



GEOGRAPHICAL LOCATION SPECIFIC FEEDING HABITS OF BAYA WEAVER BIRD (*PLOCEUS PHILIPPINUS*) IN SHEKHAWATI REGION OF RAJASTHAN, INDIA

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Abstract

The Baya Weaver (Baya Weaver) is primarily granivorous, feeding on a wide variety of seeds, including rice (*Oryza sativa*), millet (*Pennisetum glaucum*), wheat (*Triticum aestivum*), maize (*Zea mays*), sorghum (*Sorghum bicolor*), sunflower (*Helianthus annuus*), and various wild grass seeds, with rice constituting a major proportion of its diet. In the present study, five representative sites were selected across the Shekhawati region of Rajasthan, India, to investigate the feeding ecology of the species. Field observations revealed that the feeding behaviour and dietary composition of the Baya Weaver vary significantly with seasonality, habitat type, and food resource availability. The species exploits diverse habitats such as agricultural fields, grasslands, wetlands, and scrublands, adjusting its diet according to local environmental conditions. These spatial and temporal variations in food preference are not random but represent adaptive foraging strategies that maximize energy intake while responding to fluctuations in seed abundance, crop phenology, and habitat productivity. Such dietary flexibility contributes to the ecological success of the Baya Weaver in the semi-arid landscapes of the Shekhawati region.

Keywords: Baya Weaver, *Ploceus philippinus*, Feeding Ecology, Granivory, Seed Preference, Seasonal Variation

1. Introduction

Living organisms require food for survival, growth, reproduction, and the energy needed to perform various life processes. Food is obtained from the surrounding environment, and different animal species have evolved distinct feeding strategies based on the resources available to them. Birds, unlike mammals, lack teeth and swallow their food without chewing. Consequently, they exhibit remarkable diversity in feeding habits, consuming seeds, insects, fruits, nectar, and small animal prey. Based on their dietary preferences, birds are broadly classified as granivores (seed eaters), insectivores (insect eaters), frugivores (fruit eaters), nectarivores (nectar feeders), and carnivores (meat eaters). The morphology of a bird's beak is closely associated with its feeding ecology, enabling efficient exploitation of specific food resources.

Although beak morphology is generally considered an adaptation to diet (Rubega, 2000), this relationship is not always straightforward. First, many bird species exhibit dietary flexibility, utilizing a wide variety of food resources irrespective of their specialized beak adaptations. Second, avian beaks serve several functions beyond feeding, including thermoregulation (Greenberg et al., 2012), acoustic communication (Podos, 2001), nest construction, courtship displays, and the removal of ectoparasites

(Clayton et al., 2005). These multifunctional roles have contributed to the remarkable diversity in beak form and function among birds.

For the Baya Weaver (*Ploceus philippinus*), feeding behaviour varies seasonally in response to food availability and reproductive requirements. The species primarily feeds on grass seeds, cereal grains, and a variety of insects. During the breeding season, the consumption of insects and other invertebrates increases substantially, as these protein-rich food sources are essential for egg production, chick growth, and the nutritional demands of breeding adults (Mukherjee & Saha, 1974). Seasonal movements and local distribution of the Baya Weaver are therefore closely linked to the abundance and spatial distribution of these food resources.

The present study aims to investigate the feeding ecology and food preferences of the Baya Weaver in the Shekhawati region of Rajasthan. Particular emphasis is placed on identifying major food sources, seasonal variations in diet, foraging behaviour, and the ecological factors influencing feeding patterns. Understanding these aspects is essential for assessing habitat suitability and developing effective conservation strategies for this ecologically significant species.

2. Materials and Methods

2.1 Geographical area of the study

The present study was conducted in the Shekhawati region of Rajasthan, India, encompassing parts of the Sikar, Churu, and Jhunjhunu districts. Situated in the semi-arid zone of northeastern Rajasthan, the region is characterized by sandy plains, sparse natural vegetation, agricultural landscapes, and a hot, dry climate with highly seasonal rainfall. Despite these arid conditions, numerous seasonal ponds, village tanks, irrigation canals, roadside plantations, and agricultural fields provide suitable foraging and nesting habitats for the Baya Weaver (*Ploceus philippinus*).

The Shekhawati region supports a mosaic of natural and human-modified habitats, making it an ideal landscape for investigating the feeding ecology, nesting behaviour, and seasonal distribution of the Baya Weaver. The selected study sites represent a range of habitat types, including agricultural fields, urban environments, and rural wetlands, thereby enabling comprehensive observations across different ecological conditions.

The following locations were selected for the present investigation:

1. **Kheri Dhukia**, Laxmangarh, Sikar District
2. **Fatehpur Behar**, Sikar District
3. **Sikar City**, Sikar District
4. **Ratangarh**, Churu District
5. **Nawalgarh**, Jhunjhunu District

Geographical details like geographical location, latitude, longitude, altitude, and habitat of the above selected sites are given in the table 1-

Table 1- Geographical details like geographical location, latitude, longitude, altitude, and habitat of the study sites are given.

S. No.	Location	District	Latitude (°N)	Longitude (°E)	Altitude (m)	Habitat Type
1	Kheri Dhukia (Laxmangarh)	Sikar	27.62	75.15	424	Agricultural fields, scattered trees, seasonal ponds
2	Fatehpur Behar	Sikar	27.62	75.15	427	Farmland mixed with open scrubland
3	Sikar City	Sikar	27.62	75.15	427	Urban greenery, roadside plantations, water storage tanks
4	Ratangarh	Churu	27.97	74.62	300	Arid sandy plains, sparse thorny vegetation
5	Nawalgarh	Jhunjhunu	27.85	75.27	379	Agricultural surroundings with scattered tree cover

2.2 Methodology

In the present study, the fieldwork consisted of direct observation to observe and record the feeding material used by Baya Weaver for food. The observations will be carried out from 06:00 a.m. to 12:00 a.m. and 15:00 p.m. to 18:00 p.m. when the birds are active. The feeding material used by Baya Weaver will be photographed and identified with the help of relevant literature. Nikon DSLR cameras were used to capture the birds with food. The locations of geographical area will be determined using a standard GPS.

3. Results and Discussion

The Baya Weaver (*Ploceus philippinus*) is an omnivorous bird whose diet consists primarily of seeds and insects. It feeds on a variety of cereal grains and grass seeds, including rice, pearl millet (bajra), sorghum (jowar), wheat, maize, sunflower, and wild grasses, with rice forming a major component of its diet (Ambedkar, 1972; George, 1973; Varu, 2002). During the breeding season, however, the species increases its intake of protein-rich animal prey such as grasshoppers, caterpillars, beetles, termites, moths, spiders, and other small invertebrates, which are essential for the growth and development of nestlings (Ali & Ripley, 1974).

The present investigation recorded similar feeding patterns in the Shekhawati region of Rajasthan. Baya Weavers were frequently observed foraging in agricultural fields, feeding on pearl millet and sorghum grains, while actively capturing grasshoppers and other insects during the breeding season. Many individuals were seen carrying insect prey to active nests, confirming that insects constitute an important dietary component for both adults and chicks. These observations are consistent with earlier studies (Craig, 2010; Kumar & Sharma, 2017; Zafar et al., 2023).

Baya Weavers generally forage in flocks in grasslands, cultivated fields, and harvested croplands. Although large flocks may occasionally cause minor damage to ripened crops (Sengupta, 1974), their regular consumption of insect pests, particularly grasshoppers, indicates that they play a valuable ecological role by contributing to the natural biological control of pests in pearl millet agro-ecosystems.

Plate 1A shows two adult female Baya Weavers perched on an amaranth (*Amaranthus* spp.) plant, each carrying a grasshopper in its bill. The photograph was taken in a pearl millet (*Pennisetum glaucum*) field beneath a Khejri (*Prosopis cineraria*) tree supporting an active Baya Weaver colony. This observation provides direct evidence of insect provisioning to nestlings and highlights the ecological importance of the species in agricultural landscapes.

Plate 1

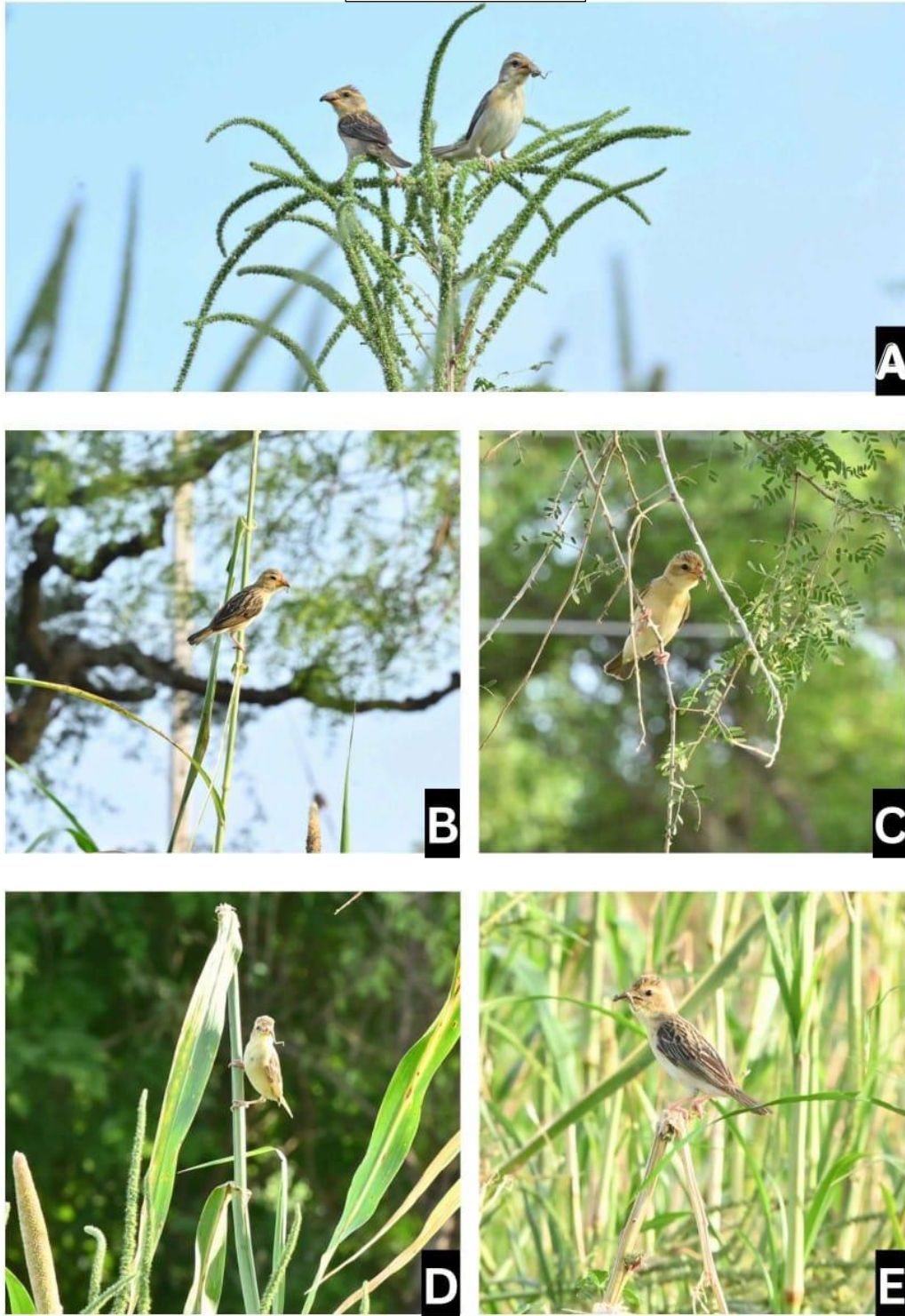


Plate 1. Feeding behaviour of the Baya Weaver (*Ploceus philippinus*) in a crop land ecosystem feeding on different food materials

This plate collectively demonstrates that the Baya Weaver frequently captures insect prey, particularly grasshoppers, from agricultural fields during the breeding season. Such feeding behaviour suggests that the species contributes to the natural suppression of crop pests while providing protein-rich food to its nestlings.

Plate 2

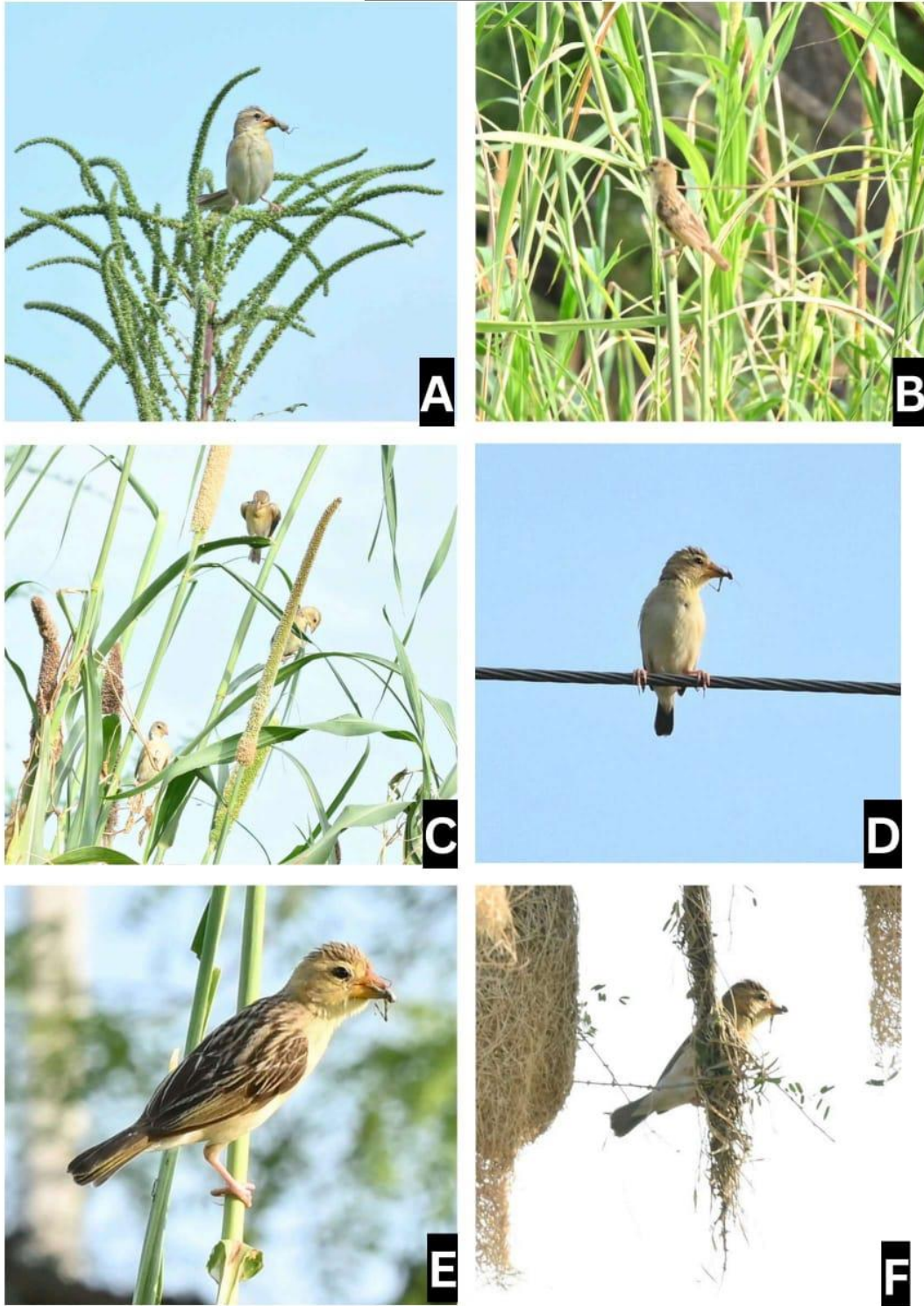


Plate 2. Feeding behaviour of the Baya Weaver (*Ploceus philippinus*) during the breeding season in an agricultural ecosystem.

The photographs collectively demonstrate that the Baya Weaver extensively exploits agricultural habitats for foraging during the breeding season. Grasshoppers and other insect prey were repeatedly observed being captured and transported to active nests, indicating that insects represent a major dietary component for both adults and nestlings.

4. Conclusion

The Baya Weaver (*Ploceus philippinus*) has a flexible diet, feeding on both seeds and insects according to seasonal availability and habitat conditions. Adult birds primarily consume cereal grains and grass seeds, particularly rice, but also prey on crop-damaging insects such as grasshoppers. By reducing populations of these pests, the species provides an important natural pest control service and contributes to the ecological balance of agricultural ecosystems.

During the breeding season, the diet shifts toward protein-rich animal prey to meet the nutritional demands of growing nestlings. Parent birds frequently feed their chicks insects, including grasshoppers, caterpillars, and beetles, along with occasional small vertebrates such as frogs and geckos. Although Baya Weavers may sometimes feed on cultivated crops, their ecological benefits—especially their role in controlling agricultural pests—generally outweigh the minor crop damage they may cause.

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