The Steep-sided Termite Mounds of the Zambian Copperbelt

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Steep-sided mounds are a feature of, but are not confined to the higher rainfall zone of the miombo biome. On most of the plateau the steep-sided mounds, when they occur, are aligned along the woodland margins, sometimes extending into the sandy dambos. On the flat or gently inclined interfluves the mounds are often degraded, sometimes to the point when they can be recognized only as circular patches of taller grass. Degradation is the result of the clay being leached away to be redeposited in the floodplains or dambo.

The large, steep-sided mounds of the Copperbelt resist weathering and erosion, and active building continues through repeated invasion by the mound building species, *Macrotermes falciger*, which constructs spires at the mound apex. While the colony remains active, little erosion of the spire takes place, but when the colony dies, the spire crumbles and adds to the general body of the mound.

The stability of the mound is partly dependent on the nature of the soil, and partly on the protection against surface erosion afforded by the vegetation cover. There are no opportunities for mounds to arise in stable miombo woodland, the population having long since reached saturation point. Engineering works involving earth movement, soil compaction, or vegetation clearing, provide opportunities for new mounds to be established, although these too, it may be found, are on previous mound sites, taking advantage of the higher clay content of the soil.

The vegetation of termite mounds has been described, by Fanshawe (1968). While, as Fanshawe observes, all the major physiognomic types (forest, woodland, grassland) are represented in the vegetation of termitaria, the species occurring on mounds in plateau miombo woodland are also characteristic of drier forest types on soils of higher pH and mineral nutrients, as are found on the younger soils derived from Karroo rocks in the valley bottoms. This is explained partly by the use of clay-rich subsoil in the construction of the mounds, but also by the accumulation of cations in the mound soil by physical and biological processes.

A characteristic species of the steep sides of Copperbelt termite mounds is the tufted perennial grass, *Setaria lindenbergiana*. Although mentioned by Fanshawe as a grass found on termitaria, he has nothing to add about the exceptional features of the grass in its adaptation to the steep sides of the mounds. The species typically occurs in pure populations covering the steep sides. The tufts resemble mops, the leaves drooping on long pseudopetioles. The tufts dry off and burn every year, no doubt suppressing any woody species which may happen to germinate on the steep sides.

A common occurrence on the sides of the Copperbelt mounds, usually near the bottom of the steep slope, is a small, somewhat shapeless mound of another termite, *Pseudacanthotermes spiniger*. Like *M. falciger*, it is a fungus grower (Family Termitinae, Subfamily Macrotermitinae). This termite excavates its nest chambers in an unused part of the mound, often more than a meter deep in the soil. Better known than the termite is its fungal symbiont, *Termitomyces titanicus*, which produces the largest known mushrooms, up to 1 m in diameter, and featuring in the Guinness Book of Records.

References and further reading

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Figure 1 – A typical steep-sided mound in miombo woodland, December

Figure 2 – In August the grass is dry, ready to burn.

Figure 3 – Recently burned, August. The grass covered mounds normally burn every year.

Figure 4 – Mop-like tufts of *Setaria linden-bergiana*, the most characteristic species of the steep sides.

Figure 5 – *Setaria lindenbergiana*

Figure 7 – The leaf blade is slightly pleated.

Figure 6 – An unusual feature is the long pseudopetiole, which accounts for the mop-like form of the tufts.

Figure 8 – Seeding in February.

Figure 9 – Moundlets of *Pseudacanthotermes spiniger* on the steep slope.

Figure 10 – A nest of *P. spiniger* deep in a mound sectioned during road construction.

Figure 11 – Sectioned nest cells of *P. spiniger*, two with fungus combs.

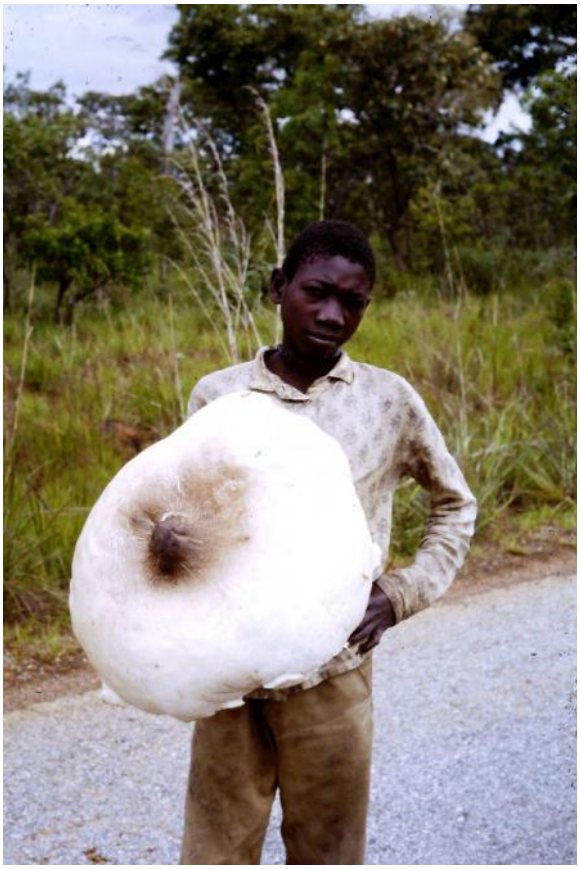

Figure 12 – *Termitomyces titanicus*, the fungal symbiont of *P. spiniger*, one of the best edible fungi.