

A PRELIMINARY STUDY OF THE ECOLOGY OF BIRDS IN
RIVERINE ACACIA WOODLAND

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SUMMARY

A one year study of the avifauna of Acacia woodland was carried out at the Hippo Pools, in Kenya's Nairobi National Park. In common with most tropical habitats, the study area supported a large and varied bird community.

Daily records of all species present, and the numbers of each were kept in an attempt to demonstrate changes in the community structure. Regular observations were made on the climatic conditions and the state of the vegetation. During the year there were two wet and two dry periods, and many of the changes in the bird community could be correlated with attendant environmental fluctuations.

The habits of each species were noted whenever possible, with special emphasis on food and feeding methods, the level of vegetation used, and breeding. It was hoped that this data would indicate how the ecology of resident species differed.

During the year, 169 species were recorded in the area, more being seen in wet than dry months. It is thought that rain causes an increase in insect numbers, and this results in a large number of birds using the area. In May the rain was unusually heavy, causing flooding, and there is some evidence that this rendered the habitat unsuitable for many species, as there was a marked decrease in the sighting frequency of many species. In particular the floods seem to have affected insectivorous birds, and they also had a detrimental effect on breeding.

Less than one third of recorded species were

thought to be resident for a large part of the year, whereas almost half of the 169 species were seen on less than 10% of all visits to the area. The area thus appeared to support a small number of residents, and a large number of visitors, many of which used the area infrequently. Very few Palearctic migrants were seen, and only two took up residence in the area, the rest being transient.

Analysis of feeding habits indicated that the number of species using each feeding level, and each major food type remained fairly constant, although the actual species involved changed. The greatest fluctuation was in the number of species eating insects, which was greatest in wet periods when insects were thought to be plentiful.

The number of individual birds using the area underwent considerable fluctuations, which were mainly caused by changes in the numbers of seven frugivorous species which congregated when fruit was abundant and dispersed at other times. The number of individuals of the remaining 162 species fluctuated to a lesser extent, being greatest in the two wet periods. The effect of various food plants on the birds is described and discussed.

Most of the breeding in the area took place in the long rains of April and May. Some breeding occurred in the November short rains, and a few species showed breeding activity in the dry periods. The cause of this timing is discussed, and all breeding records are described. Brood parasites were most common in the area during the peak breeding periods but there was no record of their breeding. This may be because there were very few breeding records

for the area.

There was little evidence of predation by birds or other animals, and predatory birds were rarely recorded in the area. Scavengers were also scarce, with the exception of the Marabou Stork (Leptoptilos crumeniferus). This species did not feed in the study area but up to 300 birds regularly roosted on the tree tops. They deposited a large quantity of rubbish and excreta, and this may have had an effect on the vegetation, and on the productivity of the river.

Each family represented in the study area is discussed, with special reference to the theory of niche and competitive exclusion. The number of congeneric species in the study area was small, and these numbers are compared with the results of Elton (1946) and Williams (1947 & 1951) for simple habitats. In most cases, congeneric species showed well defined differences in ecology, which would tend to prevent competition.

The reason for the large number of species in tropical areas is discussed with respect to the conflicting views of narrow niches and wide overlap tolerance. Instances from the study area and elsewhere in East Africa indicate that both factors may operate. Many species occupy confined niches because they are adapted to a specialised mode of feeding. Many others have catholic tastes, and can adapt themselves to changing conditions. Such species are often found at superabundant food sources.

The heterogeneity of the study area is discussed. The river is considered as an integral part of the woodland since this type of vegetation is usually associated with rivers. Few species were confined to the river, but

it may have had an important effect on other species and on the vegetation of the area, by mitigating the severity of the dry periods. The possibility of an edge effect between the woodland and the surrounding plains was considered. It was found that the two communities remained very distinct, although a few species were normally found on the edge of the two habitats.

In conclusion, it appeared that heterogeneity, and fluctuations in environmental conditions resulted in a highly complex habitat. In response to these changes many bird species made regular local migrations, and this continual change resulted in long term stability in the area.