

TERMITES OF ZAMBIA

The Termites of Protea Hill Farm

By Mike Bingham, January 2018

For a description of Protea Hill Farm see:

www.naturezambia.org/downloads/RESTORATION_2014_Natural_Vegetation

Although I have not collected specimens for identification since moving to Protea Hill in 1983 I was familiar with the termite species I found here, species which I had collected in the late 1960s and early 1970s. Nor have I devoted much attention to them as I had moved on to other pursuits. I have, however, recorded observations, and have now decided that the time has come when I must document my records and observations.

In 1983 about half the area of this 8 ha smallholding had been cleared and cultivated. The parts which had not been cleared have been managed to maintain the vegetation in a state as near to natural as possible, from its previous history of extensive grazing and fuelwood cutting.

The most significant observation I have to report is that *no termite colony I have monitored has survived more than 3 years from first appearance*. I need to emphasize the fact that this has been my experience on this 8 ha plot of land. I cannot say whether this is the case elsewhere.

Another observation of note is *the decline in the diversity of termite species, and in their numbers*. The diversity started off as low and declined to very low – currently just 4 species I am aware of: *Macrotermes subhyalinus*, *Odontotermes* sp., *Trinervitermes* sp., *Cubitermes* sp.

From these two observations I conclude that Protea Hill does not have favourable habitats for termites. Yet there is an abundance of food, so much so that I have to burn large quantities of dead wood.

The current nests I'm aware of are all in the areas with minimal human impact. This has not always been so. I have had to deal with four nests established under buildings.

Soil : A common feature at Protea Hill are holes in the ground where termite nests have collapsed. This is the fate of all nests with large chambers. Once the soil becomes sodden it is only a matter of time before the roof of the nest collapses. A spired mound, such as are common on the Copperbelt, or on the valley alluvia, can shed rainwater efficiently, but only if built from soil with enough structural strength to maintain its shape. The proportion of sand to clay and the type of clay are critical.

I have recorded instances where colonies have died before the nest collapsed. Attack by doryline ants probably accounted for some of these although the attack is not recorded as it takes place underground.

In a series of short articles illustrated with photographs wherever possible, I have described some of the more common species of Zambian termites. While there is a considerable volume of scientific literature on termites, little of this is relevant to those of our region. The part played by the dominant fungus-

growers in the genera *Macrotermes* and *Odontotermes*, in the shaping of our woodlands is a story yet to be told.

Hollow Ground: Earthmovers of Protea Hill

Walking around this smallholding one has to be careful not to step into a hole. The majority are the work of termite species of *Odontotermes*, a genus of fungus-growing termites (Macrotermitinae).



Figure 1 *Odontotermes latericius* : 4 ventilation shafts surround the collapsed nest chamber. The shafts extend below the hive where they connect up.

Soil brought to the ground surface during the excavation of the nest chamber and the ventilation shafts form a low irregular mound, which weathers down to a level surface, but the holes remain and persist for years. The nest may be recolonized by the same or a different termite species.

In the living nest the shafts descent to about a meter, and are interconnected. They are connected to the nest chamber by narrow passages which can rapidly be blocked when danger threatens. Their function is to ventilate the space around the nest chamber(s), maintaining an optimal environment for the brood and the symbiotic fungus, upon which the termites feed.

The system of shafts and chambers are used as shelters or nest sites by honeybees, monitor lizards, pythons, pouched (giant) rats, genets, mongooses, kingfishers and hoopoes, and no doubt many other species of fauna.