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The breeding habitat selection strategies of Baya weaverbird, *Ploceus philippinus* at Jamshedpur , Jharkhand, India

Paritosh Kumar[a]* & K.K.Sharma[a]
[a]*P.G.Department of Zoology, Jamshedpur Co-operative Collage, Jamshedpur, Jharkhand.India

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Abstract :A Study was conducted on the breeding biology with reference to the preference of the selection of breeding habitat at Jamshedpur in the year 2011. Observations on the ecological parameters involved in the selection of the preferred breeding sites in the study area. The study suggests that the male weaverbirds preferred most where the combined effect of the temperature and humidity is favourable for the breeding success of the bird species.

Key words: Habitat breeding, Ecological parameters, Breeding success.

INTRODUCTION

The adaptive significance of the breeding habitat selection within species of vertebrates is previously discussed (Brown, 1969; Fretwell, 1970; kluyver and Tinbergen, 1953; Nettleship, 1972; Partridge, 1978; Sharma et.al, 2009) but rarely demonstrated in relation to the ecological context. It is supposed that the preference of breeding habitats by the avian species depends on the survival value and reproductive success. It has been also reported that the bird species is unlikely to occur natural in less preferred habitats if preferred ones are available in nature (Partridge, 1978)

The living organism maintain a dynamic equilibrium with the prevailing environment with respect to water, salts, heat, humidity, etc. The survival of each individual depends on its ability to cope with variation in the set of environmental conditions in its habitats. They used to employ different means of response to environmental changes in their critical habitats like foraging, roosting and breeding habitats. Moreover, the breeding habitat also varies from place to place with regards to its variations in climate, topography and soil type, therefore, the bird species intended to adjust behaviourally and physiologically to the changing set of the external conditions for there survival and breeding success.

The breeding biology of the Baya weaverbird has been studied in part (Ali, 1930; Ali & Ambedkar, 1956, 1957; Ambedkar, 1958; Crook, 1960). In the present study, comprehensive observations were made on the selection of the breeding habitats. The preference of breeding sites has received much attention in this study. Only a few attempts have been made to study the selection of the breeding habitats of the weaverbird and these are confined to descriptive accounts without long term data amenable to scientific analysis. Attempts have been made to understand the climatic factors playing its deciding role in the selection of breeding habitats by the bird species in the study area.

MATERIALS AND METHODS

The present study was conducted in the steel city Jamshedpur (86 °11'E;22 48'N) Jharkhand, India. The Jubilee Park, the natural thermoregulator of the steel city, with its specific topography and climate provides a multitude of ecological niches. The Park spreads over an

*Correspondent author :
Phone : 09431108448
E-mail : paritosh.youthcongress@gmail.com

area of 237.75 acres and is dotted with attractive spots, a Zoological Park and famous jubilee lake, now called as Jayanti sarowar. The sarowar covers about 40 acres of the park area. The park area is divided into several unequal sections by a network of roads and is almost covered with a variety of plant species. The entire park area has different sectors, such as Open woodland, Jayanti sarowar and thickly populated woodland.

To take photographs of the selected breeding habitats in the study area, a telescopic camera "Canon AE-1" and "DCR-TRV355E" (Optical 20X or 700X Digital Zoom), Sony Digital Handicam Model were used.

RESULTS AND DISCUSSION:

It was observed that most of the preferred breeding habitats of the Baya weaverbird were evident residing very close to the available open water bodies.63.64 per cent of the breeding habitats were located beside the open water body and 36.36 per cent of the breeding colonies were considerably away from the water reservoir. It is worth to note that all such habitats, in the study area, were in human habitation. They usually preferred monocotyledonous trees (72.73 per cent), such as Palm tree and Date tree (Table).Moreover, birds were found not utilizing the Palm trees that were located in the vicinity of the tree clumps away from the water body. The breeding habitats adjoining the water reservoirs were the traditional habitats and those away from the bodies were transitional habitats. In the transitional breeding habitats, they preferred dicotyledonous trees for breeding. It was found that the onset of nesting activities was reasonably earlier in the traditional breeding habitats than the transitional ones. Moreover, most of the breeding habitats were residing in the Tata Zoological Park of the green city Jamshedpur.

The maximum availability of the breeding habitats close to the open water bodies (Fig.) seems to provide a permissible thermal condition, without touching the upper

Table. The preferred tree species in the breeding habitats of the weaverbird in and around of Jamshedpur in the year 2011 & 2012.

Tree Species	No. of Breeding associated with	Per Cent Value
1. Neem Tree (*Azadirachta indica*)	01	9.09
2. Babul Tree (*Acacia arabica*)	01	9.09
3. Palm Tree (*Borassuas flabellifer*).	05	45.45
4. Date Tree (*Phoenix dactylifera*)	03	27.28
5. Mahuwa Tree (*Madhuca indica*)	01	9.09

limit, they avoid facing thermal stress. Moreover, they preferred breeding habitats close to the water body where unpredictable ambient temperature can be modulated considerably through air movement to get thermal comfort. The heat, producing major thermal problems in the habitat, is possibly transmitted by the processes like conduction and convection to air and provide favourable warm and humid condition for breeding. Furthermore, birds do not prefer the Palm trees present in the vicinity of the tree clumps as visibility is relatively less and risk of predation by the potential predators is high there. Since raptors, the birds of prey, habitually avoid the area where anthropocentric activities predominate, that is way, the weaverbirds select the breeding sites in human habitation. Since the palm tree leaves bear parallel venation, the weaverbirds get strips with reasonable tensile strength as nest material. Moreover, the leaves may also provide substrate for the pendulous nests to which the potential predators cannot approach readily as they are unable to maintain their balance. Perhaps the waving palm tree leaves with associated pendulous nests may facilitate to create favourable thermal environment by increasing air motion. This infers that's why the Baya weaverbirds preferred most the palm tree as a breeding site. The overall facts confer that the weaverbirds show behavioural adaptation to cope with the unpredictable extreme thermal conditions and to avoid risk of predation by selecting specific breeding habitats in the study area.

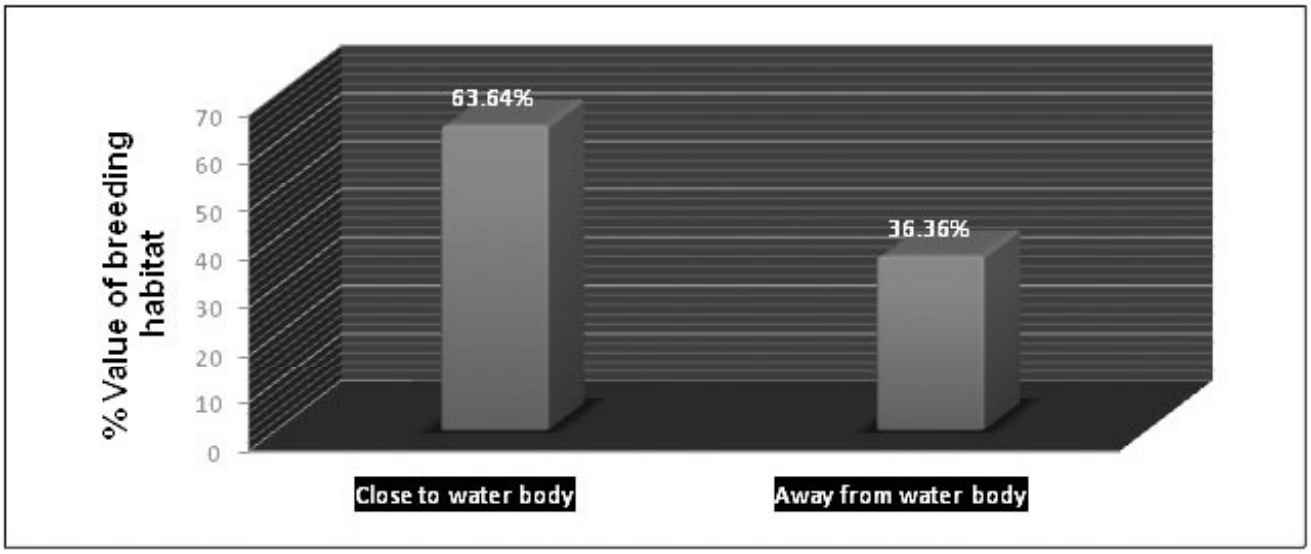

Fig. Graphical representation showing the availability of the breeding habitats, close to and away from the water bodies in the study area, of the Baya weaverbird.

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