

Wetland Bird Fauna of Morni Hills of district Panchkula, Haryana, India¹Ajay Kadian and ²Anita Kadian¹Conservator of Forest, North Circle (Forest Department), Panchkula-134109, Haryana (India)²Forensic Science laboratory (Biology Division), Madhuban, Karnal-132001, Haryana (India)²Email- kadiananita@yahoo.com

Abstract: The present study was planned in three natural ponds of Morni hill, Panchkula, Haryana (India). Direct contact as well as scan sampling methods was followed for the present study. A total numbers of 27 wetland birds species belonging to four orders and seven families were recorded from these three natural ponds of Morni Hills. The dominant wetland birds species in habiting in study area included, Common Teal (*Anas crecca*), Eurasian Wigeon (*Anas Penelope*), White capped Water Redstart (*Chaimarrornis leucocephalus*), Red Wattled Lapwing (namely, *Vanellus indicus*, *Hoplopterus indicus*, *Lobivanellus indicus*, *Lobivanellus goensis*), Plumbeous Water Redstart (*Rhyacornis fuliginosa*), Comb Duck (*Sarkidiornis melanotos*), Curlew Sandpiper (*Calidris ferruginea*), White Wagtail (*Motacilla alba*), Stilt (*Himantopus himantopus mexicanus*), Shoveller (*Anas clypeata*), Northern Pintail (*Anas acuta*), Gadwall (*Anas strepera*), Forest Wagtail (*Dendronanthus indicus*), Little Cormorant (*Microcarbo niger*), White Breasted Water hen (*Amaurornis phoenicurus*), Black Winged Stilt (*Himantopus himantopus*), Citrine Wagtail (*Motacilla citreola*), Yellow Wagtail (*Motacilla flava*), Grey Wagtail (*Motacilla cinerea*), Spot-billed Duck (*Anas poecilorhyncha*), Mallard (*Anas platyrhynchos*), Common Pochard (*Aythya ferina*), Tufted Pochard (*Aythya fuligula*) and Red-Crested Pochard (*Rhodonessa rufina*). Order Anseriformes observed to belongs maximum numbers (11 species) of wetland species while order Pelecaniformes belongs to minimum (1 species). Similarly, observed 27 wetland species, varied from minimum in family Scolopacidae (1 species) species to maximum in family Anatinae (11 species). The paper presents an over view of abundance, residential and conservational status and major threats to wetland fauna of study area.

[Ajay Kadian and Anita Kadian. **Wetland Bird Fauna of Morni Hills of district Panchkula, Haryana, India.** Academia Arena, 2012;4(4):58-67] (ISSN 1553-992X). <http://www.sciencepub.net/academia>. 8

Keywords: Birds fauna, wetland, pond, Haryana.

1. Introduction:

Birds are the most charming creatures of nature. These are warm-blooded, bipedal and oviparous vertebrates characterized by bony beak, hollow light bones, feathers and wings. Historically, the birds originated from reptilian ancestors in the Jurassic period of the Mesozoic era about 150 million year ago and dominated from Cretaceous epoch in Tertiary period of the Cenozoic era. They are distributed from Arctic circle to Antarctic seas and from desert of middle East to the highest elevation of the Peruvian Andes. The avian diversity of the world is noted for its remarkable variation in features and numbers depending upon the zoo-geographical, climatic and physiographic conditions (Forshaw, 1998). Avian fauna is distributed in six major regions of the world. They are: Nearctic (North America) – 750 species of birds, Palearctic (Europe and Asia) - 1206 species of birds; Neotropical (Central and South America) - 2929 species of birds; Ethiopian (Africa) - 1750 species of birds; Oriental (South-East Asia) - 9250 species of birds and Australian (Australia and New Guinea) 906 species of birds (Udvardy, 1975; Welty, 1982). Each faunal region has its characteristic bird species (Blackburn et al., 1996).

The Indian subcontinent has a great wealth of birds, including the humming bird, which is not bigger than man thumb and the ostrich which stands as high as a pony. It comprises more than 1250 species of birds (Woodcock, 1980). According to Ali and Ripley (2001), there are 1260 species of birds and 1299 species of birds (Inskipp et al., 1998) in Indian subcontinent. It accounts for about 13-14% of the world total number of bird species but out of these species approximate 10% are at risk (Dewar, 1915, 1923; Baker, 1922-30; Ali, 1941; Ali and Ripley, 1987; Kaul, 1995).

Wetlands are among the most productive ecosystems in the world and their functions include flood control, aquifer recharge, nutrient absorption, and erosion control. A great variety of species depend on wetlands. Most of these wetlands are essentially natural ecosystems stabilized over the years, and have retained their natural characteristics. The predominant wetland types in India include flood plains of major rivers, estuaries, saline expanses, freshwater lakes, backwaters, mangroves, tanks, marshes, swamps, jheels, beels, terai and man-made water bodies like reservoirs. These wetlands are under threat due to encroachment, silting, weed

infestation, pollution, and indiscriminate development of aquaculture. The combined threat of these factors has given rise to problems such as decrease in biological diversity, deterioration of water quality, sedimentation and shrinkage in area. It has also led to decrease in migratory bird populations, fish and other faunal productivity and prolific growth of invasive aquatic weeds.

Scanty information are available on various aspects on wetland birds species. However, such studies are lacking in the state of Haryana, in particular. Therefore, present study was planned in three natural lakes in the study area namely, "Bada tikkar taal", "Chhota tikkar taal" and "Sherla taal" of Morni Hills, district Panchkula, Haryana (India).

2. Materials and methods:

The present studies "**Wetland birds Fauna of Morni Hills of district Panchkula, Haryana (India)**" has been carried out with the view to explore the extent of diversity of birds in the three natural lakes in the study area namely, "Bada tikkar taal", "Chhota tikkar taal" and "Sherla taal" unique Morni hills (30° 41' 39.15276" North, 76° 51' 38.034" East) located in Panchkula district of state Haryana (27° 39' and 30° 55' N latitude, 74° 27' and 77° 36' E longitude) (Fig.1 and 2). Morni hills are located at a distance of 35 Kms East of Panchkula, connected with a good metalled road with Panchkula and Chandigarh. The Morni Hills are spread over an area of approximately, 9227.62 hectare, out of this, 2564.73 hectares are used for agriculture and 6662.89 hectares are protected forests. It is interesting to note that Morni hills are actually extension of Shivalik ranges of Himalayas which run in two parallel ranges and separated by River Ghaggar. Morni village is located at a height of 1200 m. There is an old Fort, which has now been developed by Govt. of Haryana as a Tourist Resort. It lies very close to Morni village on a hill top. Morni village is actually the pivotal point of all human activities in the entire complex of Morn-Hills.

Among the spurs of hills, there are three natural lakes in the Morni hills namely, "BADA TIKKAR TAAL" and "CHHOTA TIKKAR TAAL" and one natural "SHERLA TAAL". As these names indicate, larger one is about 150 meter long and 460 meters broad and smaller one is 365 meter either way. Two lakes are divided by a dwarf hill, but there is some hidden channel between the two lakes, as the water level of two lakes remains same throughout the year. These lakes are good source of water for local people to use in irrigation and for there animals. Bada-Tikkar is developed as a tourist place by Govt. of Haryana. Chhota Taal is used for fisheries as well as duck breeding center. An adventure park has also

been developed over hear. This place attracts the tourists due to its scenic beauty, rich biodiversity and fauna. Morni to Tikkar Taal slope is very steep and tourists occasionally used sub-ways by trekking rather than by mortable road.

Direct contact method (Barwar, 1971) and Scan sampling (Altman, 1974) methods were used for counting the numbers of wetland birds in Morni hills, Panchkula, Haryana (India). In order to generate data on avian diversity of Morni Hills, Camera Zenith, 1986 Model with Tele-lens80-120mm was extensively used. In all, 30 rolls were exposed with the help of zenith camera and tele lens. In addition, digital camera was also extensively used for determination of avian diversity (Sony DSC 80 Cyber Shot, DSC H9 SONY). This data, so collected was, computed and analyzed and its subsequent segregation under "Orders" and "Families" in the light of consultations of literature and various books including, Ali and Ripley (1996), Inskipp *et al* (1996) and Grimmet *et al*. (1998). The collected data was later statistically analysed to estimate the numbers of species in studied area.

3. Results and discussion:

Humans have known of the link between birds and wetlands for thousands of years. Prehistoric people drew pictures of birds and wetlands on cave walls, scratched them onto rocks, and used them in the design of artifacts; and Native American lore provides accounts of bird hunts in wetlands. Wetlands are important bird habitats, and birds use them for breeding, nesting, and rearing young. Birds also use wetlands as a source of drinking water and for feeding, resting, shelter, and social interactions. Some waterfowl, such as grebes, have adapted to wetlands to such an extent that their survival as individual species depends on the availability of certain types of wetlands within their geographic range. Other species, such as the northern pintail or the American widgeon, use wetlands only during some parts of their lives (Bellrose, 1977). Because of the great variety of wetlands, bird adaptation to and use of wetland environments differs greatly from species to species. Birds' use of wetlands during breeding cycles ranges widely. Some birds depend on wetlands almost totally for breeding, nesting, feeding, or shelter during their breeding cycles. Birds that need functional access to a wetland or wetland products during their life cycle, especially during the breeding season, can be called "wetland dependent". Other birds use wetlands only for some of their needs, or they might use both wetland and upland habitats. Of the more than 1900 bird species that breed in North America, about 138 species in the

conterminous United States are wetland dependent (American Ornithologists' Union, 1983).

Wetland birds play a significant cultural and social role in local communities as well as being an important component of wetland ecosystem. In India, total numbers of 310 wetland species present. Out of 310 Indian wetland species, 130 (c. 42%) are migrant, 173 resident; however the status is unknown for seven species. Of the migrants, 107 are winter migrants, six have some passage population, 13 are summer migrants, and the remaining four are purely passage migrants. Out from, 173 resident species, 53 are completely resident, 38 are part resident and part winter migrant, and 50 undertake local movements chiefly depending on water conditions. In terms of abundance, Indian wetland birds can be categorized as Very Common (four species), Common (26), Locally Common (115), Un-Common (45), Rare (67), Very Rare (five), Vagrant (47) and Probably Extinct (one) (Kumar et al, 2006).

Approximately, 12% of Asian birds are globally threatened with extinction. Many species are edging close to extinction through disturbance or habitat loss as well as intensive hunting pressure. An analysis of threatened wetland birds indicates that of a total of 242 species, 82 species are in Asia and 39 in India. Of the 310 wetland bird species in India, 51 (ca. 16%) are threatened of which 34 are globally threatened (four critical, seven endangered, 23 vulnerable); 16 near threatened (NT) and one data deficient (DD). Of the 51 threatened species, 39 show a declining population trend, while three are increasing, five are stable, and the trends of three species are indeterminate. The remaining one species, Pink-headed Duck *Rhodonessa caryophyllacea* globally threatened, has probably disappeared from India. Eight of the 34 species are listed under Schedule-I of the WL (P) Act, while 22 are relegated to Schedule-IV; two species, Masked Finfoot, *Heliornis fulica* and Indian Skimmer, *Rynchops albicollis* (with an estimated total

population for the South Asian region of 5 000 birds each), are not included under the WL (P) Act at all. Similarly, two of the most highly threatened Indian Waterbirds, Sarus Crane *Grus antigone* and Black-necked Stork *Ephippiorhynchus asiaticus*, are again listed under Schedule-IV with threshold populations of 90 and four respectively (BirdLife International, 2003).

The present study was planned in Morni hills of district Panchkula, Haryana (India). A total numbers of twenty seven wetland birds species were recorded from the study site. The dominant wetland birds species in habiting in study area (District Panchkula) are Common Teal (*Anas crecca*), Eurasian Wigeon (*Anas Penelope*), White capped Water Redstart (*Chaimarrornis leucocephalus*), Red Watted Lapwing (namely, *Vanellus indicus*, *Hoplopterus indicus*, *Lobivanellus indicus*, *Lobivanellus goensis*), Plumbeous Water Redstart (*Rhyacornis fuliginosa*), Comb Duck (*Sarkidiornis melanotos*), Curlew Sandpiper (*Calidris ferruginea*), White Wagtail (*Motacilla alba*), Stilt (*Himantopus himantopus mexicanus*), Shoveller (*Anas clypeata*), Northern Pintail (*Anas acuta*), Gadwall (*Anas strepera*), Forest Wagtail (*Dendronanthus indicus*), Little Cormorant (*Microcarbo niger*), White Breasted Water hen (*Amaurornis phoenicurus*), Black Winged Stilt (*Himantopus himantopus*), Citrine Wagtail (*Motacilla citreola*), Yellow Wagtail (*Motacilla flava*), Grey Wagtail (*Motacilla cinerea*), Spot-billed Duck (*Anas poecilorhyncha*), Mallard (*Anas platyrhynchos*), Common Pochard (*Aythya ferina*), Tufted Pochard (*Aythya fuligula*) and Red-Crested Pochard (*Rhodonessa rufina*) (Table-1). The species are completely shown in plate 1, 2 and 3. The total numbers of 27 wetland birds species belong to order wise, anseriformes (11), followed by passeri forms (7), charadriiformes (8) and pelecaniformes (1), (Fig.3). similarly, these species belongs to 7 family that varied from minimum in scolopacidae (1 species) to maximum in family Anatinae (11) (Fig.4).

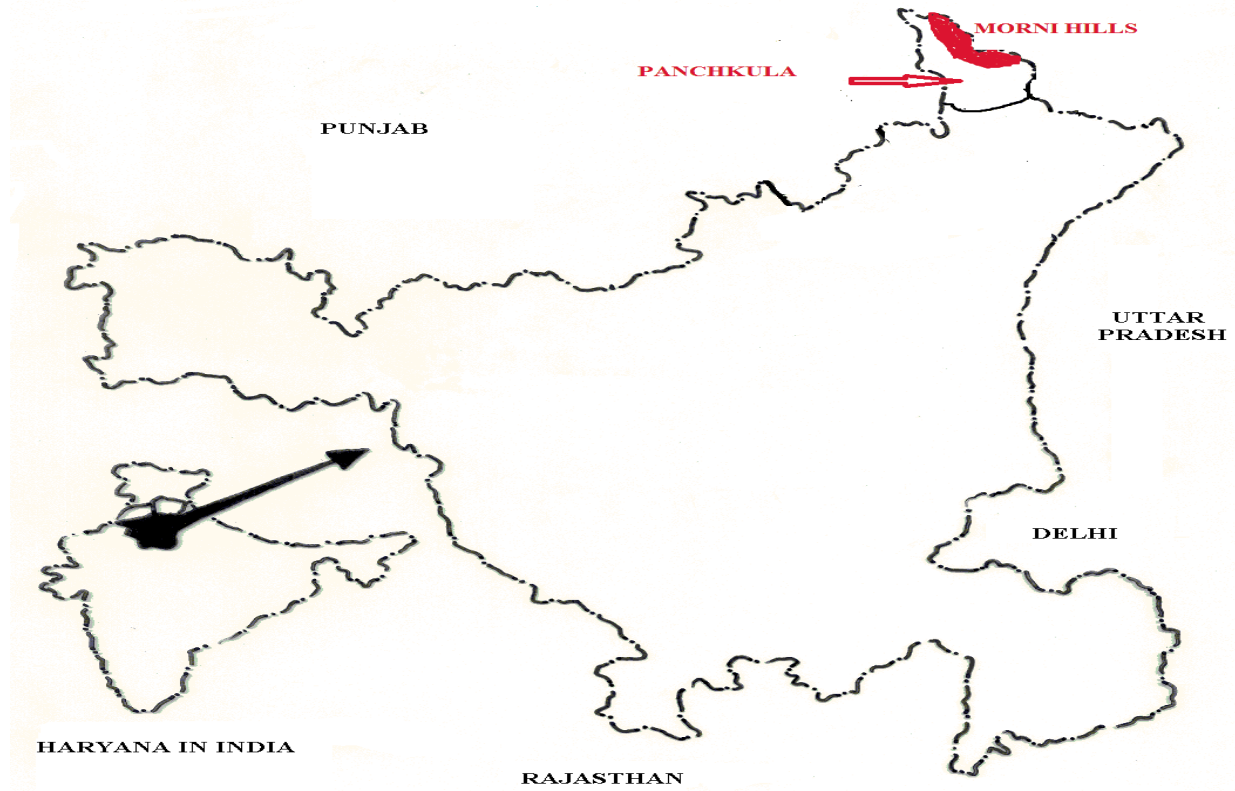


Fig. 1 Morni hills in district Panchkula of state Haryana, India.

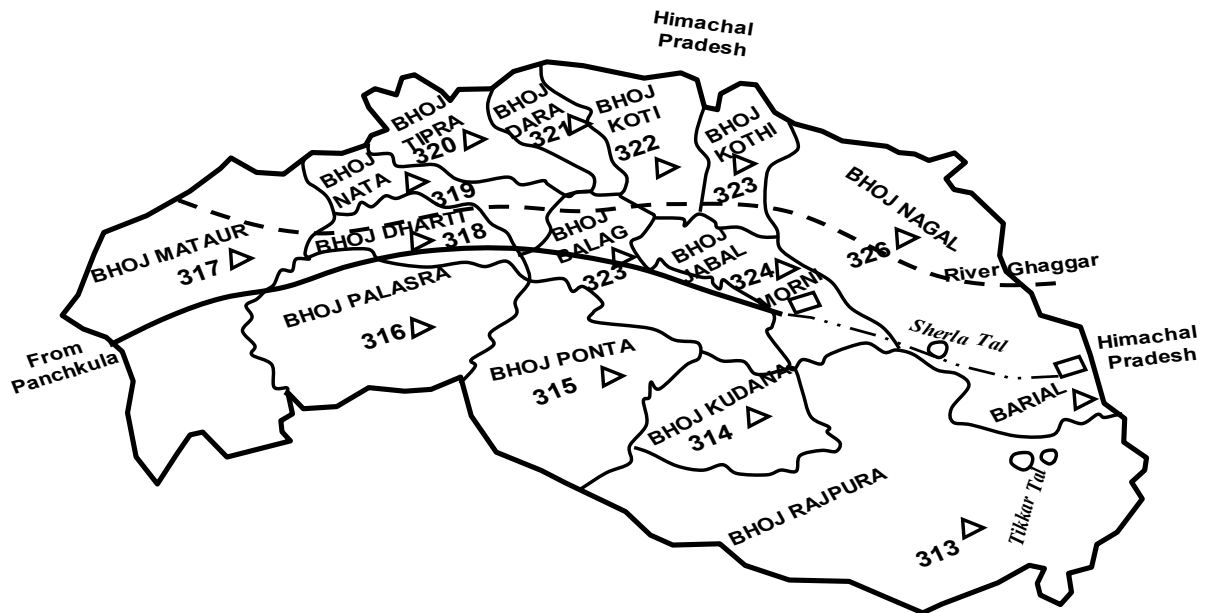


Fig. 2 Detail Map of Morni hills showing Fourteen administrative zones (Bhoj's).

Table 1 Total numbers of wetland birds in Morni hills of district Pachkula, Haryana (India).

| S.N. | Local name | Scientific name | Order | Family |
|------|-----------------------------|------------------------------------|-----------------|-------------------|
| 1 | Common Teal | <i>Anas crecca</i> | Anseriformes | Anatinae |
| 2 | Eurasian Wigeon | <i>Anas Penelope</i> | Anseriformes | Anatinae |
| 3 | White capped Water Redstart | <i>Chaimarrornis leucocephalus</i> | Passeriformes | Muscacipidae |
| 4 | Red Wattled Lapwing | <i>Vanellus indicus</i> | Charadriiformes | Charadriidae |
| 5 | Red Wattled Lapwing | <i>Hoplopterus indicus</i> | Charadriiformes | Charadriidae |
| 6 | Red Wattled Lapwing | <i>Lobivanellus indicus</i> | Charadriiformes | Charadriidae |
| 7 | Red Wattled Lapwing | <i>Lobivanellus goensis</i> | Charadriiformes | Charadriidae |
| 8 | Plumbeous Water Redstart | <i>Rhyacornis fuliginosa</i> | Passeriformes | Muscacipidae |
| 9 | Comb Duck | <i>Sarkidiornis melanotos</i> | Anseriformes | Anatinae |
| 10 | Curlew Sandpiper | <i>Calidris ferruginea</i> | Charadriiformes | Scolopacidae |
| 11 | White Wagtail | <i>Motacilla alba</i> | Passeriformes | Motacillidae |
| 12 | Stilt | <i>Himantopus mexicanus</i> | Charadriiformes | Recurvirostridae |
| 13 | Shoveller | <i>Anas clypeata</i> | Anseriformes | Anatinae |
| 14 | Northern Pintail | <i>Anas acuta</i> | Anseriformes | Anatinae |
| 15 | Gadwall | <i>Anas strepera</i> | Anseriformes | Anatinae |
| 16 | Forest Wagtail | <i>Dendronanthus indicus</i> | Passeriformes | Motacillidae |
| 17 | Little Cormorant | <i>Microcarbo niger</i> | Pelecaniformes | Phalacrocoracidae |
| 18 | White Breasted Water hen | <i>Amaurornis phoenicurus</i> | Charadriiformes | Charadriidae |
| 19 | Black Winged Stilt | <i>Himantopus himantopus</i> | Charadriiformes | Recurvirostridae |
| 20 | Citrine Wagtail | <i>Motacilla citreola</i> | Passeriformes | Motacillidae |
| 21 | Yellow Wagtail | <i>Motacilla flava</i> | Passeriformes | Motacillidae |
| 22 | Grey Wagtail | <i>Motacilla cinerea</i> | Passeriformes | Motacillidae |
| 23 | Spot-billed Duck | <i>Anas poecilorhyncha</i> | Anseriformes | Anatinae |
| 24 | Mallard | <i>Anas platyrhynchos</i> | Anseriformes | Anatinae |
| 25 | Common Pochard | <i>Aythya ferina</i> | Anseriformes | Anatinae |
| 26 | Tufted Pochard | <i>Aythya fuligula</i> | Anseriformes | Anatinae |
| 27 | Red-Crested Pochard | <i>Rhodonessa rufina</i> | Anseriformes | Anatinae |



Anas crecca



Anas Penelope



Chaimarrornis leucocephalus



Vanellus indicus



Hoplopterus indicus



Lobivanellus indicus



Lobivanellus goensis



Rhyacornis fuliginosa



Sarkidiornis melanotos

Plate 1 Wetland birds species in Morni hills of district, Panchkula (Haryana).



Calidris ferruginea



Motacilla alba



Himantopus mexicanus



Anas clypeata



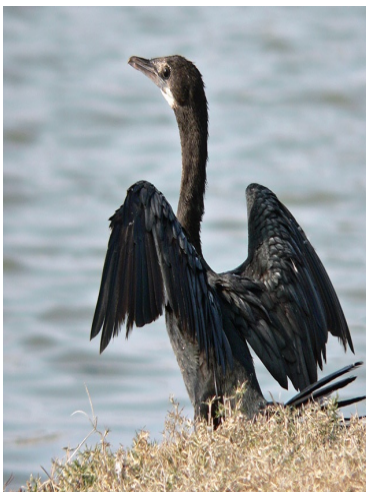
Anas acuta



Anas strepera



Dendronanthus indicus



Microcarbo niger



Amaurornis phoenicurus

Plate 2 Wetland birds species in Morni hills, of district Panchkula (Haryana).



Himantopus himantopus



Motacilla citreola



Motacilla flava



Motacilla cinerea



Anas poecilorhyncha



Anas platyrhynchos



Aythya ferina



Aythya fuligula



Rhodonessa rufina

Plate 3 Wetland birds species in Morni hills of district Panchkula (Haryana).

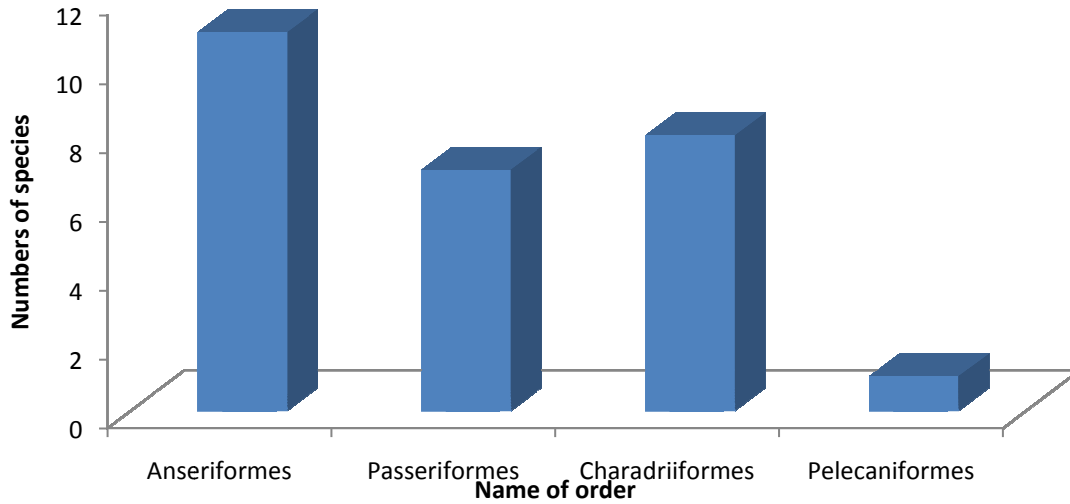


Fig. 3 Order wise numbers of wetland birds species in Morni hills, Panchkula (Haryana).

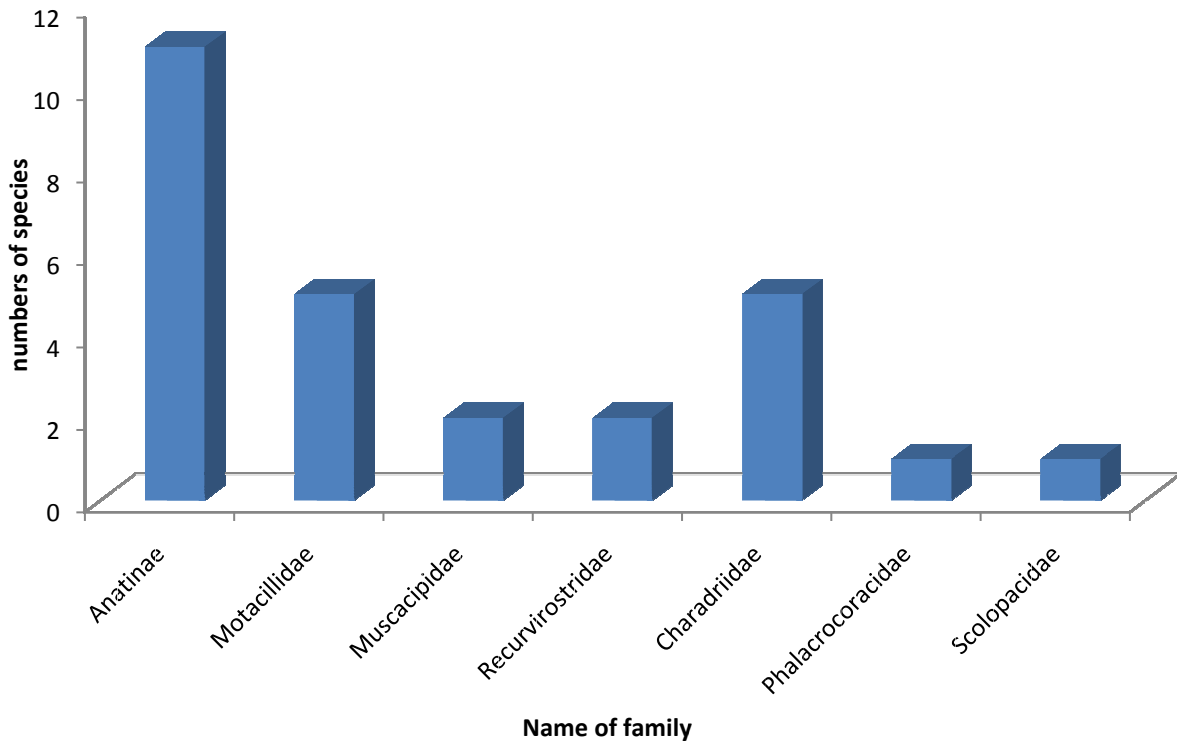


Fig. 4 Family wise numbers of wetland birds species in Morni hills, Panchkula (Haryana).

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4/7/2012