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Population and Food of the White-cheeked Barbet *Megalaima viridis* in a Rural Agro-ecosystem, Western Ghats Region, Kerala, Southern India

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Abstract

The White-cheeked Barbet *Megalaima viridis* is an endemic species common in the forests and villages of Kerala. This study provides details of the population status, food and major threats of the White-cheeked Barbets in Kizhakkoth Panchayath, a rural agro-ecosystem in the Western Ghats region of Kerala. The population of the White-cheeked Barbet was estimated using the line transect method in a paddyfield, a coconut plantation and a sacred grove from December 2010 to November 2011. Food items were determined by direct observations, faecal matter analysis and gut content analysis. The population of the White cheked Barbet was found to be higher in the sacred grove. It is a frugivore and is considered as a minor pest of orchard plants and *Colocasia esculenta*. in the study area.

1. Introduction

The White-cheeked Barbet *Megalaima viridis* belongs to the order Piciformes, family Capitonidae, and subfamily Megalaimatinae. It is an endemic widely spread species common in the forests and villages of Kerala (Sashikumar 2011). Barbets are predominately frugivorous and are major dispersers of seeds of plants and are important in maintaining the health of the ecosystem. A prerequisite for barbet habitats seems to be trees with sufficient dead wood in their branches suitable for excavating cavities for roosting as well as nesting (Shorts & Horne 2002). However, the present study aims to understand the population status, food and major threats of White-cheeked Barbets in the study area.

2. Study Areas and Methods

The selected study area is in Kizhakkoth Panchayath, a rural agricultural village (19.85 sq.

km) in the Kozhikode Taluk of Kozhikode district which belongs to the Malabar Coast moist deciduous forest eco-region. This area is located 20 km (northeast) by road from Kozhikode district headquarters, and 22 km (northwest) from the foot hills of the Wayanad region of Western Ghats, southern India.

Three habitat types were surveyed in this area: paddyfield (11° 24.2' N; 075° 53.6' E), coconut plantation (11° 24.5' N; 075° 54.4' E) and sacred grove (11° 22.1' N; 075° 51.7' E). The population of the White-cheeked Barbet was estimated following the line transect method (Gaston 1973). In the paddyfield and coconut plantation a permanently marked track of one km length and 100 m width was selected. Due to the limited area and poor accessibility a 200 m long × 100 m wide transect was surveyed in the sacred grove. Surveys were conducted between 7.00 to 12.00 hrs and 15.00 to 18.00 hrs. Counts were taken biweekly during the period December 2010 to November 2011.

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Table 1. Seasonal average number (per km²) of the White-cheeked Barbet in three habitats of Kizhakkoth Panchayath during the December 2010 November 2011 period.

Habitat	Transect area size	Pre-summer Mean ± SD	Summer Mean ± SD	SW monsoon Mean ± SD	NE monsoon Mean ± SD	Total Mean ± SD
Paddyfield	1000X100m	43.3±17.5	31.7±11.7	18.3±16.0	56.7±12.1	37.5 ±19.8
Coconut plantation	1000X100m	76.7± 17.5	53.3±8.16	51.7±17.2	73.3± 38.3	63.8± 24.5
Sacred grove	200X100m	183±51.6	108±73.6	41.7±66.5	141.7±37.6	118.8±76.4

Table 2. Food resources of White Cheeked Barbet at Kizhakkoth Panchayath during the December 2010- November 2011 period.

Scientific name	Common name	Regional name	Parts consumed
<i>Anacardium occidentale</i>	Cashewnut	Parangi Mavu	Peduncle
<i>Ananas comosus</i>	Pine apple	Kaitha chakka	Fruit
<i>Annona squamosa</i>	Castard apple	Seethappayam	Fruit
<i>Artocarpus heterophyllus</i>	Jack tree	Plavu	Fruit
<i>Artocarpus hirsutus</i>	Wild jack	Anjili, Aini	Fruit
<i>Carica papaya</i>	Papaya	Papaya	Fruit
<i>Cinnamomum verum</i>	True cinnamon Tree	Karuka	Fruit
<i>Colocasia esculenta</i>	Colocasia	Chembu	Pith
<i>Ficus exasperate</i>	Sandpaper (leaf) tree	Therakam	Fruit
<i>Ficus hispida</i>	Hairy fig	Parakam, Erumanaakku	Fruit
<i>Flacourtia Montana</i>	Mountain sweet thorn	Caralwazham, Loopikka	Fruit
<i>Lucuma nervosa</i>	Egg fruit plant	Muttapazham	Fruit
<i>Macaranga peltata</i>	Chandada	Vatta, Uppoothi	Fruit
<i>Mangifera indica</i>	Mango tree	Mamaram	Fruit
<i>Musa sp.</i>	Banana	Vazha	Fruit
<i>Piper nigrum</i>	Black pepper	Kurumulaku	Fruit
<i>Pisidium guajava</i>	Guava	Pera	Fruit
<i>Syzygium aqueum</i>	Water apple	Chamba	Fruit
<i>Zanthoxylum rhetsa</i>	Indian prickly ash	Mullilam	Fruit
<i>Pythosperma macarthurii</i>	Mac Arthers palm	Ornamental Palm	Fruit

Food items of the White-cheeked Barbet were identified qualitatively by direct observations, faecal matter analysis (Corlett 1998, Girish 2006) and gut content analysis of dead specimens.

3. Results

Among the habitats, the highest abundance of the White-cheeked Barbet was recorded in the sacred grove (118.8±76.4 per km²) and the lowest abundance was in the paddyfield (37.5 ±19.8 per km²). The highest abundance was during the pre-summer season in the sacred grove (183±51.6 per km²) (Table 1).

At least 20 species of plant comprise the diet of the White-cheeked Barbet; a frugivore, it consumes the fruits of exotic and orchard plants (90% of plant species, Table 2). Its diet mainly comprises the fruits of the orchard plants *Carica papaya*, *Ananas comosus*, *Pisidium guajava* and *Syzygium aqueum*.

4. Discussion

The higher abundance of the White-cheeked Barbets in the sacred grove is attributed to the availability of its feeding resources as well as breeding sites and the higher abundance during pre-summer season is due to the mating and courtship activities of this species. The present study revealed that White-cheeked Barbets are minor pests of orchard plants and *Colocasia esculenta*. Eradication of wild plants for extending agricultural land and for soft wood production has been found to decrease the food resources of frugivorous birds in rural agro-ecosystems (Basheer 2010). Eradication of feeding plants like Sandpaper (leaf) tree *Ficus hispida*, Hairy Fig *Ficus exasperata*, Chandada *Macaranga peltata* and Indian Prickly Ash *Xanthoxylum rhetsa* in the study area seems to be the reason for White-cheeked Barbets depending on orchards and cultivated crops for their food. During the north-east monsoon and

pre-summer season barbets feed on the pith of *Colocasia esculenta* and become a nuisance to farmers. Villagers use poison baits, airguns and nets to repel White-cheeked Barbets from their orchards. *Colocasia* farmers use Zinc phosphide (rodenticide) to kill the birds attacking the crop. They paste Zinc phosphide powder after mixing with starch water, on the inner side of the leaf stalk of *Colocasia*. Barbets consumed the poisoned tissues from the stalk and within half an hour they die. Removal of nesting trees like Chandada *Macaranga peltata*, dead Coconut *Cocos nucifera* and Areca Palm *Areca catechu* from agricultural land affects the breeding activities of this species.

References

Basheer M. (2010). Terrestrial avian fauna of Kizhakkoth Panchayath with special reference to

Treepie (*Dendrocitta vagabunda*). PhD theses submitted to University of Calicut, Kerala.

Corlett R.T. (1998). Frugivory and seed dispersal by birds in Hong Kong shrubland. *Forktail*, **13**, 23–27.

Gaston A.J. (1973). Methods for estimating bird populations. *Journal of Bombay natural History Society*, **72(2)**, 271–283.

Girish A.J. (2006). Ecology and behaviour of the Forest Owlet (*Heteroglaux blevitti*). Ph.D. thesis, University of Bombay, Bombay.

Sashikumar C., Praveen J., Palote M.J. & Nameer P.O. (2001). Birds of Kerala Status and distribution, DC Books Publication, Kerala, 835 pp.

Shorts L.L. & Horne J.F.M. (2002). Order Piciformes. Family Capitonidae (Barbets). *In: Handbook of the Birds of the World- Volume 7. Jacamars to Woodpeckers* (eds. del Hoyo J., Elliot A. & Sargatal J.), Lynx Edicions, Barcelona, Spain, pp. 140–219.