

**Study Of Population Distribution Of Yellow-Fronted Woodpecker
(*Melanerpes Flavifrons*) In Shinkari Sub Tropical Chir Pine Forest, District
Mansehra KP, Pakistan**

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Abstract

The current study is the first document from Pakistan to assess the population distribution of yellow-fronted woodpecker. The data was collected from five sites on the basis of closure, controlled, settlements, roads, forests on monthly basis during dawn and dusk. Point count method was used for population estimation which shows that population Density of yellow-fronted woodpecker was maximum around closures (CPT- Baz-02, Kowari Genwal, Masar, $0.14 \pm 0.039/\text{ha}$) while minimum in around Controlled Area Baz Khan, Kowari Genwal Masar ($0.11 \pm 0.022/\text{ha}$). There was no population significant difference among monthly population ($p > 0.05$) but difference was between morning and evening ($p < 0.05$)

Key Words:

Yellow-fronted Woodpecker, Chir Pine, Closure, Population Density, Mansehra

Introduction

Woodpeckers Family Picidae characterized in having stiffened tail feathers and a powerful bill, specialized to feed on insects. The fragmented habitats have adverse effects on breeding capacity of many woodpecker species (Virkkala et al., 2006). Woodpecker species are often used to guide Forest management due to their link to overall bird community health (Mikusinski et al. 2001, Drever et al. 2008) . However, forest degradation and loss, caused by over-exploitation, warming, tourism activities, road-building and pine invasion, may threaten the species habitat (Pandit et al. 2012. Authors persobs.)

Woodpecker species have been adversely affected by forest modification in European broadpean broadleaved forests (see Angelstam & Mikusinki 1994, Roberage et al.

2008. Stachura-Skierczynska et al. 2009). Many woodpecker species depend on snags (standing dead trees) for foraging sites (Kisiel 1972, Conner 1980, Manna et al. 1980, Raphael and White 1984, Morrison and With 1987) Until recently (Rosenberg et al. 1988), little attention has been focused on the characteristics of snags associated with high quality foraging. Characteristics of study trees and surrounding habitat varied extensively, providing a range of sites for woodpecker foraging. Sweet gum and oaks were the most frequent species in the plots. One striking feature of Woodpeckers is their ability to excavate cavities in living and dead trees (Winkler & Christie 2002). Due to this "engineering activity", woodpeckers have been proposed as keystone species in several communities with large numbers of secondary cavity nesters (Daily et al. 1993, Jones et al. 1995).

Study Area

The study site is situated between 34°28'N latitude and 73°17'E longitude with an altitudinal gradient from 600-2260 m asl and elevation of 1100-1750m in Shinkiari, Mansehra, Khyber Pakhtunkhwa. The Shikiari Chir Pine (the forest is situated in the east of Mansehra Abbottabad of Khyber Pakhtunkhwa-Pakistan

Method and Material

Population estimation

Field surveys were conducted (2021-2022). The "Point Count Method" was used. Preliminary surveys were conducted to allow covering a wider range of the potential habitats of yellow-fronted woodpecker. In point count method "Vantage points" were selected affixed radius (50 m). Data recording was done by thorough surveys on monthly basis for the whole study period. The measurements were recorded on flushing the bird (Buckland et al., 2008).

Population density of yellow-fronted woodpecker is represented by Formula

$$\text{Density} = \frac{\text{Number of birds}}{\pi r^2}$$

Where r=radius of circle = 50 m².

Total population: No of yellow-fronted woodpecker in all sites x Total area of study site.

Month-Wise Population Estimation

Month-wise population density of yellow-fronted woodpecker was estimated at five sites of the study area. Average month-wise population density of the yellow-fronted woodpecker maximum in around closures (CPT-Baz-02 Kowari Genwal, Masar, ($0.14 \pm 0.039/\text{ha}$) while minimum in around Controlled area Baz Khan, Kowari Genwal, Masar ($0.11 \pm 0.022/\text{ha}$).

Table 1. Total month-wise Population density of yellow-fronted woodpeckers:

Study sites	Area in ha	Population density/ha	Total population	P-value
Road sides, settlements	1376	0.13 ± 0.035	47	
Nearby burned Forest	1422	0.13 ± 0.029	51	
Around Controlled Area Baz Khan, Kowar, Genwal Masar	1613	0.11 ± 0.022	61	
Highly dense vegetation, unburned Forest	1706	0.11 ± 0.033	57	
Around closures (CPT Baz-02) Kowari, Genwal Masar	825	0.14 ± 0.039	31	
Total	1388.40 ± 342.78	0.12 ± 0.031	247	($p > 0.05$)

Table 2. Average Population Density of yellow-fronted woodpeckers at morning and evening.

Study sites	Area in ha	Day Time	Population Density/ha	Total population	P (T<=t) one-tail	P (T<=t) two-tail
Road sides, settlements	1376	Morningtime	0.038±0.0039	52		
		Eveningtime	0.032±0.0019	44		
Nearby burned Forest	1422	Morningtime	0.031±0.0032	44		
		Eveningtime	0.028±0.0032	40		
Around Controlled Area Baz Khan, Kowari Genwal Masar	1613	Morningtime	0.037±0.0042	60		
		Eveningtime	0.036±0.0025	58		
Highly dense vegetation, unburned forest	1706	Morningtime	0.042±0.0047	72		
		Eveningtime	0.033±0.0054	56		
Around closures (CPT Baz-02) Kowari Genwal, Masar	825	Morningtime	0.037±0.0038	31		
		Eveningtime	0.035±0.0026	29		
Total Mean±S.D	6942			486		
	1388.40±342.78	Morningtime		51.80±15.56		
		Eveningtime		45.40±11.95		

Yellow-Fronted Woodpecker Observed Pricking At Chir Pine Tree Stem



Result and discussion

Density of yellow-fronted woodpecker was maximum around closures (CPT- Baz-02, Kowari Genwal, Masar, $(0.14 \pm 0.039/\text{ha})$ because closures exclude from human and livestock interferences. Thus, it has improved the density of yellow-fronted woodpecker. Total morning and evening Population density of yellow-fronted woodpeckers. At site i.e, Road sides, settlements (0.038 ± 0.0039) (0.032 ± 0.0019) , nearby burned Forest, (0.031 ± 0.0032) , (0.028 ± 0.0032) around Controlled Area Baz Khan, Kowar, Genwal Masar, (0.037 ± 0.0042) , (0.036 ± 0.0025) Highly dense vegetation unburned Forest (0.042 ± 0.0047) , (0.033 ± 0.0054) , around closures (CPT Baz-02) Kowar, Genwal Masar (0.037 ± 0.0038) , (0.035 ± 0.0026) Total month-wise Population density of yellow-fronted woodpeckers Road sides, settlements (0.13 ± 0.035) , nearby burned Forest (0.13 ± 0.029) , around Controlled Area Baz Khan, Kowari Genwal, Masar (0.11 ± 0.022) Highly dense vegetation, unburned Forest (0.11 ± 0.033) , around closures CPT Baz-02) Kowari Genwal, Masar (0.14 ± 0.039) .

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