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## Notes on the nest-building behaviour of the Buffalo Weaver *Bubalornis albirostris* in Senegal

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### Summary

Nest-building of Buffalo Weavers *Bubalornis albirostris* was examined at a colony of six nests in Senegal during the early nesting stage. The number of sticks added by males with three females at their nest was significantly greater than for males with two females. Males with three females stole significantly more sticks from the nests of males with two females than the reverse. Females appeared to attempt to drive off would-be robbers. The number gained by stealing was about 4% of the sticks added to the nests with three females.

### Résumé

La construction du nid chez l'Alecto à bec blanc *Bubalornis albirostris* a été observée dans une colonie de six nids au Sénégal aux premiers stades de la nidification. Le nombre de brindilles ajoutées au nid par les mâles avec trois femelles était significativement plus élevé que celui des mâles avec deux femelles. Les mâles avec trois femelles dérobaient significativement plus brindilles aux nids des mâles avec deux femelles que l'inverse. Les femelles paraissaient essayer de repousser les pilleurs potentiels. Le nombre de brindilles obtenues par vol atteignait environ 4% du total apporté aux nids avec trois femelles.

### Introduction

The colonial and polygynous Buffalo Weaver *Bubalornis albirostris* builds bulky nests in thorn trees, especially *Acacia* spp. Nesting sites are used year after year, possibly by the same males (Moreau & Moreau 1939, Friedmann 1949, Crook 1958). Males construct most of the nest using twigs from thorn trees. Nests may include up to six individual nest chambers. Females provide the nest lining. Crook (1958) gives a

detailed description of the nest structure. Males defend their nests and spend a large amount of time adding nesting material, which is obtained in the immediate area of the nest tree (Crook 1958) and by robbing from other nests (Collias & Collias 1964). Larger nests can presumably contain more nesting chambers and therefore females, justifying the male's expenditure. In this paper, I report observations on the rate of nest building using new material and the stealing of nesting material from nearby nests by males. The questions addressed were: 1) do males with larger nests build them at a faster rate; 2) do males with larger nests have better success at stealing sticks from smaller nests?

### Study Area and Methods

I studied a small colony of six Buffalo Weaver nests located in a small (*c.* 5 m) *Acacia* in the grounds of the Institut Sénégalais de Recherches Agricoles at Kaolack, Senegal, from 11 to 14 November 1987. Three larger nests had three females each and three smaller nests had two. The colony was considered to be in the pre-laying stage of the breeding season as females were bringing green leaves to the nests and males were very active in nest-building. This determination of the nesting stage was based on Crook (1958) for birds nesting in northern Senegal near Richard-Toll.

From a vantage point about 10 m from the nesting tree, I watched nest building using 10x40 binoculars. Observations, which were tape-recorded, began at 9.00 and ended by 13.00 on all but 12 November when observations began at 11.00. Detailed notes were kept on nest materials brought to the colony by males and females and to which nest they were added. The birds were not individually marked so I could not be certain that males always brought sticks to the same nest. I assume that they did.

### Results

Stick stealing occurred frequently and followed a standard pattern. A male would leave its nest and hop or fly to another. Once there, if not driven off, it would take a stick (or attempt to) from the nest. It would immediately return to its nest and insert the stolen stick into its nest. Stealing attempts were met with loud and raucous calling by all birds in the tree. Females were not observed to steal nesting material, but they did attempt to drive off robbing males and other females (usually successfully). Females brought fine grasses or green leaves to their nest (32 instances noted).

Three-female nests gained 199 new sticks, compared with 135 for two-female nests (Table 1). Males from three-female nests stole more sticks (27 vs 22) and suffered fewer losses (18 vs 31) than two-female nests (Table 1) but the difference was not significant ( $\chi^2_1$ ,  $P > 0.05$ ). The net gain for three-female nests was greater (208 sticks) than for two-female nests (126 sticks) ( $\chi^2_1 = 20.13$ ,  $P < 0.001$ ). Therefore, males with larger nests were enlarging them about 1.7 times as fast as males with smaller nests. Males with three-female nests also did a greater amount of rearranging of sticks already present on the surface of the nest (Table 1,  $\chi^2_1 = 16.3$ ,  $P < 0.005$ ).

Table 1. Sticks added, stolen or moved on nests of Buffalo Weavers during nest building.

Nest no.	No. of females	New sticks	Stolen sticks		Net <sup>1</sup>	Sticks moved
			Gained	Lost		
2	2	36	7	18	25	1
4	2	49	12	3	58	2
6	2	50	3	10	43	7
Two-female totals		135	22	31	126	10
1	3	68	10	5	73	21
3	3	49	8	6	51	6
5	3	82	9	7	84	11
Three-female totals		199	27	18	208	38

<sup>1</sup> net = new + gain - loss

What role does stealing play in the difference in rates of construction of the two nest types? Males from three-female nests stole only three sticks from other three-female nests, but 24 from two-female nests whereas males from two-female nests stole seven sticks from other two-female nests and 15 sticks from three-female nests. The hypothesis that stealing was independent of nest type was rejected ( $\chi^2_1 = 16.99$ ,  $P < 0.001$ ). Still, males with three-female nests gained only nine sticks from stealing, after subtracting losses due to stealing, i.e. 4% of all sticks added to the nest (Table 1).

Table 2. Number of sticks stolen and the nest robbed by male Buffalo Weavers.

Male	Nest robbed						Gain
	1	2	3	4	5	6	
1	-	7	1	1	0	1	10
2	2	-	3	0	0	2	7
3	0	5	-	1	1	1	8
4	2	4	1	-	4	1	12
5	1	2	0	1	-	5	9
6	0	0	1	0	2	-	3
Loss	5	18	6	3	7	10	

While categorizing nests as either two- or three-female nests is instructive in examining rates of nest building, it is clear from Table 1 that other factors need to be

considered. For example, the two-female nest 4 accumulated 49 new sticks, 12 through stealing, with only three lost to thieves. This is a better performance than the three-female nest 3. Stick stealing was frequently directed at the adjacent nest, but two nests were robbed more often than any others. Males from all other nests were observed stealing from nests 2 and 6, which were opposite each other in the tree (Table 2). Both nests had two females. However, nest 4, which also had two females, had the fewest sticks stolen of any nest. Female aggression may be a factor in reducing the levels of robbing, but I do not have enough data to verify this.

### Discussion

The above observations suggest that males might increase their reproductive output by rapid nest building and robbing other nests, because larger nests can probably contain more nesting chambers and therefore house more females. Stealing sticks from nests could prevent other males from building their nests as fast, allowing robbing males to build a larger nest and perhaps secure more of the available females. However, if females also aid nest building by driving off would-be robbers, then nests with more females would have an additional advantage. While male-male competition may be the primary factor in determining nest size, female choice of nest site and perhaps size of nest, and subsequent guarding of the nest may also enhance male reproductive success.

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### References

- COLLIAS, N.E. & COLLIAS, E.C. (1964) Evolution of nest-building in the weaverbirds (Ploceidae). *Univ. Calif. Publ. Zool.* 73. University of California Press, Berkeley.
- CROOK, J.H. (1958) Etude sur le comportement social de *Bubalornis a. albirostris* (Vieillot). *Alauda* 26: 161-195.
- FRIEDMANN, H. (1950) The breeding habits of the weaverbirds. A study in the biology of behavior patterns. *Smithsonian Report*, 1949, pp. 293-316. Smithsonian Institution, Washington D.C.
- MOREAU, R.E. & MOREAU, W.M. (1939) Observations on some East African birds. *Ibis* (14)3: 296-323.