
LETTER TO THE EDITOR

African elephants and European rabbits: a spurious correlation?

Dear Editor,

In June 1995 I moved to a new address, my move coinciding with the worst drought in Britain since the 1970s. My new property was overrun with rabbits (*Oryctolagus cuniculus*) and I observed, as the drought progressed, that they gnawed the bark of not the healthy trees and woody shrubs, but those in the process of dying from drought, or showing signs of drought stress. The death of many shrubs was hastened in this way and even highly aromatic species of evergreen conifers were attacked. The rabbits also concentrated upon newly transplanted species, which are presumably stressed.

We know that plant defences, in the form of phenols, are actively concentrated in bark. When a plant is stressed, the phenols are either quickly taken up by the leaves, or they, or some of them, break down. It seems that the decline in phenol concentration in the bark is detected by the rabbits by scent, the rabbits presumably finding the bark of a stressed plant more attractive due to a lowered phenol content.

A parallel may exist, therefore, between the behaviour of the European rabbits in my garden, and elephants in Africa. The latter appear to cause more tree damage in drought, and to concentrate on weak or dying trees,

hastening a process of decline which in many instances is already underway, e.g. when the water table is falling, or in the case of Amboseli in Kenya, when salinity is increasing. In some areas of Africa, bark stripping is most noticeable at the onset of the rains; this apparent contradiction may not be because the bark is rich in sap, as I stated in my recent book (Spinage, 1994) quoting conventional wisdom, but because the phenol concentrations in the bark are low at this time in species such as *Acacia*, for which the periods of blossoming and leaf emergence are in the dry season.

The answer, then, as to why elephants debark trees, might be that the levels of phenols in the bark have declined either through stress or the seasonal cycle of growth, making the bark more attractive to eat.

Yours sincerely,

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