BEYOND FEEDING FRENZIES

Birds & termites

GRAEME CUMMING

Current research reveals an apparent association between large termitaria and large trees.

What do birds have to do with termites? As most nature enthusiasts know, summer-rain emergences of termite alates can produce dramatic and often colourful feeding frenzies. Small warblers and swallows gorge themselves alongside Tawny and Steppe eagles, while falcons and bee-eaters dart through the air and Abdim's Storks patrol the ground. Alate emergences are localised and short-lived, but the impacts of termites are far greater. Their size and abundance make termite mounds (termitaria) conspicuous and persistent elements of many southern African landscapes. Their presence has a less obvious but perhaps more long-lasting influence on birds, as well as on other animal and plant communities. Establishing the nature of these relationships is the focus of a new research programme at the Percy FitzPatrick Institute.

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The large earth mounds that form the focus of the study are built by fungus-gardening termites in the genus *Macrotermes*. The mounds differ in size and shape between species: while arid areas such as the Kalahari can be littered with an abundance of small termite mounds, other areas, such as the miombo woodlands of south–central Africa, are home to termite species that construct mounds up to eight metres high and more than 20 metres in diameter. In building these mounds and tending their fungus gardens, termites move large quantities of plant matter and soil, cycling nutrients through the system and influencing flows of water and chemicals. Preliminary studies of large termite mounds show that termitaria often harbour a plant community that differs from the surrounding landscape in both species composition and structure. For example, termitaria are a focus for large trees in landscapes with high elephant densities, and, in floodplain areas such as Botswana's Okavango Delta or the Bangweulu swamps in Zambia, termitaria may be the only locations in which woody species can persist.

The avian component of the programme will focus on the ways in which the presence or absence of termitaria in the landscape can influence bird communities. These influences are mediated primarily through plants: those on mounds tend to have a higher nutrient content, stay in leaf longer, grow to a larger size and support greater densities of insect herbivores. Use of termitaria by large mammals may result in increased dung deposition near mounds and the further localised addition of nutrients. Some birds, including those that require substantial cavities in which to nest, need large trees to provide such sites; other species favour big trees as hunting perches. Termitaria may also support local concentrations of fleshy-fruited plants, favouring frugivores such as barbets, or may serve as foraging foci for insectivorous birds or raptors that are drawn by the small mammals that use the mounds.

By conducting surveys of the spatial patterning of bird community structure in relation to the occurrences of termitaria and their associated communities of plants and other organisms, researchers at the Percy FitzPatrick Institute will explore how termitaria – from a single termitarium up to those forming an entire ecoregion – influence ecosystems. The goals of the programme are firstly to establish whether termitaria play a significant role in maintaining bird diversity and ecosystem function through times of stress, such as overstocking of elephants or during droughts, and secondly, to feed this knowledge back into management activities, particularly those that link large-herbivore management and the conservation of birds. □

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