birdlife International, 2008).

47. 193. *Circus aeruginosus* (Linnaeus, 1758)

Western Marsh-Harrier

1758. *Falco aeruginosus* Linnaeus, *Syst. Nat. ed.* 10, 1: 91.

Type Locality: Sweden

Remarks: Uncommon, winter migrant. Infrequently sighted in the catchment area of the Wyrá reservoir.

Family : FALCONIDAE

Genus: *Falco* Linnaeus, 1758

48. (222) *Falco tinnunculus* Linnaeus, 1758

Common Kestrel

1758. *Falco tinnunculus* Linnaeus, *Syst. Nat. ed.* 10, 1: 90.

Type Locality: Sweden

Remarks: Uncommon, winter migrant. Infrequently sighted in the catchment area of Wyra reservoir.

Order : GALLIFORMES

Family : PHASIANIDAE

Genus : *Francolinus* Stephens, 1819

49. (246) *Francolinus pondcerianus* (Gmelin, 1789)

Grey Francolin

1789. *Tetrao pondicerianus* Gmelin, *Syst. Nat.* 1 (2): 760.

Type Locality: Pondicherry, India

Remarks: Uncommon, resident breeder. Common in the fringe of agriculture fields in the catchment area of Wyra reservoir.

Genus : *Coturnix* Bonnaterre, 1791

50. (252) *Coturnix coromandelica* (Gmelin, 1789)

Rain Quail

1789. *Tetrao coromandelicus* Gmelin, *Syst. Nat.* 1 (2): 764.

Type Locality: Coromandel Coast

Remarks: Uncommon, local migrant. Infrequently sighted along the fringe and in agriculture fields in the catchment area of Wyra reservoir.

Genus : *Perdicula* Hodgson, 1837

51. (255) *Perdicula asiatica* (Latham, 1790)

Jungle Bush-Quail

1790. *Perdix asiatica* Latham, *Index Orn.* 2 : 649.

Type Locality: Mahratta region, India

Remarks: Uncommon, resident breeder. Common in the fringe of agriculture fields in the catchment area of Wyra reservoir.

52. (260) *Perdicula argoondah* (Sykes, 1832)

Rock Bush-Quail

1832. *Coturnix Argoondah* Sykes, *Proc. Comm. Zool. Soc. Lond.*: 153.

Type Locality: Dukhun, India

Remarks: Uncommon, resident breeder. Common in the fringe of agriculture fields in the catchment area of Wyra reservoir.

Genus : *Pavo* Linnaeus, 1758

53. (311) *Pavo cristatus* Linnaeus, 1758

Indian Peafowl

1758. *Pavo cristatus* Linnaeus, *Syst. Nat. ed.* 10, 1: 156.

Type Locality: 'India orientali, Zeylona (= India)

Remarks: Common, resident breeder.

Order : GRUIFORMES

Family : RALLIDAE

Genus : *Amaurornis* Reichenbach, 1853

54. (344) *Amaurornis phoenicurus* (Pennant, 1769)

White-breasted Waterhen

1769. *Gallinula phoenicurus* Pennant, *Ind. Zool.*: 10, pl. 9.

Type Locality: Ceylon

Common Name: Whitebreasted Waterhen

Remarks: Uncommon, resident breeder.

Genus : *Gallinula* Brisson, 1760

55. (347) *Gallinula chloropus* Blyth, 1842

Common Moorhen

1842. *Gallinula chloropus* Blyth, *Jour. Asiat. Soc. Bengal*, 11: 887.

Type Locality: Calcutta

Remarks: Uncommon, local migrant. Infrequently sighted in adjacent paddy fields.

Genus : *Porphyrio* Brisson, 1760

56. (349) *Porphyrio porphyrio* (Latham, 1801)

Purple Moorhen

1801. *Gallinula poliocephala* Latham, *Index Orn., Suppl.*: 68.

Type Locality: India

Remarks: Uncommon, local migrant. Infrequently sighted in adjacent paddy fields.

Genus : *Fulica* Linnaeus, 1758

57. (350) *Fulica atra* Linnaeus, 1758

Coot

1758. *Fulica atra* Linnaeus, *Syst. Nat. ed.* 10, 1: 152.

Type Locality: Europe, restricted to Sweden

Remarks: Uncommon, local migrant. Numbers augmented in winter due to winter migrating individuals.

Order : CHARADRIIFORMES

Family : JACANIDAE

Genus : *Hydrophasianus* Wagler, 183258. (358) *Hydrophasianus chirurgus* (Scopoli, 1786)**Pheasant-tailed Jacana**1786. *Tringa chirurgus* Scopoli, *Del. Flor. et Faun. Insubr., fasc. 2*: 92.*Type Locality*: 'In nova Guiana' (= Luzon)*Remarks*: Uncommon, local migrant. Infrequently sighted in shallow weed-infested edges of the Wyra reservoir.Genus : *Metopidius* Wagler, 183259. (359) *Metopidius indicus* (Latham, 1790)**Bronze-winged Jacana**1790. *Perra indica* Latham, *Index Orn. 2*: 765.*Type Locality*: India*Remarks*: Uncommon, local migrant. Infrequently sighted in shallow weed-infested edges of the Wyra reservoir.

Family : ROSTRATULIDAE

Genus : *Rostratula* Vieillot, 181660. (429) *Rostratula benghalensis* (Linnaeus, 1758)**Greater Painted Snipe**1758. *Rallus benghalensis* Linnaeus, *Syst. Nat. ed. 10, 1*: 153.*Type Locality*: Asia*Remarks*: Uncommon, local migrant. Infrequently sighted in shallow weed-infested edges of the Wyra reservoir.

Family : CHARADRIIDAE

Genus: *Vanellus* Brisson, 176061. (366-368) *Vanellus indicus* (Boddaert, 1783)**Red-wattled Lapwing**1783. *Tringa indica* Boddaert, *Table des Planches enluminées d'histoire naturelle, de M.D'Aubenton*, p. 50.*Type Locality*: Goa*Remarks*: Common, resident breeder. Common in the fringes of agriculture fields in the catchment area of Wyra reservoir.62. (370) *Vanellus malabaricus* (Boddaert, 1783)**Yellow-wattled Lapwing**1783. *Charadrius malabaricus* Boddaert, *Table des Planches enluminées d'histoire naturelle, de M.D'Aubenton*, p. 53.*Type Locality* : Malabar Coast

Remarks: Uncommon, resident breeder. Common in the fringe of agriculture fields in the catchment area of Wyra reservoir.

Genus : *Charadrius* Linnaeus, 1758
63. (379-380) *Charadrius dubius* Scopoli, 1786
Little Ringed Plover

1786. *Charadrius dubius* Scopoli, *Deliciae Florae et Faunae Insubricae, fasc. 2:* 93.

Type Locality: Ceylon and middle India

Remarks: Common, local migrant. Common in winters along the shallow fringes of Wyra reservoir.

64. (381-382) *Charadrius alexandrinus* Linnaeus, 1758
Kentish Plover

1758. *Charadrius alexandrinus* Linnaeus, *Syst. Nat. ed. 10, 1:* 150.

Type Locality: Egypt

Remarks: Common, winter migrant. Common along the shallow fringes of Wyra reservoir.

Genus : *Limosa* Brisson, 1760
65. (389-390) *Limosa limosa* (Linnaeus, 1758)
Black-tailed Godwit

1758. *Scolopax limosa* Linnaeus, *Syst. Nat. ed. 10, 1:* 147.

Type Locality: In Europa (= Sweden)

Remarks: Common, winter migrant. Frequently sighted in paddy fields and shallow fringes of Wyra reservoir.

Genus : *Tringa* Linnaeus, 1758
66. (396) *Tringa nebularia* (Gunnerus, 1767)
Common Greenshank

1767. *Scolopax nebularia* Gunnerus, in Leem, *Beskr. Finm. Lapper:* 251.

Type Locality: district of Trondhjem, Norway

Remarks: Uncommon, winter migrant. Infrequently sighted in winters along the shallow fringes of Wyra reservoir.

67. (398) *Tringa glareola* Linnaeus, 1758
Wood Sandpiper

1758. *Tringa glareola* Linnaeus, *Syst. Nat. ed. 10, 1:* 149.

Type Locality: In Europa (= Sweden)

Remarks: Rare, winter migrant.

Genus : *Actitis* Illiger, 1811

68. (401) *Actitis hypoleucos* (Linnaeus, 1758)

Common Sandpiper

1758. *Tringa hypoleucos* Linnaeus, *Syst. Nat. ed. 10, 1*: 149.

Type Locality: In Europa (= Sweden)

Remarks: Common, winter migrant. Frequently sighted in winters along the shallow fringes of Wyra reservoir.

Genus : *Calidris* Merrem, 1804

69. (416) *Calidris minuta* (Leisler, 1812)

Little Stint

1812. *Tringa minuta* Leisler, *Nachträge zu Bechstein's Naturg. Deutschl.*: 74.

Type Locality: Hanau am Main, Germany

Remarks: Common, local migrant. Frequently sighted along the shallow fringes of Wyra reservoir, numbers augmented in winter.

70. (417) *Calidris temminckii* (Leisler, 1812)

Temminck's Stint

1812. *Tringa temminckii* Leisler, *Nachträge zu Bechstein's Naturg. Deutschl.*: 64.

Type Locality: Hanau am Main, Germany

Common Name: Temminck's Stint

Remarks: Common, winter migrant. Frequently sighted along the shallow fringes of Wyra reservoir.

Family : RECURVIROSTRIDAE

Genus : *Himantopus* Brisson, 1760

71. (430-431) *Himantopus himantopus* (Linnaeus, 1758)

Black-winged Stilt

1758. *Charadrius himantopus* Linnaeus, *Syst. Nat. ed. 10, 1*: 151.

Type Locality: Southern Europe

Remarks: Common, local migrant. Frequently sighted along the shallow fringes of Wyra reservoir and inundated paddies in the catchment area, numbers augmented in winters.

Family : GLAREOLIDAE

Genus : *Glareola* Brisson, 1760

72. (444) *Glareola lactea* Temminck, 1820

Small Pratincole

1820. *Glareola lactea* Temminck, *Man. D'Orn., ed. 2, 2*: 503.

Type Locality: Bengal

Remarks: Common, winter migrant. Frequently sighted along the shallow fringes of Wyra reservoir.

Family : LARIDAE

Genus : *Larus* Linnaeus, 1758

73. (454) *Larus brunnicephalus* Jerdon, 1840

Brown-headed Gull

1840. *Larus brunnicephalus* Jerdon, *Madras Jour. Lit. and Sci.*, 12: 225.

Type Locality: West Coast of Indian Peninsula

Remarks: Rare, winter migrant.

Genus : *Chlidonias* Rafinesque, 1822

74. (458) *Chlidonias hybridus* (Pallas, 1811)

Whiskered Tern

1826. *Viralva indica* Stephens, in Shaw's *Gen. Zool.* 13 (1): 169.

Type Locality: Cawnpore, India

Remarks: Rare, winter migrant.

Genus : *Sterna* Linnaeus, 1758

75. (463) *Sterna aurantia* J.E. Gray, 1831

River Tern

1831. *Sterna aurantia* J.E. Gray, in Hardwicke's *Ill. Ind. Zool.* 1 (5), pl. 69, f. 2.

Type Locality: India

Remarks: Common, local migrant. Frequently sighted.

Order : COLUMBIFORMES

Family : PTEROCLIDIDAE

Genus : *Pterocles* Temminck, 1815

76. (487) *Pterocles exustus* Temminck, 1825

Chestnut-bellied Sandgrouse

1825. *Pteroclerus exustus* Temminck, in Temminck & Laugier de Chartreuse, *Nouveau recueil de planches coloriées d'oiseaux*, livr. 60, pl. 354 [male], 360 [female].

Type Locality: El Hota, Lahej, southern Arabia

Remarks: Uncommon, local migrant. Infrequently sighted in the Wyra reservoir.

Family : COLUMBIDAE

Genus : *Columba* Linnaeus, 1758

77. (516-517) *Columba livia* Gmelin, 1789

Blue Rock Pigeon

1789. *Columba livia* Gmelin, *Systema Naturae editio decima tertia*, tom.1, pars 2: 769.

Type Locality: Calcutta, India

Remarks: Common, resident breeder. Frequently sighted feeding in small flocks.

Genus : *Streptopelia* Bonaparte, 1855

78. (530-533) *Streptopelia orientalis* (Latham, 1790)

Rufous Turtle Dove

1790. *Columba orientalis* Latham, *Index Orn.*, 2: 606.

Type Locality: Dukhun, India

Remarks: Uncommon, local migrant. Infrequently sighted feeding in the agriculture fields in the catchment area.

79. (534) *Streptopelia decaocto* (Frivaldszky, 1838)

Eurasian Collared-Dove

1838. *Columba risoria* L. var *decaocto* Frivaldszky, 1834-36 *K. Magyar Tudos Társaság Evkönyvi* 3: 183, pl. 8.

Type Locality: Turkey

Remarks: Common, local migrant. Infrequently sighted feeding in the agriculture fields in the catchment area.

80. (535-536) *Streptopelia tranquebarica* (Hermann, 1804)

Red Collared-Dove

1804. *Columba tranquebarica* Hermann, *Obs. Zool.*: 200.

Type Locality: Tranquebar, India

Remarks: Uncommon, local migrant. Infrequently sighted feeding in the agriculture fields in the catchment area.

81. (537-540) *Streptopelia chinensis* (Scopoli, 1786)

Spotted Dove

1786. *Columba chiensis* Scopoli, *Del. Flor. et Faun. Insubr., fasc. 2*, 1786: 94.

Type Locality: China

Remarks: Common, resident breeder. Frequently sighted feeding in the agriculture fields in catchment area.

82. (541) *Streptopelia senegalensis* (Linnaeus, 1758)

Little Brown Dove

1758. *Columba cambayensis* Gmelin, *Syst. Nat.* 1 (2): 779.

Type Locality: 'Cambaya', i. e., Gulf of Cambay, northwestern India

Remarks: Uncommon, local migrant. Infrequently sighted feeding in the agriculture fields in the catchment area.

Order : PSITTACIFORMES

Family : PSITTACIDAE

Genus : *Psittacula* Cuvier, 1800

83. (549-550) *Psittacula krameri* (Scopoli, 1769)

Rose-ringed Parakeet

1769. *Psittacus krameri* Scopoli, *Annus I Historico-naturalis*: 31.

Type Locality: No locality; Senegal (*vide* Neumann, 1915)

Remarks: Common, resident breeder. Frequently sighted feeding in the agriculture fields in the catchment area.

Order : CUCULIFORMES

Family : CUCULIDAE

Genus : *Clamator* Kaup, 1829

84. (570-571) *Clamator jacobinus* (Boddaert, 1783)

Pied Crested Cuckoo

1783. *Cuculus jacobinus* Boddaert, *Table des Planches enluminées d'histoire naturelle, de M.D'Aubenton*, p. 53.

Type Locality: Coromandel Coast

Remarks: Uncommon, local migrant. Infrequently sighted in village groves and scrub in catchment area.

Genus : *Hierococcyx* Muller, 1842

85. (573-574) *Hierococcyx varius* (Vahl, 1797)

Brainfever Bird

1797. *Cuculus varius* Vahl, *Skriv. Naturhist. -Selsk., Kjobenhavn* 4 (1): 60.

Type Locality: Tranquebar

Remarks: Common, local migrant. Frequently sighted and heard in village groves and agriculture fields in catchment area.

Genus : *Eudynamis* Vigors & Horsfield, 1826

86. (590-592) *Eudynamis scolopacea* (Linnaeus, 1758)

Asian Koel

1758. *Cuculus scolopaceus* Linnaeus, *Syst. Nat., ed. 10, 1*: 111.

Type Locality: Malabar

Remarks: Common, resident breeder. Frequently sighted and heard in village groves and agriculture fields in catchment area.

Genus : *Centropus* Illiger, 1811

87. (600-602) *Centropus sinensis* (Stephens, 1815)

Greater Coucal

1815. *Polophilus sinensis* Stephens, in Shaw's *Gen. Zool.* 9 (1): 51

Type Locality: 'Said to inhabit China' (= Ning Po, China)

Remarks: Common, resident breeder. Frequently sighted and heard in village groves and agriculture fields in the catchment area.

Order : STRIGIFORMES

Family : STRIGIDAE

Genus : *Athene* Boie, 1822

88. (650-652) *Athene brama* (Temminck, 1821)

Spotted Owlet

1821. *Strix brama* Temminck, *Pl. col., livr. 12, pl. 68.*

Type Locality: (Pondicherry and west coast of India)

Remarks: Common, resident breeder. Frequently sighted and heard in the village groves and agriculture fields in the catchment area.

Order : CAPRIMULGIFORMES

Family : CAPRIMULGIDAE

Genus : *Caprimulgus* Linnaeus, 1758

89. (680-681) *Caprimulgus asiaticus* Latham, 1790

Common Indian Nightjar

1790. *Caprimulgus asiaticus* Latham, *Index Orn. 2:* 588.

Type Locality: Bombay, India

Remarks: Uncommon, resident breeder. Infrequently sighted in the catchment area.

Order : APODIFORMES

Family : APODIDAE

Genus : *Apus* Scopoli, 1777

90. (702-706) *Apus affinis* (J. E. Gray, 1830)

House Swift

1830. *Cypselus affinis* J. E. Gray, in Gray & Hardwicke's *Ill. Ind. Zool.* 1 (2), pl. 35, f. 2.

Type Locality: No locality (=Ganges)

Remarks: Common, resident breeder. Frequently sighted.

Genus : *Cypsiurus* Lesson, 1843

91. (707-708) *Cypsiurus balasiensis* (J. E. Gray, 1829)

Asian Palm-Swift

1829. *Cyp. (selus) Balasiensis* J. E. Gray, in Griffith's *Anim. Kingdom* 7: 60.

Type Locality: India (restricted to Calcutta)

Remarks: Uncommon, local migrant.

Order : CORACIIFORMES

Family : ALCEDINIDE

Genus : *Ceryle* Boie, 1828

92. (719-720) *Ceryle rudis* (Linnaeus, 1758)

Lesser Pied Kingfisher

1758. *Alcedo rudis* Linnaeus, *Syst. Nat., ed. 10, 1:* 181.

Type Locality: Ceylon

Remarks: Common, resident breeder. Frequently sighted.

Genus : *Alcedo* Linnaeus, 1758
93. (722-724) *Alcedo atthis* Linnaeus, 1758

Small Blue Kingfisher

1758. *Alcedo atthis* Linnaeus, *Syst. Nat.*, ed. 10, 1: 115.

Type Locality: Asia

Remarks: Uncommon, resident breeder. Frequently sighted.

Genus : *Halcyon* Swainson, 1821
94. (735-738) *Halcyon smyrnensis* (Linnaeus, 1758)

White-breasted Kingfisher

1758. *Alcedo smyrnensis* Linnaeus, *Syst. Nat.*, ed. 10, 1: 116.

Type Locality: Smyrna (=Africa and Asia)

Remarks: Common, resident breeder. Frequently sighted on the fringe of the reservoir, in village groves and agriculture fields in the catchment area.

Family : MEROPIDAE

Genus : *Merops* Linnaeus, 1758
95. (748) *Merops philippinus* Linnaeus, 1766

Blue-tailed Bee-eater

1766. *Merops philippinus* Linnaeus, *Syst. Nat.* ed. 12, 1: 183 errata at the end of volume; name for *Merops* 5th sp.

Type Locality: Philippine Islands

Remarks: Uncommon, winter migrant. Infrequently sighted in the agriculture fields and scrub forests in the catchment area.

96. (749-752) *Merops orientalis* Latham, 1801

Small Bee-eater

1801. *Merops orientalis* Latham, *Index Orn.*, *Suppl.*,: xxxiii.

Type Locality: India (= Pondichéry)

Remarks: Common, resident breeder. Frequently sighted in the lakebed area and also in agriculture fields and scrub forests in the catchment area.

Family : CORACIIDAE

Genus : *Coracias* Linnaeus, 1758
97. (755-757) *Coracias benghalensis* (Linnaeus, 1758)

Indian Roller

1758. *Coracias benghalensis* Linnaeus, *Syst. Nat.* ed. 10, 1: 106.

Type Locality: Benghala (=Pondicherry) *vide* Stresemann, 1952.

Remarks: Common, resident breeder. Frequently sighted in agriculture fields and in the catchment area.

Family : UPUPIDAE

Genus : *Upupa* Linnaeus, 1758
98. (763-766) *Upupa epops* Linnaeus, 1758
Common Hoopoe

1758. *Upupa Epops* Linnaeus, *Syst. Nat. ed. 10, 1*: 117.

Type Locality: Ceylon

Remarks: Common, resident breeder. Frequently sighted in the agriculture fields and in the catchment area.

Order : PICIFORMES

Family : CAPITONIDAE

Genus : *Megalaima* G.R. Gray, 1842
99. (792) *Megalaima haemacephala* (P.L.S. Müller, 1776)
Coppersmith Barbet

1776. *Bucco heamocephalus* P.L.S. Müller, *Natur Syst. Suppl.*: 88.

Type Locality: Phillippines

Remarks: Common, resident breeder. Frequently heard and sighted in the village groves and orchards in the catchment area.

Family : PICIDAE

Genus : *Dinopium* Rafinesque, 1814
100. (818-823) *Dinopium benghalense* (Linnaeus, 1758)
Lesser Golden-backed Woodpecker

1758. *Picus benghalensis* Linnaeus, *Syst. Nat. ed. 10, 1*: 113.

Type Locality: Chandernagor

Remarks: Uncommon, resident breeder. Infrequently heard and sighted in the village groves and orchards in the catchment area.

Order : PASSERIFORMES

Family : ALAUDIDAE

Genus : *Mirafra* Horsfield, 1821
101. 872. *Mirafra cantillans* Blyth, 1845
Singing Bush-Lark

1845. *Mirafra cantillans* Blyth, *Jour. Asiat. Soc. Bengal*, 13: 960.

Type Locality: Bengal

Remarks: Uncommon, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

102. 874. *Mirafra affinis* Jerdon, 1845
Jerdon's Bush-Lark

1845. *Mirafra affinis* Jerdon, *Madras Jour. Lit. and Sci.*, 13 (2): 136.

Type Locality: Goomsoor

Remarks: Uncommon, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

103. (875-877) *Mirafra erythroptera* Blyth, 1845
Red-winged Bush-Lark

1845. *Mirafra erythroptera* Blyth, *Jour. Asiat. Soc. Bengal* 13: 958.

Type Locality: Northern portion of the peninsula of India (= northern Deccan)

Remarks: Common, resident breeder. Frequently sighted in the agriculture fields in the catchment area.

Genus : *Eremopterix* Kaup, 1836

104. (878) *Eremopterix grisea* (Scopoli, 1786)
Ashy-crowned Sparrow-Lark

1786. *Alauda grisea* Scopoli, *Del. Flor. et Faun. Insubr.* 2: 95.

Type Locality: Gingee, South Arcot District, India

Remarks: Uncommon, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

Genus : *Ammomanes* Cabanis, 1851

105. (882-883) *Ammomanes phoenicurus* (Franklin, 1831)
Rufous-tailed Finch-Lark

1831. *Mirafra phoenicurus* Franklin, *Proc. Zool. Soc. London*: 119.

Type Locality: Between Calcutta and Benares

Remarks: Common, resident breeder. Frequently sighted in the agriculture fields in the catchment area.

Genus : *Galerida* Boie, 1828

106. (902) *Galerida deva* (Sykes, 1832)
Sykes's Crested Lark

1832. *Alauda deva* Sykes, *Proc. Zool. Soc. London*: 92.

Type Locality: Dukhun

Remarks: Uncommon, local migrant. Infrequently sighted in the agriculture fields in the catchment area.

Genus : *Alauda* Linnaeus, 1758

107. (904-909) *Alauda gulgula* Franklin, 1831
Eastern Skylark

1831. *Alauda gulgula* Franklin, *Proc. Zool. Soc. London*: 119.

Type Locality: The Ganges between Calcutta and Benares

Remarks: Common, resident breeder. Frequently sighted in the agriculture fields in the catchment area.

Family : HIRUNDINIDAE

Genus : *Hirundo* Linnaeus, 1758
108. (914) *Hirundo concolor* Sykes, 1833
Dusky Crag-Martin

1833. *Hirundo concolor* Sykes, *Proc. Zool. Soc. London*: 83.

Type Locality: Dukhun

Remarks: Common, local migrant. Frequently sighted in the agriculture fields in the catchment area.

109. 917. *Hirundo rustica* Linnaeus, 1758
Common Swallow

1786. *Hirundo rustica* Linnaeus, *Syst. Nat. ed. 10, 1*: 191

Type Locality: Sweden

Remarks: Common, winter migrant. Frequently sighted in the agriculture fields in the catchment area.

110. (921) *Hirundo smithii* Leach, 1818
Wire-tailed Swallow

1818. *Hirundo smithii* Leach, in Tuckey's *Exped. Explore River Zaire, etc., App. 4*: 407.

Type Locality: Chisalla Island, Lower Congo

Remarks: Common, local migrant. Frequently sighted in the agriculture fields in the catchment area.

Family : MOTACILLIDAE

Genus : *Anthus* Bechstein, 1805
111. (1863) *Anthus godlewskii* (Taczanowski, 1876)
Blyth's Pipit

1876. *Agrodroma godlewskii* Taczanowski, *Bull. Soc. Zool. France*: 158.

Type Locality: Argun river, south Dauria

Remarks: Uncommon, winter migrant. Infrequently sighted in the agriculture fields in the catchment area.

Genus : *Motacilla* Linnaeus, 1758
112. (1875-1880) *Motacilla flava* Linnaeus, 1758
Yellow Wagtail

1758. *Motacilla flava* Linnaeus, *Syst. Nat. ed. 10, 1*: 185.

Type Locality: Lapland

Remarks: Uncommon, winter migrant. Infrequently sighted along the fringes of the reservoir and adjacent agriculture fields in the catchment area.

113. (1881-1883) *Motacilla citreola* Pallas, 1776
Citrine Wagtail

1776. *Motacilla citreola* Pallas, *Reise Russ. Reichs.* 3: 696.

Type Locality: Siberia

Remarks: Uncommon, winter migrant. Infrequently sighted along the fringes of the reservoir and adjacent agriculture fields in the catchment area.

114. 1884. *Motacilla cinerea* Tunstall, 1771
Grey Wagtail

1771. *Motacilla cinerea* Tunstall, *Ornithologia Britannia:* 2.

Type Locality: Great Britain

Remarks: Common, winter migrant. Frequently sighted in the agriculture fields in the catchment area.

115. (1885-1890). *Motacilla alba* Linnaeus, 1758
White Wagtail

1758. *Motacilla alba* Linnaeus, *Syst. Nat., ed. 10, 1:* 184.

Type Locality: Sweden

Remarks: Subspecies *M. a. dukhunensis* Sykes, 1832 (S.No. 1885) was sighted at Wyra. Common, winter migrant. Frequently sighted along the fringes of the reservoir and adjacent agriculture fields in the catchment area.

116. (1885-1890) *Motacilla alba* Linnaeus, 1758
White Wagtail

1758. *Motacilla alba* Linnaeus, *Syst. Nat., ed. 10, 1:* 184.

Type Locality: Sweden

Remarks: Subspecies *M. a. personata* Gould, 1861 (S.No. 1886) was sighted at Wyra. Uncommon, winter migrant. Infrequently sighted along the fringes of the reservoir and adjacent agriculture fields in the catchment area.

118. 1891. *Motacilla maderaspatensis* Gmelin, 1789
Large Pied Wagtail

1789. (*Motacilla*) *maderaspatensis* Gmelin, *Syst. Nat.* 1: 961.

Type Locality: India (= Madras)

Remarks: Common, resident breeder. Frequently sighted in the agriculture fields in the catchment area.

Family : CAMPEPHAGIDAE

Genus : *Tephrodornis* Swainson, 1832119. (1069-1071) *Tephrodornis pondicerianus* (Gmelin, 1789)**Common Woodshrike**1789. *Muscicapa pondiceriana* Gmelin, *Syst. Nat.* 1: 939.*Type Locality:* Coromandel*Remarks:* Common, resident breeder. Frequently sighted in the orchards and agriculture fields in the catchment area.

Family : PYCNONOTIDAE

Genus : *Pycnonotus* Boie, 1826120. (1126-1132) *Pycnonotus cafer* (Linnaeus, 1766)**Red-vented Bulbul**1766. *Turdus cafer* Linnaeus, *Syst. Nat., ed. 12*, 1: 295.*Type Locality:* Cape of Good Hope (= Pondichéry)*Remarks:* Common, resident breeder. Frequently sighted in the surrounding orchards and agriculture fields in the catchment area.121. (1138-1139) *Pycnonotus luteolus* (Lesson, 1841)**White-browed Bulbul**1841. *Haematornis luteolis* Lesson, *Rev. Zool.*: 354.*Type Locality:* Bombay*Remarks:* Uncommon, resident breeder. Infrequently sighted in the orchards and agriculture fields in the catchment area.

Family : IRENIDAE

Genus : *Aegithina* Vieillot, 1816122. 1099. *Aegithina tiphia* (Linnaeus, 1758)**Common Iora**1758. *Motacilla Tiphia* Linnaeus, *Syst. Nat. ed. 10*, 1: 186.*Type Locality:* Benghala (=Neighbourhood of Calcutta)*Remarks:* Common, resident breeder. Frequently heard and sighted in the orchards and agriculture fields in the catchment area.

Family : LANIIDAE

Genus : *Lanius* Linnaeus, 1758123. (933-935) *Lanius meridionalis* Temminck, 1820**Southern Grey Shrike**1820. *Lanius meridionalis* Temminck, *Man. Orn. [Temminck]. ed. 2*, 1: 143.*Type Locality:* Italy

Remarks: Uncommon, local migrant. Infrequently sighted in the orchards and agriculture fields in the catchment area.

124. (939-940) *Lanius vittatus* Valenciennes, 1826
Bay-backed Shrike

1826. *Lanius vittatus* Valenciennes, *Dict. Sci. Nat. (Levrault)* 40 : 227.

Type Locality: Pondichéry

Remarks: Common, local migrant. Frequently sighted in the orchards and agriculture fields in the catchment area.

125. (946-948) *Lanius schach* Linnaeus, 1758
Rufous-backed Shrike

1758. *Lanius schach* Linnaeus, *Linnaeus, Syst. Nat. ed.10, 1:* 94.

Type Locality: China

Remarks: Common, local migrant. Frequently sighted in the orchards and agriculture fields in the catchment area.

Family : MUSCICAPIDAE

Subfamily : TURDINAE

Genus : *Copsychus* Wagler, 1827

126. (1661-1664) *Copsychus saularis* (Linnaeus, 1758)
Oriental Magpie-Robin

1758. *Gracula Saularis* Linnaeus, *Syst. Nat. ed. 10, 1:* 109.

Type Locality: Asia (= Bengal)

Remarks: Common, local migrant. Frequently sighted in the orchards and agriculture fields in the catchment area.

Genus : *Saxicoloides* Lesson, 1832

127. 1719. *Saxicoloides fulicata* (Linnaeus, 1766)
Indian Robin

1766. *Motacilla fulicata* Linnaeus, *Syst. Nat. ed. 12:* 336.

Type Locality: Philippines (=Pondicherry) *vide* Stresemann, 1952.

Remarks: Common, resident breeder. Frequently sighted in the orchards and agriculture fields in the catchment area.

Genus : *Saxicola* Bechstein, 1803

128. (1695-1698) *Saxicola torquata* (Linnaeus, 1766)
Common Stonechat

1766. *Motacilla torquata* Linnaeus, *Syst. Nat. ed. 12:* 328.

Type Locality: West South Africa

Common Name: Common Stonechat

Remarks: Uncommon, winter migrant. Infrequently sighted in the orchards and agriculture fields in the catchment area.

129. (1700-1703) *Saxicola caprata* (Linnaeus, 1766)

Pied Bushchat

1766. *Motacilla caprata* Linnaeus, *Syst. Nat. ed. 12*: 335.

Type Locality: Luzon

Remarks: Uncommon, local migrant. Infrequently sighted in the orchards and agriculture fields in the catchment area.

Subfamily : TIMALIINAE

Genus : *Dumetia* Blyth, 1849

130. (1219-1223) *Dumetia hyperythra* (Franklin, 1831)

Rufous-bellied Babbler

1831. *Timalia hyperythra* Franklin, *Proc. Zool. Soc. London*: 118.

Type Locality: Ganges near Benares

Remarks: Uncommon, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

Genus : *Chrysomma* Blyth, 1843

131. (1230-1232) *Chrysomma sinense* (Gmelin, 1789)

Yellow-eyed Babbler

1789. *Parus sinensis* Gmelin, *Syst. Nat. 1*: 1012.

Type Locality: China

Remarks: Uncommon, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

Genus : *Turdoides* Cretzschmar, 1826

132. (1253-1254) *Turdoides caudatus* (Dumont, 1823)

Common Babbler

1823. *Cossyphus caudatus* Dumont, *Dict. sci. nat. (ed. Levrault) 29*: 268.

Type Locality: India

Remarks: Common, resident breeder. Frequently sighted in the orchards and agriculture fields in the catchment area.

133. (1258) *Turdoides malcolmi* (Sykes, 1832)

Large Grey Babbler

1832. *Timalia malcolmi* Sykes, *Proc. Zool. Soc. London*: 88.

Type Locality: Dukhun (= Poona)

Remarks: Common, resident breeder. Frequently sighted in the orchards and agriculture fields in the catchment area.

134. (1261-1265) *Turdoides striatus* (Dumont, 1823)

Jungle Babbler

1847. *Cossyphus striatus* Dumont, *Dict. Sci. nat. (ed. Levrault)* 29 : 268.

Type Locality: Bengale

Remarks: Uncommon, local migrant. Infrequently sighted in the orchards and agriculture fields in the catchment area.

135. (1267-1268) *Turdoides affinis* (Jerdon, 1847)

White-headed Babbler

1847. *M. (alacocircus) affinis* Jerdon, *Ill. Ind. Orn., text to pl.* 19.

Type Locality: Travancore

Remarks: Common, resident breeder. Frequently sighted in the orchards and agriculture fields in the catchment area.

Subfamily : SYLVINAE

Genus : *Cisticola* Kaup, 1829

136. (1498-1500a) *Cisticola juncidis* (Rafinesque, 1810)

Streaked Fantail-Warbler

1810. *Sylvia juncidis* Rafinesque, *Car. Nuov. Gen. Nuov. Sp. Anim. Piante Sicilia:* 6, 7.

Type Locality: Sicily, Italy

Remarks: Common, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

Genus : *Prinia* Horsfield, 1821

137. (1510-1514) *Prinia inornata* Sykes, 1832

Plain Prinia

1832. *Prinia inornata* Sykes, *Proc. Zool. Soc. London:* 89.

Type Locality: Dukhun

Remarks: Common, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

138. (1515-1518) *Prinia socialis* Sykes, 1832

Ashy Prinia

1832. *Prinia socialis* Sykes, *Proc. Zool. Soc. London:* 89.

Type Locality: Dukhun

Remarks: Common, resident breeder. Frequently sighted in the village groves and agriculture fields in the catchment area.

Genus : *Orthotomus* Horsfield, 1821

139. (1535-1539) *Orthotomus sutorius* (Pennant, 1769)

Common Tailorbird

1769. *Motacilla sutoria* Pennant, *Ind. Zool.:* pl. 7.

Type Locality: Ceylon (=Sri Lanka)

Remarks: Common, resident breeder. Frequently sighted in the village groves and agriculture fields in the catchment area.

Genus : *Phylloscopus* Boie, 1826
140. 1575. *Phylloscopus collybita* (Vieillot, 1817)
Common Chiffchaff

1817. *Syliva collybita* Vieillot, *Nouv. Dict. D'Hist. Nat. nouv. Ed., II:* 235.

Type Locality: France (restricted to Normandy by Mayaud, 1941)

Remarks: Common, winter migrant. Frequently sighted in the village groves and agriculture fields in the catchment area.

Subfamily : RHIPIDURINAE

Genus : *Rhipidura* Vigors and Horsfield, 1827
141. (1451-1453) *Rhipidura aureola* Lesson, 1830
White-browed Fantail-Flycatcher

1830. *Rhipidura aureola* Lesson, *Traite de'Orn.:* 290.

Type Locality: Bengal

Remarks: Uncommon, local migrant. Infrequently sighted in the orchards and village groves in the catchment area.

Family : DICAETIDAE

Genus : *Dicaeum* Cuvier, 1817
142. (1892-1894) *Dicaeum agile* (Tickell, 1833)
Thick-billed Flowerpecker

1833. *Fringilla agilis* Tickell, *Jour. Aisat. Soc. Bengal 2:* 578.

Type Locality: Borabhúm and Dholbhúm

Remarks: Common, resident breeder. Frequently sighted in the orchards and village groves in the catchment area.

Family : NECTARINIDAE

Genus : *Nectarinia* Illiger, 1811
143. (1907-1908) *Nectarinia zeylonica* (Linnaeus, 1766)
Purple-rumped Sunbird

1766. *Certhia zeylonica* Linnaeus, *Syst. Nat. ed. 12:* 181.

Type Locality: Ceylon (=Sri Lanka)

Remarks: Common, resident breeder. Frequently sighted in orchards and village groves in the catchment area.

144. (1916-1918) *Nectarinia asiatica* (Latham, 1790)
Purple Sunbird

1790. *Certhia asiatica* Latham, *Index Orn. 1:* 288.

Type Locality: India (= Gurgaon)

Remarks: Common, resident breeder. Frequently sighted in the orchards and village groves in the catchment area.

Family : ESTRILDIDAE

Genus : *Amandava* Blyth, 1836

145. (1964) *Amandava amandava* (Linnaeus, 1758)

Red Munia

1758. *Fringilla amandava* Linnaeus, *Syst. Nat. ed. 10, 1*: 180.

Type Locality: Calcutta

Remarks: Common, resident breeder. Frequently sighted in the agriculture fields in the catchment area.

Genus : *Lonchura* Sykes, 1832

146. (1966) *Lonchura malabarica* (Linnaeus, 1758)

White-throated Munia

1758. *Loxia malabarica* Linnaeus, *Syst. Nat. ed. 10, 1*: 175

Type Locality: in Indiis (= India)

Remarks: Common, resident breeder. Frequently sighted in the village groves and agriculture fields in the catchment area.

147. (1974-1975) *Lonchura punctulata* (Linnaeus, 1758)

Spotted Munia

1758. *Loxia punctulata* Linnaeus, *Syst. Nat. ed. 10, 1*: 173.

Type Locality: Asia (=Calcutta)

Remarks: Common, resident breeder. Frequently sighted in the agriculture fields in the catchment area.

148. (1976-1978) *Lonchura malacca* (Linnaeus, 1766)

Black-headed Munia

1766. *Loxia malacca* Linnaeus, *Syst. Nat. ed. 12*: 302.

Type Locality: China, Java and Malacca (error, restricted to Belgaum by Baker, 1926)

Remarks: Uncommon, resident breeder. Infrequently sighted in the agriculture fields in the catchment area.

Family : PLOCEIDAE

Subfamily : PASSERINAE

Genus : *Passer* Brisson, 1760

149. (1938-1939a) *Passer domesticus* (Linnaeus, 1758)

House Sparrow

1758. *Fringilla domestica* Linnaeus, *Syst. Nat. ed. 10, 1*: 183.

Type Locality: Sweden, Europe.

Remarks: Common, resident breeder. Frequently sighted in the village grove and agriculture fields in the catchment area.

Genus : *Petronia* Kaup, 1829

150. (1948-1949) *Petronia xanthocollis* (Burton, 1838)

Yellow-throated Sparrow

1838. *Fringilla xanthocollis* Burton, *Cat. Bds. Mus. Fort Pitt, Chatam*: 23 (new name for *Fringilla flavicollis* Gmelin, 1789)

Type Locality: Ganges between Calcutta and Benares

Remarks: Uncommon, local migrant. Infrequently sighted in the agriculture fields in the catchment area.

Subfamily : PLOCEINAE

Genus : *Ploceus* Cuvier, 1816

151. (1957-1959) *Ploceus philippinus* (Linnaeus, 1766)

Baya Weaver

1766. *Loxia philippina* Linnaeus, *Syst. Nat. ed. 12*: 305.

Type Locality: Philippines (*errore*, = Ceylon)

Remarks: Common, resident breeder. Frequently sighted in the village groves agriculture fields in the catchment area.

Family : STURNIDAE

Genus : *Sturnus* Linnaeus, 1758

152. (994) *Sturnus pagodarum* (Gmelin, 1789)

Brahminy Starling

1789. *Turdus pagodarum* Gmelin, *Syst. Nat. 1*: 816.

Type Locality: Malabar

Remarks: Common, resident breeder. Frequently sighted in the village groves, agriculture fields in the catchment area.

153. (996) *Sturnus roseus* (Linnaeus, 1758)

Rosy Starling

1758. *Turdus roseus* Linnaeus, *Syst. Nat. ed. 10, 1*: 171.

Type Locality: Lapland, Switzerland

Remarks: Uncommon, winter visitor. Infrequently sighted in the orchards and village groves in the catchment area.

Genus : *Acridotheres* Vieillot, 1816

154. (1006-1007) *Acridotheres tristis* (Linnaeus, 1766)

Common Myna

1766. *Paradisea tristis* Linnaeus, *Syst. Nat. ed. 12*: 167.

Type Locality: Philippines (*errore* = Calcutta)

Remarks: Common, resident breeder. Frequently sighted in the village groves, agriculture fields in the catchment area.

Family : ORIOLIDAE

Genus : *Oriolus* Linnaeus, 1766

155. (952-953) *Oriolus oriolus* (Linnaeus, 1758)

Eurasian Golden Oriole

1832. *Coracias Oriolus* Linnaeus, *Syst. Nat. ed. 10, 1:* 107.

Type Locality: Sweden

Remarks: Common, resident breeder. Frequently sighted in the orchards, village groves, and agriculture fields in the catchment area.

Family : DICRURIDAE

Genus : *Dicrurus* Vieillot, 1816

156. (962-964) *Dicrurus macrocercus* Vieillot, 1817

Black Drongo

1817. *Dicrurus macrocercus* Vieillot, *Nouv. Dict. D'Hist. Nat., nouv. Ed., 9:* 588 (based on 'Le Drongolon' of Levaillant, 1805, Ois. d'Afr. 4, pl. 174: 72.)

Type Locality: India (restricted to Orissa; re-restricted to Madras city)

Remarks: Common, resident breeder. Frequently sighted in the village groves, orchards, and agriculture fields in the catchment area.

Family : ARTAMIDAE

Genus *Artamus* Vieillot, 1816

157. (982) *Artamus fuscus* Vieillot, 1817

Ashy Woodswallow

1817. *Artamus fuscus* Vieillot, *Nouv. Dit. d'Hist. Nat. 17:* 297.

Type Locality: Bengal

Remarks: Common, local migrant. Frequently sighted in the agriculture fields in the catchment area.

Family : CORVIDAE

Genus *Dendrocitta* Gould, 1833

158. (1030a-1034) *Dendrocitta vagabunda* (Latham, 1790)

Indian Treepie

1790. *Coracias vagabunda* Latham, *Index Orn., 1:* 171.

Type Locality: India (restricted to Calcutta by Ticehurst, 1922)

Remarks: Common, resident breeder. Frequently sighted in the village groves, agriculture fields in the catchment area.

Genus : *Corvus* Linnaeus, 1758

159. (1048-1051) *Corvus splendens* Vieillot, 1817

House Crow

1817. *Corvus splendens* Vieillot, *Nouv. Dict. d'Hist. Nat.* 8: 44.

Type Locality: Bengal

Remarks: Common, resident breeder. Frequently sighted in the village groves, agriculture fields in the catchment area.

160. (1054-1057) *Corvus macrorhynchos* Wagler, 1827

Jungle Crow

1827. *Corvus macrorhynchos* Wagler, *Syst. Av., Corvus*, sp. 3.

Type Locality: Java

Remarks: Common, resident breeder. Frequently sighted in the village groves, agriculture fields in the catchment area.

SUMMARY

A total of 160 species of birds belonging to 17 orders, 48 families and 113 genera were recorded during the present study (Table 1). The bulk of the species were represented by Passeriformes with 61 species and subspecies. Around 25% of birds were migratory. Species such as the Common Shelduck *Tadorna tadorna*, Lesser Spotted Eagle *Aquila pomarina*, Wood Sandpiper *Tringa glareola*, Brown-headed Gull *Larus brunnicephalus* and Whiskered Tern *Chlidonias hybrida* are rarities.

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Table 1 - Birds of Wyra Reservoir, Andhra Pradesh

<i>Order</i>	<i>Family</i>	<i>Genus</i>	<i>Species</i>
Podicipitiformes	Podicipedidae	1	1
Pelicaniformes	Phalacrocoracidae	1	3
	Anhingidae	1	1
Ciconiiformes	Ardeidae	8	9
	Ciconiidae	3	3
	Threskiornidae	4	4
Anseriformes	Dendrocygnidae	1	1
	Anatidae	7	16
Falconiformes	Accipitridae	7	9
	Falconidae	1	1
Galliformes	Phasianidae	4	5
Gruiiformes	Rallidae	4	4
Charadriiformes	Jacaniidae	2	2
	Rostratulidae	1	1
	Charadriidae	6	10
	Recurvirostridae	1	1
	Glareolidae	1	1
	Laridae	3	3
Columbiformes	Pteroclididae	1	1
	Columbidae	2	6
Psittaciformes	Psittacidae	1	1
Cuculiformes	Cuculidae	4	4
Strigiformes	Strigidae	1	1
Caprimulgiformes	Caprimulgidae	1	1
Apodiformes	Apodidae	2	2
Coraciiformes	Alcedinidae	3	3
	Meropidae	1	2
	Coraciidae	1	1
	Upupidae	1	1
Piciformes	Capitonidae	1	1
	Picidae	1	1
Passeriformes	Alaudidae	5	7
	Hirundinidae	1	3
	Motacillidae	2	8
	Campephagidae	1	1
	Pycnonotidae	1	2
	Irenidae	1	1
	Lanidae	1	3
	Muscicapidae	11	16
	Dicaeidae	1	1
	Nectarinidae	1	2
	Estrlididae	2	4
	Ploceidae	3	3
	Sturnidae	2	3
	Oriolidae	1	1
	Dicruridae	1	1
	Artamidae	1	1
	Corvidae	2	3