

NOTE

1971 *Biotropica* 8:110.

Why Tropical Trees Have Rotten Cores

It is generally assumed that a rotten core in an adult tree is detrimental. On the contrary, I hypothesize that the rotten hollow core is often an adaptive trait, selected for as a mechanism of nitrogen and mineral trapping. A rotten core is a site of animal nests, animal defecation, and microbial metabolism that should result in a steady fertilization of the soil under the base of the tree. If it can be shown that none of this natural fertilizer is harvested by the tree's own roots, then the hypothesis is rejected. Theoretically, a tree could be programmed for a rotten core through the mechanism of depositing amounts and kinds of heartwood secondary compounds that would be sufficient to exclude organisms until the tree is large enough to tolerate structurally a rotten core, with subsequent access by rotting organisms and others to the central part of this core through unhealed breaks in branches, roots, or trunk. A complementary trait should be an increased deposition in the outer heartwood, a deposition that would contain the rotten-core organisms and therefore protect the sapwood and structural soundness of the tree. Such a hypothesis assumes that as a tree reaches adult size, it need not grow an ever-larger solid trunk and that a hollow core is not structurally lethal. Hollow cores are expected most frequently in nutrient-poor sites, habitats, or life forms not plagued by high winds, and in situations containing animals and microorganisms that will use a hollow core without overwhelming the living tree. In short, the hollow core becomes a clever use of an otherwise useless piece of wood.

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