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Walkinshaw, L.H. (1966) The West African Crowned Crane on the Jos Plateau, Northern Nigeria. Bull. Niger. Orn. Soc. 3 (9) : 6-10.

AN EXPERIMENT ON OPTIMUM MIST-NETTING HEIGHT

P.J.E.Woods

Introduction

During the northerly (spring) migration of 1966, a 27-day experiment was conducted at Dogon Dutse, Jos, Nigeria to discover what is the optimum height above the ground that mist-nets should be set for maximum capture of passerine Palaearctic migrants. Unfortunately, the whole migration period was not covered by the experiment, but the findings were felt to be of sufficient interest to warrant publication.

Equipment and Location

Initially, only one 20 ft. x 6 ft. (4 shelf) net was erected, with its centre line at a conventional level, approximately 5 ft. above the ground, against a 'background' of low Lantana bushes. Above and behind these were Frangipani trees, and still higher Grevillea and Cassia trees. These provided a foliage bank from ground to about 50 ft., covering possible feeding movement levels of most species of migrants. During the previous year the site had been found to be the best in the immediate area.

It was soon apparent that large numbers of migrants were flying above the net, and on one particular evening at least six birds (Garden Warblers Sylvia borin, Wood Warblers Phylloscopus sibilatrix, and Icterine/Melodious Warblers Hippolais icterina/polyglotta) were seen rising from the 'background' to catch high-flying termites. It was patently not possible to cover the whole 50 ft. with nets, but the resulting sense of frustration led the author to devise a system of poles and pulleys which, with two 20 ft. x 6 ft. nets set one above the other*, gave a total net height of about 15 ft. (Figs. 1 and 2).

The nets were, if possible, left open all day, and tended to be in sunshine from about 1100 to 1600 hrs. This did not seem to make them more visible and if anything it was found that the majority of birds

*The author will gladly give details of this system to any-one interested.

were captured during this period. The vegetation in the immediate area was dense in places but mostly fairly open (Fig. 3). The Ochna trees were about 30 ft. tall, and carried berries not unlike the black Lantana fruit, when ripe, of which Garden Warblers were particularly fond. They could be seen fairly easily when feeding, and owing to the height of the trees did not fly away immediately when disturbed. On occasions attempts were made to drive birds into the nets, but without success as far as could be seen.

Recording and Assessment

In addition to the normal ringing records (date, ring-number, identification &c.), the shelf number was recorded for each capture. Local birds were recorded as well as Palaearctic ones, for comparison; a large number of different African species were captured.

At the end of the 27-day period, the totals for each shelf were plotted irrespective of species, but keeping Palaearctic and African bird totals separate (Fig. 4).

Results

It was found that the optimum level for local birds was in shelf 5 and for Palaearctic migrants shelf 6. Thus for netting migrants of these species a single 20 ft. x 6 ft. net should be set with its centre line about 10 ft. above the ground for best results, and given these 'background' conditions. The latter are felt to be fairly representative of those to be encountered by ringers elsewhere in the country.

It is hoped to conduct a similar study during the Autumn migration, for comparison.

Species ringed during the Experiment

Garden Warbler <u>Sylvia borin</u>	69	(7)
Icterine Warbler	4	(5)
Wood Warbler	2	
Opaque Tree Warbler <u>Hippolais pallida opaca</u>	1	
European Golden Oriole <u>Oriolus oriolus</u>	1	
(Spotted Flycatcher <u>Muscicapa striata</u>)		(1)
(Pied Flycatcher <u>Ficedula hypoleuca</u>)		(2)
(Redstart <u>Phoenicurus phoenicurus</u>)		(2)

(Species and figures in parenthesis : captured in the single net before the beginning of the experiment.)

Discussion

It is obvious that a large number of external factors, which cannot easily be assessed, may affect this kind of experiment. Nevertheless, the results indicate that an optimum level exists

*One Garden Warbler ringed at Dogon Dutse on 12th May, 1966 was recovered in Latina Province, Italy on 20th September, 1966.

Grevillea
and Cassia

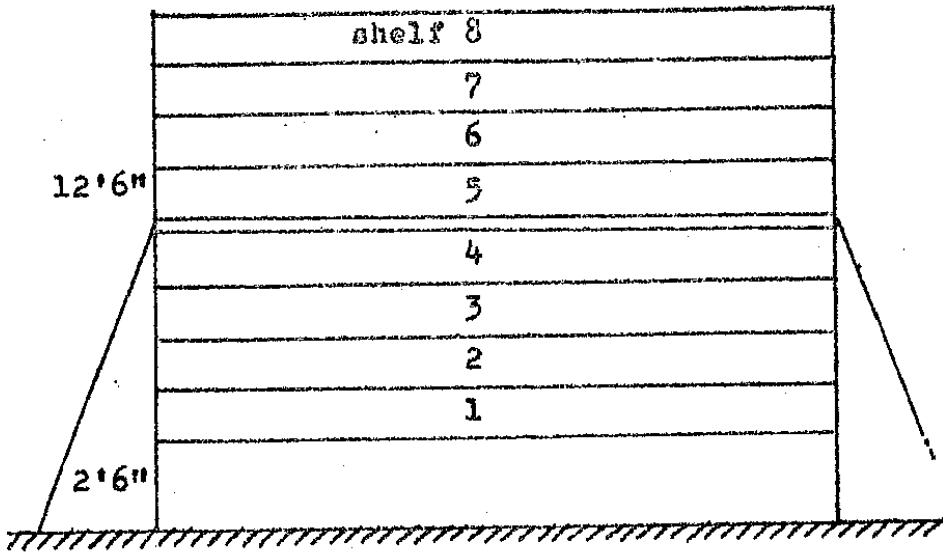


Fig. 1

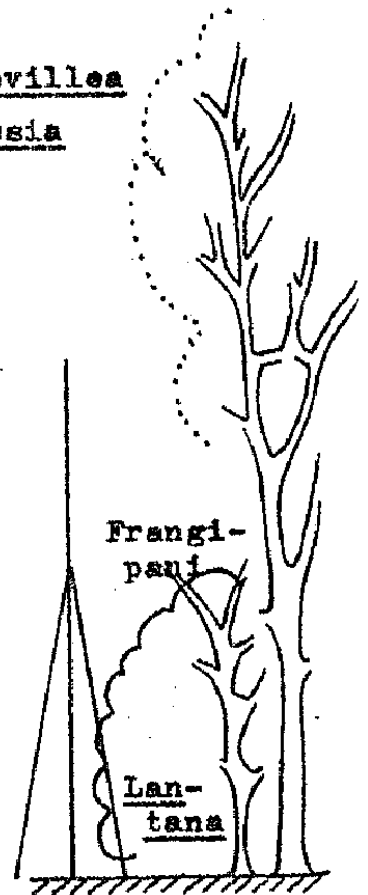


Fig. 2

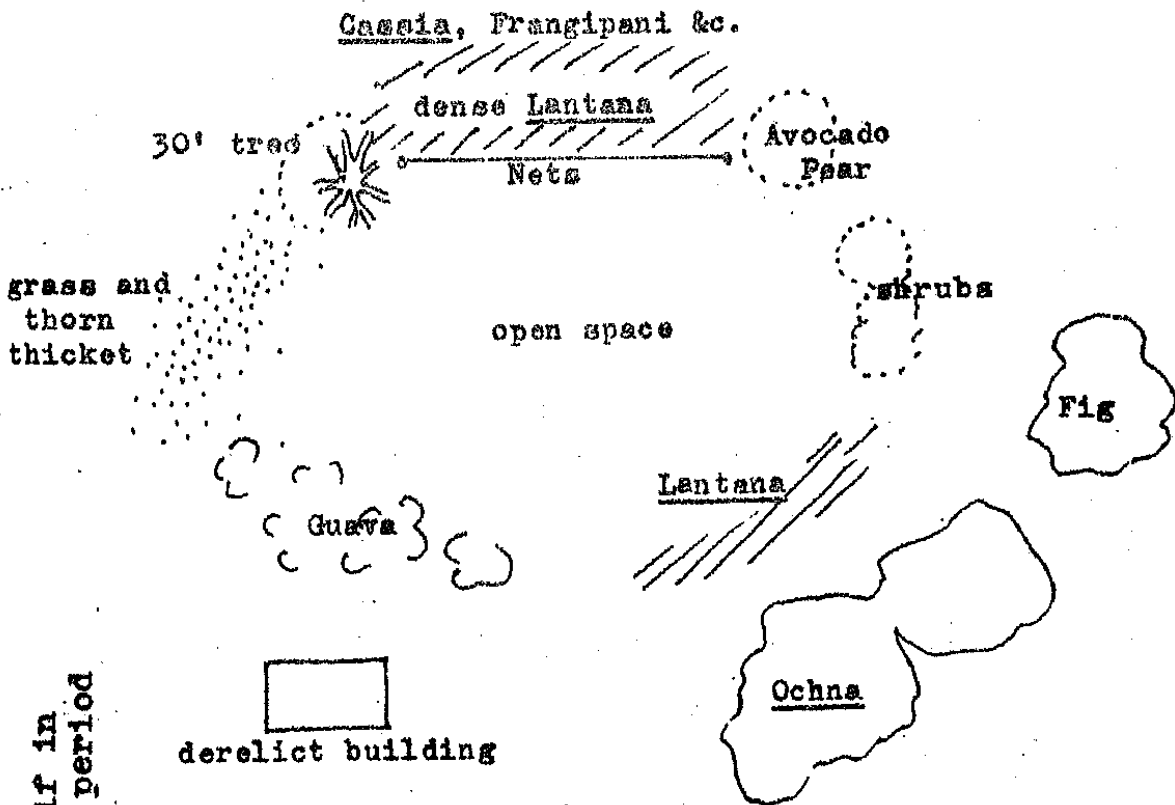


Fig. 3

Total number of birds per shelf in 27-day period

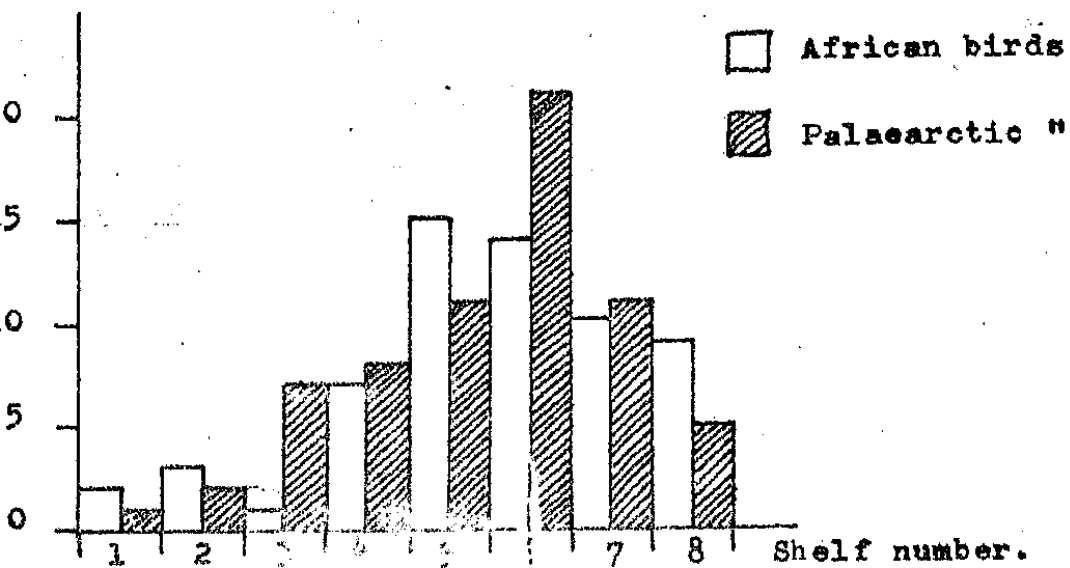


Fig. 4

in most mist-netting locations. It is particularly noteworthy that the greatest number of birds were not captured in the top two shelves of the net.

In this case, 90% of the migrants captured were Garden Warblers which were observed to be feeding in nearby trees about 30 ft. high, and were probably caught when attempting to reach the dense cover of the 'background'. Far more Wood and Willow Warblers Phylloscopus trochilus than were netted were observed in the upper 25 ft. of the 'background', so the optimum level for these species may well be higher than the 15 ft. of the nets. The criticism that this experiment only proves an optimum level for Garden Warblers may be countered by the figures for the local African birds caught. The maximum catch for the locals occurs in shelf 5, whereas that for the Palaearctic migrants is in shelf 6, showing perhaps that migrants generally fly higher in unfamiliar terrain, though a single European Golden Oriole was caught in shelf 3.

Whatever the optimum level, the final net height will be limited by the necessity for simplicity of apparatus and ease of removal of captured birds. These findings may provide some useful pointers to ringers setting up mist-nets in similar locations.

Acknowledgements

The experiment was conducted in the garden belonging to Dr and Mrs W.D.Reyburn. The much-appreciated assistance given to the writer by Mrs Reyburn and her family was essential to the success of the experiment.

Postscript

Only 23 birds were ringed during the Autumn migration with the nets in the same positions. However the total for each shelf compared well with those for the Spring :

<u>Shelf</u>	<u>Total Palaearctic birds per shelf</u>	<u>Species breakdown</u>	
1	3		
2	2		
3	2	Garden Warbler	15
4	1	Pied/Collared Flycatcher	4
5	6	Spotted Flycatcher	1
6	7	Nightingale <u>L.megarhynchos</u>	2
7	1	Melodious Warbler	1
8	1		