The umbrella thorn, *Acacia tortilis*, has become an icon for the game reserves of Africa, partly because of its distinctive shape. In ecological terms, it is indeed a flag for the vegetatio —type richest in large mammals anywhere on earth, because it is one of the few trees designed to thrive in a natural grazing lawn. It has a relationship of mutual benefit with large mammals, which acts to eliminate other trees in this environment. Its design invites herbivores not only to rest in the shade, but also to eat its leaves and fruits. In return, large grazers not only fertilize, water and weed umbrella thorn, but also plant its seeds.

**AN UMBRELLA FOR GRAZERS IN A PARADISE OF THORNS**

*by Antoni V. Milewski*

Umbrella thorn not only co-exists with lawn-forming grasses, but itself, functions like a lawn on stilts. The leaves are not necessarily richer in nutrients than other green leaves in African savannas, but umbrella thorn is relatively free of defensive chemicals. The nearly two-dimensional sheet of foliage continually regenerates from buds on the stems, which are protected just below a clipped surface. The thorns do not deter browsers, but help them indirectly. A combination of straight and hooked thorns prevents small and large antelopes alike from stripping the buds, which promptly replace plucked leaves. The canopy, above the reach of even giraffe, has a different configuration of thorns suited to herbivory by baboon, vervet monkey and, in better devoted to growth of new leaves. Water-dependent herbivores such as wildebeest, which are dark enough to attract aerial predators, and tend not to be flammable even when dry. In the wet season, shade-tolerant gemsbok and water-loving gemsbok, find plenty of nitrogen in the soil. It tolerates the aridity of the Namib, but not deep sands, except on the fertilized sites of former kraals. In response to the naturally great numbers of wild and domestic ungulates in Africa, it depends on its consumers as much as they depend on it.

In which environments can a plant afford to attract animals large and numerous enough to strip and kill it? Umbrella thorn is very widespread in Africa and Arabia, but only on nutrient-rich alluvial and volcanic soils. It tolerates the aridity of the Namib, but not deep sands, except on the fertilized sites of former kraals. In response to the naturally great numbers of wild and domestic ungulates in Africa, it maintains a competitive edge over other woody plants by encouraging recyling of key nutrients by its consumers. It seems that the richness of the ground and the inevitability of herbivory have given plants here little choice but to be generous. Not only its flat top, but also its thorns signify that umbrella thorn depends on its consumers as much as they depend on it.

The illustrations of *Acacia tortilis* by Rosemary Wise are taken from the delightful, new book *Field guide to the acacias* of Zimbabwe by Timberlake, Fagg and Barnes.