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ROOSTING SITES AND ABUNDANCE OF VILLAGE WEAVER BIRDS *(Ploceus cucullatus, cucullatus)* IN ABEOKUTA AND ENVIRONS

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ABSTRACT

The roosting sites and abundance of village weaver birds were assessed through on-site observation and data collection at four study sites in Abeokuta North and South Local Government Areas of Ogun State namely Ibara, Lafenwa, Iberekodo and Adatan axes. Mean heights ± S.E. of trees on which nests were built ranged from 4.8 ± 0.2 metres to 17.6 ± 0.7 metres. Fourteen tree species were used for roosting. They include Elaeis guineensis, Cocos nucifera, Gmelina arborea, Ficus exasperata and Casuarina equisetifolia. Number of nests per tree species at the various study locations varied from 12 to 101. About five juveniles, 1,002 adult males and 521 adult females of breeding village weaver birds were enumerated in all the study sites. Several species of tree and crops were damaged by the birds (via roosting, nesting and feeding habits). The significance of the result for biodiversity conservation and crop production is discussed.

INTRODUCTION

The distinctive and attractive colouration as well as voices of birds appeal to human eyes and ears respectively. Some of them are hunted as games which together with the domesticated species contribute to man's supply of animal protein.

The village weaver bird, *Ploceus cucullatus*, is of both aesthetic and economic importance to man. For example, their beautiful bright colouration, shrill chattering "songs" and 90% presence in human habitation attract tourists and members of the public to them. They are killed and eaten by man as a source of animal protein. Their roosting and gregarious feeding habits on several species of food and tree crops valued by man makes the village weaver birds to be of special socio-economic interest to many interest groups - farmers, environmentalists, conser-vationist and wildlife biologists/managers.

Consequently, this study was undertaken to assess the roosting sites and abundance of the village weaver birds in the study sites in order to identify the plant species used for nesting, any damage caused and to proffer appropriate control measures. A successful control of their pest activities may enhance food production and conservation of the food and tree crops defoliated by nests proliferation.

MATERIALS AND METHODS

The Study Area

This study was carried out between August and November, 1997 at four locations: Ibara and Lafenwa in Abeokuta North and Iberekodo and Adatan in Abeokuta South Local Government Area in Ogun State. Annual rainfall in the area is between 1,016 mm and 1,542 mm and is bi-modal, the first peak occuring between July and August and the second between late September and October (Agboola, 1979) The tree spcies available in the area include *Elaeis guineensis, Cocos nucifera, Gmelina arborea, Ficus exasperata, Tectona grandis, Psidium guajava* and *Cassuarina equisetifolia.* Others are *Ficus thonningi, Albizia zygia, Mangifera indica, Bambusa vulgaris Citrus* species *and Eucalyptus spp.* Several grass species are also available.

Methodology

Road survey that would result in visiting most of the villages within the study area was undertaken since village weaver bird colonies are usually associated with human settlement. During the survey, colonies in the study area were located and the places noted.

At each study location, the number of weaver birds and of nests (completed and uncompleted) on all the trees in each colony and the total colonies in each village were counted using naked eye and a binocular (10 x 40 magnification). Counts were conducted twice per observation day (between 6.00 and 10.00 am, 4.00 and 6.00 pm.) when weaver birds are very active and more accurately enumerated (Funmilayo, 1975). Completed nests in each colony were examined for the presence of eggs and nestlings (adults and juveniles) where possible. Juveniles are featherless or with rudimentary "feathers" while adults have feathers.

During field survey, the leaves, stems and where possible flowers and fruits of trees in which the birds were nesting were collected and used for identification with the assistance of staff in the Forestry and Wildlife Management Department, University of Agriculture, Abeokuta. The materials used in nest construction were collected and identified. All the tree species encountered were assessed and used in determining absolute and relative abundance of tree species in the study locations.

The height of trees shorter than 4m was measured with the aid of a graduated pole, while the height of taller trees were estimated with Hagar altimeter. The procedure involved taking an appropriate position on ground at a distance equal to or greater than the tree height. Readings in the altimeter are taken to the top and bottom of the tree. The tree height is obtained by multiplying the algebraic sum of the readings by the ground distance of observer from the tree and dividing by the scale factor as shown below (Osemeobo, 1989).

Total height of Tree = [(Algebraic sum) * (ground distance of readings)] / Scale factor

RESULTS

Table 1 shows the tree species used as roosting sites. Fourteen tree species, mainly fruit trees, were used by village weaver birds for nesting/roosting. Most of the village weaver

birds assessed in Abeokuta built their nests on oil palm tree (*Elaeis guineansis* and gmelina (*Gmelina arborea*), followed by *Ficus exasperata*. Apart from oil palm trees with mean height (± S.E.) 17.6 ± 0.7 metres, the mean height (± S.E.) of other tree species used by the village weaver birds for nesting ranged from 4.7 ± 0.5 metres (*Psidium guajava*) to 11.3 ± 1.5 metres for *Cassuarina equisetifolia* in all sites (Table 2).

In all the trees sampled, only five juveniles were seen in the nests at Ibara while a total of 1,002 males and 521 females of adult birds were counted for some of the tree species in all the study sites (Table 3). They were found roosting mostly in *Gmelina arborea*, *Ficus exasperata*, *Elaeis guineensis* (Table 3). However, the materials used in constructing nests were leaves obtained from oil palm (*Elaeis guineensis*) and coconut palm (Cocos nucifera) trees, maize (zea mays), Eucalyptus (*Eucalyptus citriodora)* and elephant grass (*Pennisetum purpureum)*.

DISCUSSION

The village weaver birds were found in all the study sites and the number of males almost doubled the females irrespective of the site. This "unusual" ratio may be due to the fact that only males do construct nests. The presence of negligible number of juveniles and eggs in all the nests investigated cannot be accurately explained. It may be because most of the nests were at various stages of construction during this study. Usually, actual breeding commences after the female accepts the next constructed by the male. This is inferred when she adds the entire lining of fine grass tops and feathers to the completed external shell built by the male (Collias and Collias, 1960). No feather was seen in any of the nests sampled, probably indicating their rejection by the females. In such a case, the male tears down the nest and rebuilds another as a replacemnet.

The implication of nests proliferation is the extensive defoliation of the nesting-tree which results in reduced photosynthesis, stunted growth performance and production of abortive fruits as observed in banana tree by Adegoke (1979). If prolonged defoliation occurs for two or more consecutive breeding seasons, such trees may die completely (Inah, 1991; Inah and Amubode, 1994). Although weaver birds enjoy protection from the local populace because of the positive values they are associated with (Funmilayo, 1975), the damage caused by these birds may represent a significant loss to the peasant farmers who can only afford to cultivate small accreage of farmland annually.

CONCLUSION

The village weaver bird *(Ploceus cucullatus)*is colonial in its roosting, nesting and feeding habits. About 1,002 adult males, 501 adult females and 5 juveniles of the birds were enumerated in all the four study sites where they constructed nests mostly on (*Gmelina arborea, Elaeis guineansis* and *Ficus exasperata*. Damage to the tree crops and other vegetation may arise from the roosting, nesting and feeding behaviour of the birds resulting in defoliation, reduced or

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Table 1: Plant species used by Weaver Birds for nesting In Abeokuta, Nigeria

PLANT SPECIES	STUDY LOCALITY				Mean ± S.E.
	Ibara	Lafenwa	Iberekodo	Adatan	
Elaeis guineensis	7	9	11	6	8.7 ± 1.3
Cocos-nucifera	1	1	4	3	2.3 ± 0.7
Gmelina arborea	4	2	6	7	4.8 ± 1.1
Ficus exasperata	6	1	5	4	4.0 ± 1.1
Ficus thoaningi	1	0	0	0	0.3 ± 0.2
Tectona grandis	0	1	1	2	1.5 ± 0.6
Cassia spp	4	3	1	3	2.8 ± 0.0
Albizia aygia	1	0	0	0	0.3 ± 0.2
Mangifera indica	4	0	2	3	2.3 ± 0.9
Psidium guajava	2	0	0	1	0.8 ± 0.5
Azadirachta indica	2	2	2	5	2.5 ± 0.9
Casuarina equisetifolia	0	0	0	3	0.8 ± 0.6
Bambus vulgaris	0	2	1	4	1.8 ± 0.9
Citrus sp.	1	0	0	2	0.8 ± 0.5
Mean (x) ± S.E.	2.4±0.6	1.3±0.6	2.5±0.6	2.6±0.5	
Range	0 – 7	0 - 9	0 - 11	0 - 7	

abortive fruit production and sometimes death of the tree species. The damage caused can be controlled by physically attacking the birds and destroying the eggs and fledglings.

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Table 2: Total Number of Village Weaver Birds on some plant species in the study sites.

PLANT SPECIES	STUDY SITES									
	Ibara		Lafenwa		Iberekodo		Adatan		TOTAL	
	M	F	M	F	M	F	M	F	M	F
Palm Tree *Elaeis guineensis*	40	14	30	21	18	10	29	12	117	57
Conut Tree *Cocos nucifera*	17	6	-	-	10	4	-	-	27	10
Gmelina Tree *Gmelina arborea*	240	157	101	53	70	32	85	26	496	268
Apin (Yoruba) *Ficus exasperata*	150	49	98	70	-	-	64	39	312	158
Teak Tree *Tectona grandis*	50	28	-	-	-	-	-	-	50	28
TOTAL	497	254	229	144	98	46	178	77	1002	521

Key: M = Male
F = Female
- = Not seen

Total M = 1002
F = 521
= 1523 Weaverbirds.

Table 3: Mean Tree Height And Nest Distribution In The Abeokuta Area

Height of Trees (m)	Mean no. of Nest per tree at Study Axes				
	Mean*(Range) X ± S.E	Ibara × ± S.E (Range)	Lafenwa × ± S.E(Range)	Iberekodo × ± S.E (Range)	Adatan × ± S.E(Range)
Oil Palm Tree	17.6 ± 07(14.5 – 21)	18.1 ± 0.5(15 – 19)	20.3 ± 1.8(12 – 25)	17.3 ± 1.0(14 – 21)	18.5 ± 1.3(15 – 21)
Coconut Tree	7.1 ±0. 73(4 – 11)	12.0 0	16.0	14.8 ± 1.8(12 – 20)	19.0 ± 0.6(18 – 20)
Gmelina	7.8 ± 0.4(6 – 10)	51.5 ± 12.7(29 – 83)	58 ± 12.4(48 – 78)	55.0 ± 4.9(37 – 70)	64.0 ± 7.1(40 – 93)
Ficus exasperata	7.4 ± 0.5(5.5 – 10)	60.8 ± 7.1(45 – 89)	38.0 -	37.8 ± 2.0(30 – 40)	75.8 ± 11.2(48 – 101)
Ficus thoningii	6.0 -	44.0 -	-	- -	- -
Tectona grandis	8.0 ± 0.7(5 – 11)	-	38.0	36.3 ± 2.7(32 –41)	37.5 ± 1.7(35 –40)
Cassia sp.	8.9 ± 0.3(8.5 –10.5)	51.8 ± 10.4(35 –80)	38.3 ± 4.1(31 –45)	31.0 -	43.3 ± 1.2(41 –44)
Albizia zygia	6.5	15.0	-		- -
Mango	5.5 ± 0.3(4.5 – 6.5)	27.3 ± 5.2(16 –40)	- -	36.5 ± 1.5(35 – 38)	37.3 ± 2.2(33 – 40)
Guava	4.7 ± 0.5(4 -5.5)		18.5 ± 3.5(15 - 22)		- - -
-	19.0				
Neem	7.8 ± 0.6(5.5)	50.5 ± 4.6(46 – 55)	43.0 ± 8.1(35 –51)	39.5 ± 0.5 (39 –38)	56.6 ± 3.3(45 –65)
Casuarina	11.3 ± 1.5 (9 –14)	- -	- -	- -	16.7 ± 1.2(15 – 19)
Bamboo	8.1 ± 0.8(5.5 –12)	- -	45.0± 4.0(41 –49)	44.0 -	59.0 ± 14.6(36 –101)
Citrus	4.8 ± 0.2(4.5 – 4.8)	13.0 -	- -	- -	17.0± 1.0(16 –18)

* The number of trees (n) counted per location is given in Table 1 , X = Mean