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Research Paper

OCCURRENCE AND SIGNIFICANCE OF WOODPECKERS IN SALIM ALI BIRD SANCTUARY, THATTEKKAD, KERALA

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Abstract

The study emphasise on different species of woodpeckers visiting the Salim Ali Bird Sanctuary at Thattekkad, Kerala. Woodpeckers of family Picidae, plays an important role as a keystone species in such a way that they are essential for the maintenance of homeostasis in the forest ecosystem. They also provide many beneficial activities like bio-control agents, shelter providers and food suppliers for other organisms in the prevalent ecosystem. They were regarded as Engineering architects by excavating nests and cavities both on live and dead trees.
Key words: Key stone species, Picidae,Bio-control agents.

INTRODUCTION

Salim Ali Bird sanctuary is the first Bird sanctuary in Kerala and is a haven for nature lovers and bird watchers with a wide variety of flora and fauna. Dr.Salim Ali recognised the species richness of birds and recorded 167 species during his survey in 1933. Recently Dr. Sugatnan has identified 270 species including rare ones like Ceylon Frogmouth, Three toed Forest Kingfisher, Malabar Grey Hornbill etc..The sanctuary lies on the foothills of the Western Ghats and is a part of a large ecological unit comprising Malayattoor, Sholayar, Parambikulam hill ranges on the one side and Munnar, Eravikulam and Chinnar on the other side with diverse vegetation from Evergreen to Scrub forests which enables birds in their seasonal migration.

Salim Ali Bird Sanctuary falls between 10°7' and 11°N latitude and 76°40' and 76°45'E longitude, located in the Kothamangalam Taluk of Ernakulam District in the state of Kerala. The Reserved forests of Kuttampuzha and Neriyamangalam Ranges and the two rivers, Periyar and Edamalayar border the sanctuary. The sanctuary is rich in fairly thick forest undergrowth serving as a habitat for varied fauna including birds. The diversity and richness of avian species in a community shows the diversity and richness of that habitat. Investigations on the bird communities of Western Ghats to plan for biodiversity friendly development are gaining significance (Pramod, 1995). Population studies have been traditionally used to monitor long term changes in

aviancommunities to assess both habitat quality and the responses of birds to both natural and human caused environmental changes (Wiens,1989).

The family Picidae forms a major group which encompasses mainly woodpeckers, piculets, wrynecks etc. Trees, snags and logs are primary substrates providing nesting sites, shelter and food for the majority of woodpeckers (Winkler *et al*.,1995).Woodpeckers are often classified as keystone habitat modifiers, ecosystem architects or tree surgeons because of their creation of cavity sites in hard snags and decadent live trees.

Natural cavities created by weathering and decomposition are usually in short supply compared to woodpecker excavated cavities, which have the added attraction of being designed to provide maximum security and shelter. Moreover, woodpeckers have been used to predict the impact of forest management on wildlife habitats(Marzluff *et al*.,2002).

Through wood excavation activities, including nest construction and foraging, woodpeckers play a role in wood decomposition processes (Farris *et al*.,2004).Woodpeckers also function as dispersal vectors for wood living fungi (Jackson,1994).Each woodpecker species constructs a slightly different style of nesting cavity in terms of the size of the cavity, diameter of the entrance hole and height above the ground. The typical woodpecker nest has a short horizontal tunnel leading to a vertical chamber within the tree trunk with an enlarged nest chamber at the bottom. The size and shape of the chamber depends on the specific species, and the entrance hole is typically only as large as is needed to allow access for the adult birds.

OBJECTIVES

- To study different species of wood peckers
- To evaluate the ecological significance of wood peckers
- To understand their food constituents

STUDY AREA

Area selected for the study constitute the inhabitated area within the Salim Ali Bird Sanctuary ,stretching from the sanctuary to Pooyamkutty region with Kuttampuzha - Pooyamkutty Highway road in between. Slelcted site is further divided into four plots of 2 acres each , cultivated with varied crops. Of these sites, two each lie on either side of the road, on a line extending from thick forest vegetation of the sanctuary upto the river Periyar .

METHODOLOGY

Line transect method was adopted for the study in the selected plots. Observation and sampling was performed fortnightly each month, both in the morning hours(6-8a.m.) and evening hours (4-6p.m.).

RESULTS

Wood peckers come under family Picidae and their most striking feature is the ability to excavate cavities in living and dead trees (Winkler & Christie,2002). It is quite apparent that this avian group plays a significant role in forest environment and communities. Most wood peckers are sedentary birds and are generally considered to be relatively poor dispersers. They occur in all types of forest and woodland, although

absent from treeless landscapes. During my study I observed nine species of wood peckers in the study area at different times (Table-1).

Table-1: Different species of wood peckers observed during the study

Species	Type	Size	Features
Lesser Golden Backed Woodpecker*(Dinobium benghalense)*	R	Myna +29cm	Golden yellow & black above with buffy white streaked with black below.
Indian Golden Backed wood pecker (*Dinopium Javanense*)	R	Myna ±28cm	crimson rump & orange or scarlet mixture on upper back
Rufous wood pecker(*Micropternus brachyurus)*	R	Myna+25cm	Chestnut-rufous crossbarred with black on wings & tail.
Small Yellow naped wood pecker(*Picus chlorolophus)*	R	Myna+27cm	Yellowish green with golden nuchal crest.
Speckledpiculet (*Piccumnus innominatus*)	R	Sparrow+10cm	Petite one with soft rounded black & white tail.
Little scaly bellied green wood pecker (*Picus myrmecophoneus)*	R	Myna+29cm	Grass green above with yellow rump.
Heart spotted wood pecker (*Hemicircus canente)*	R	Sparrow+16cm	Small black & white bird with soft rounded tail. Black crest & white throat.
Great black woodpecker(*Dryocopus javensis)*	R	Crow+48cm	Black bird with white rump and under-parts.
Pigmy woodpecker (*Picoides nanus*)	R	Sparrow+14cm	Small bird with white spots on dark brown above and dusky white with brown steaks under.

(R-Resident type)

Images of some species of woodpeckers

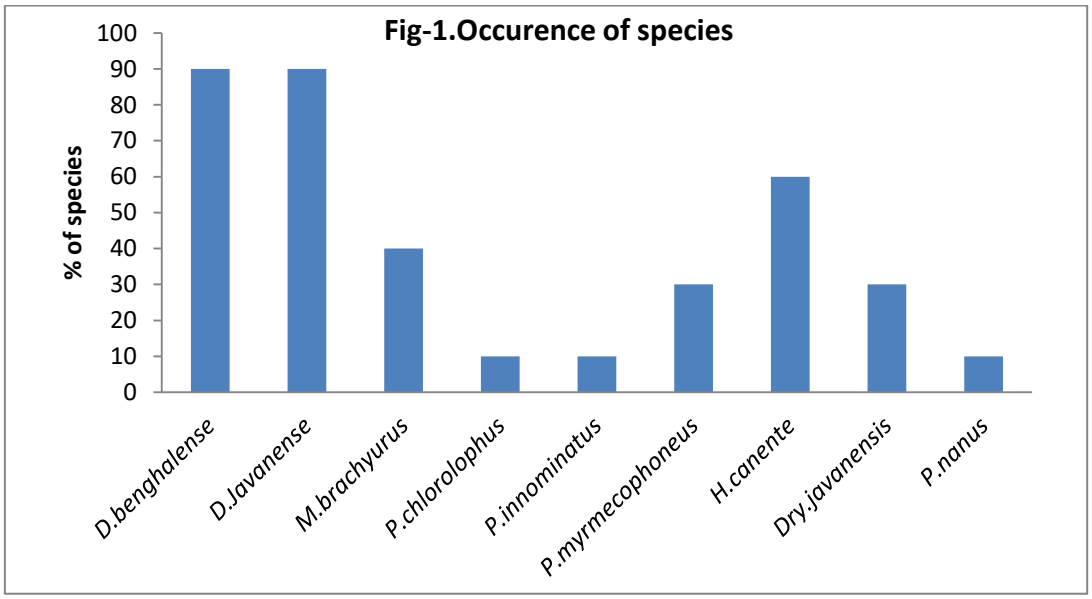
Hemicircus canente

Picumnus innominatus

Dinopium javanense

Dryocopus javensis

Of the nine species of woodpeckers found in the area, only two species were most frequent visitors while the others were less frequent ones and their percentage of occurrence in the study plots were given below in the figure1



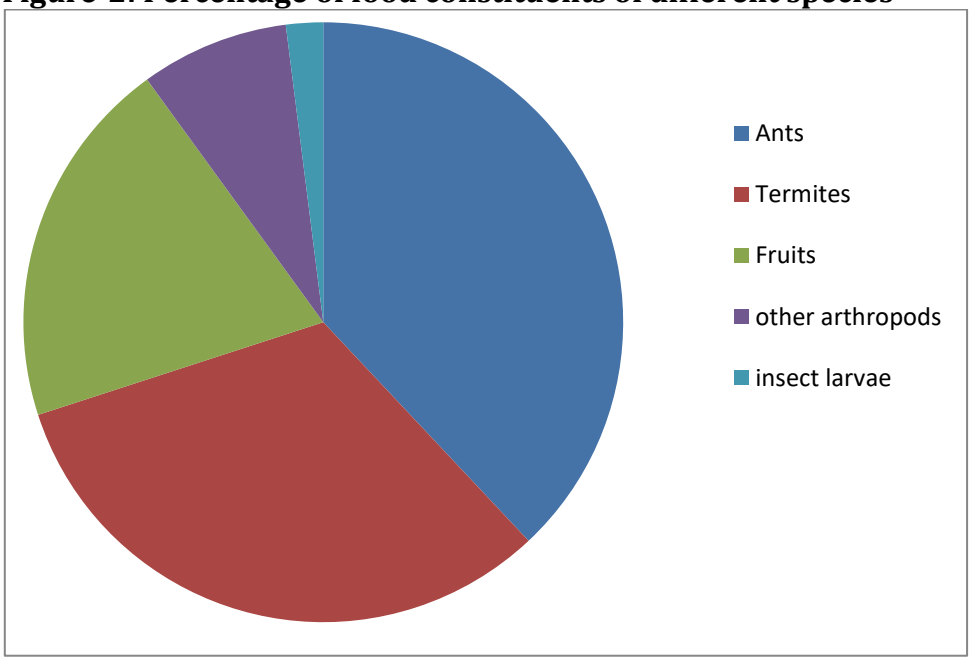
Sexual dimorphism is the most prevalent phenomenon observed in this avian community and the observed data are tabularised and given in Table-2.

Table-2:Distinguishing features of male and female birds of all species

Species	Male	Female
Dinopium benghalense	Crown and Crest crimson	Only Crest crimson
Dinopium javanense	Crown and Crest crimson	Crown and Crest black stippled white
Micropternus brachyurus	Crescent shaped crimson patch below eye	No such patch
Picus chlorolophus	Nape & moustachial streak crimson	Crimson confined to nape
Picumnus innominatus	Orange and brown on the crown	No colouration
Picus myrmecophoneus	Crown and Crest crimson	Crown and Crest black
Hemicircus canente	Crown and Forehead black	Crown and Forehead buffy white
Dryocopus javensis	Forehead, Crown, Crest & Cheeks crimson	Only nape is crimson
Picoides nanus	Scarlet streak on either sides of hind crown	No such streak

Analysis of their feeding behaviour revealed that ants(38%) formed major constituent followed by termites(32%), fruits(20%), other arthropods(8%) and insect larvae(2%), as cited in the Figure-2.

Figure-2: Percentage of food constituents of different species



It is quite relevant from the above data that wood peckers are important biological control agents of bark insects, termites and other arthropods. Mikusinski (2006) found a relatively low proportion of wood pecker species(<30%) that specialised in wood-boring beetles and their larvae. In a global perspective, arthropods clearly dominate diets in Picidae. However woodpecker diets also include vegetable items such as fruits, nuts, berries and sap.

As most woodpeckers excavate new nesting and roosting cavities for themselves every year, they constantly provide new habitat for the secondary cavity users. This on-going resupply of cavities is essential, as existing cavities are regularly lost as old wildlife trees decay and fall, and as nests become unusable due to excess accumulation of nesting material. Nest site selection follows the defining of territorial boundaries and the cementing of pair bonds. Cavity excavation follows the courtship ritual and pair bonding of most woodpeckers, which is why the strong cavity excavators rarely reuse nest holes from previous years or use nest boxes.

Blackburn *et al*.,(1998) conducted a global analysis and found that body mass of woodpeckers was rather weakly correlated with the size of their geographic ranges and found that geographic range sizes decreased with increased woodpecker species richness. Some features of woodpecker distribution pattern and biology make them especially prone to rapid declines due to increase of human population. Woodpeckers may be unable to thrive in managed forests due to the reduction of compositional and structural diversity of large old trees.

CONCLUSIONS

Woodpeckers are eminent engineering architects of the forest by excavating large cavities in both live and dead trees, which will be further used by secondary cavity nesting species. Additional benefits provided by woodpeckers are provision of food sources for other species, control of insect populations and increased nutrient cycling. These benefits make this avian community as a critical keystone species within the forest ecosystem. Therefore, their presence and sustainability is essential for maintaining forest biodiversity successfully. Necessary restrictive measures must be taken to ensure their sustenance as well as properly designed forestry practices may be envisaged to minimise their disappearance from the ecosystem. Intense studies are in need to study different activities of this group like breeding, distribution, threatening factors, significance etc.

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