

Euphorbia in Tanzania

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Ecological range in Tanzania is not as varied or as extreme as in Kenya, and this is reflected in the fewer number of habitats and *Euphorbia* species. The central plateau, away from the relatively densely populated coastal areas, is vast, generally covered by bushland, often dense and infested with tsetse flies, and thus not so well explored. More productive regions include open grassland in the north bounded by small volcanic outcrops; and mountainous areas on the eastern side of the plateau, in the northeast, along the eastern shore of Lake Tanganyika, and the southern boundaries with Zambia and Malawi. The Great Ruaha River cuts through the eastern mountain ranges on its journey to the sea, forming a deep gorge and a unique environment where many endemic plant species have evolved, including several in *Euphorbia* and *Monadenium**.

The grassland area in the north, the Serengeti, is far more extensive than the Maasai Mara, its continuation into Kenya. Here, of course, we find the same tufted species with large tuberous roots - the single-spined *Euphorbia graciliramea* Pax and *E. similiramea* S.Carter, together with *E. ubligiana* Pax, recognisable by its T-

*As a result of recent molecular studies, *Monadenium* has been subsumed into *Euphorbia*, but although they are obviously closely related (*Monadenium* is said to be 'deeply embedded' in *Euphorbia*) I see no reason why this very distinct group of species should not retain its generic status.

shaped spine-shield. Between here and the volcanic basin of Ngorongoro are two locally endemic spiny species, very limited in their distribution. One is *E. eyassiana* P.R.O.Bally & S.Carter from near the shores of Lake Eyassi, a fibrous rooted, densely branching rhizomatous species, with slender purplish stems to 80 cm high bearing needle-like spines. The other is *E. elegantissima* P.R.O.Bally & S.Carter from the slopes of the Rift Valley escarpment above Lake Manyara, also slender-stemmed, but a shrubby species scrambling through the bush vegetation to 3 m high, conspicuous by its brilliant crimson cyathia.

Moving southeastwards along the border with Kenya, past snow-capped Kilimanjaro, we come to a short range of beautiful hills across the northeast corner of the country, the Pares and the Usambaras. Being so near the coast this region has been well explored, yielding a number of well-known species. At the northern end is a thriving (in 1990) population of *Euphorbia robecchii* Pax at its southernmost point of distribution, with spiny seedlings and young plants, but mature trees, with their characteristic widely spreading branches producing branchlets that are without spines. Along the foot of the hills we find *E. heterochroma* Pax, growing in open bushland on deep sandy soils. This 2 m high shrub is easily recognised, as its name suggests, by the regular darker green patches along its 2 cm wide square stems. It was one of the first species to be described when this



Fig. 1: *Euphorbia robecchii* in very open bushland.



Fig. 2: *Euphorbia heterochroma* in deep sandy soil.

part of the east African coast was explored by German naturalists in the late nineteenth century. Further south on steep valley slopes of the Usambaras, are slender pale grey trunks of a small tree to about 15 m high, with a crown of short, narrow 4-angled branches. This is *E. quadrialata* Pax, distinguished by small, whitish instead of yellow cyathia.

Besides the ubiquitous tree of the flatter areas of this coastal region that extends into Kenya, namely *Euphorbia bussei* Pax with its broad-winged, segmented branches, the less frequent *E. nyikae* Pax with narrower, often 2- instead of 3-angled branches, reflects the extra moisture in the atmosphere gained by being so close to the sea. Away from the sea and into a flat landscape of thorny bushland, we soon see the familiar shape of *E. candelabrum* Kotschy with its dense crowns of ascending branches tipped by pale clusters of cherry-like fruits. These will darken to a reddish colour, then harden to woody capsules before exploding to release their seeds.

Following the Great Ruaha River towards the interior, we reach a deep gorge where its steep escarpments and sheltered valleys have created ideal habitats for many locally endemic species as well as more widespread ones and allowed superb examples of each to develop. Amongst the picturesque baobab trees on the valley floors, *Euphorbia quadrangularis* Pax, with its

sturdy, square, 2 cm wide, very sparsely branched stems grows to its maximum height of 3.5 m. Its branches spread at right angles from the main stem, beautifully variegated with greyish green and its cyathia are almost 1 cm in diameter, with a distinctive red border to the greenish glands.

This is also the northeastern limit of distribution for *E. cooperi* var. *ussanguensis* (N.E.Br.) L.C.Leach, a tree to about 10 m high, with a stout trunk and curving branches constricted into almost circular segments that reflect distinct periods of growth. Endemic to this area is *E. proballyana* L.C.Leach, related to *E. quadrangularis*, but shorter, without variegation and with cymes that develop smaller, reddish cyathia in groups of four instead of three that is typical of most spiny species. Further along the escarpment we can find the endemic *E. greenwayi* P.R.O.Bally & S.Carter, a small, fibrous-rooted species to about 30 cm high, distinguished by sharply angled bluish green, variegated stems, with dark reddish spine-shields and needle-like spines and prickles.

But it is here that no less than 6 very distinct *Monadenium* species occur, 4 of them endemic to the region. One of these, growing on steeply sloping hillsides, is *M. elegans* S.Carter, a small woody tree to 3.5 m high, with a lovely, purplish brown flaking bark. Pretty bright green leaves, with undulating toothed margins



Fig. 3: *Euphorbia nyikae* in bushland near the coast.

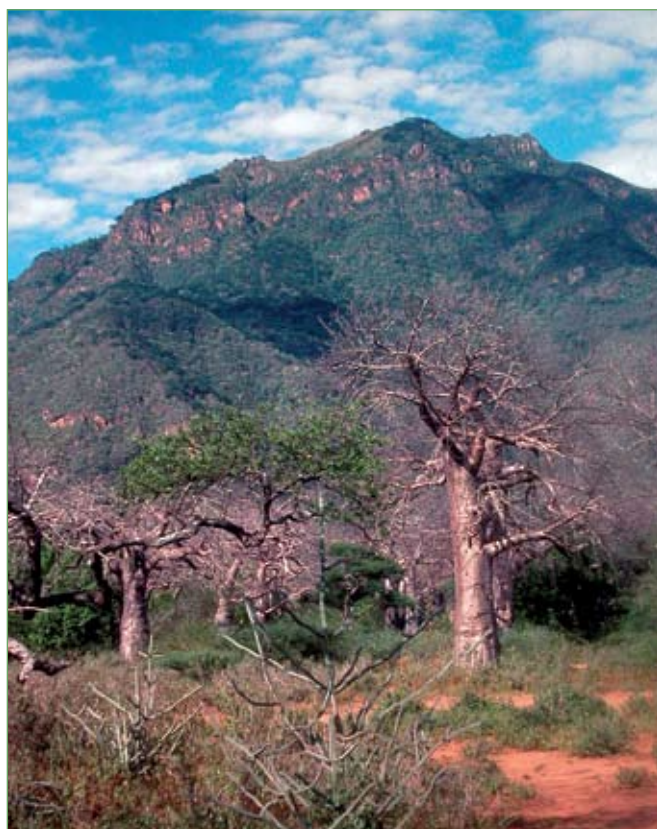


Fig. 4: *Euphorbia quadrangularis* in baobab bushland.



Fig. 5: *Euphorbia greenwayi* at the foot of rocky slopes.



Fig. 6: *Euphorbia cooperi* var. *ussanguensis* and a young plant of *Monadenium arborescens* in a sheltered valley.



Fig. 7: *Monadenium magnificum* in open woodland.

are produced on long pendulous branches, which bear clusters of cyathia surrounded by conspicuous white bracts. Another, very sparsely branched tree-like shrub to over 4 m high, is *M. arborescens* P.R.O.Bally, with a thick fleshy, pale green stem and large, succulent, sessile leaves about 25 cm long. This species occurs on the valley floor, as does the related *M. spectabile* S.Carter, another succulent stemmed shrub to 3 m high, with large fleshy leaves. Its stem is also pale green, but studded with irregular clusters of small reddish brown spines. The species gets its name from its large sprays of cyathia, with the whole inflorescence coloured a brilliant red and covered with conspicuous, cartilaginous prickles. The fourth endemic in this region, but found further north in bushland at the foot of the hills, is an obviously related species, *M. magnificum* E.A.Bruce. This is a smaller shrub, producing a few, much narrower weak stems to 1.5 m high and fleshy leaves to 15 cm long. Its spreading inflorescence bears fewer cartilaginous prickles, but again, its name is justified by its bright crimson colour.

Two more *Monadenium* species that occur elsewhere appear at their best in the sheltered bushland between these hills. *M. goetzei* Pax is yet another species related to the last three endemics. This is an herbaceous perennial, rising through the undergrowth in open bushland

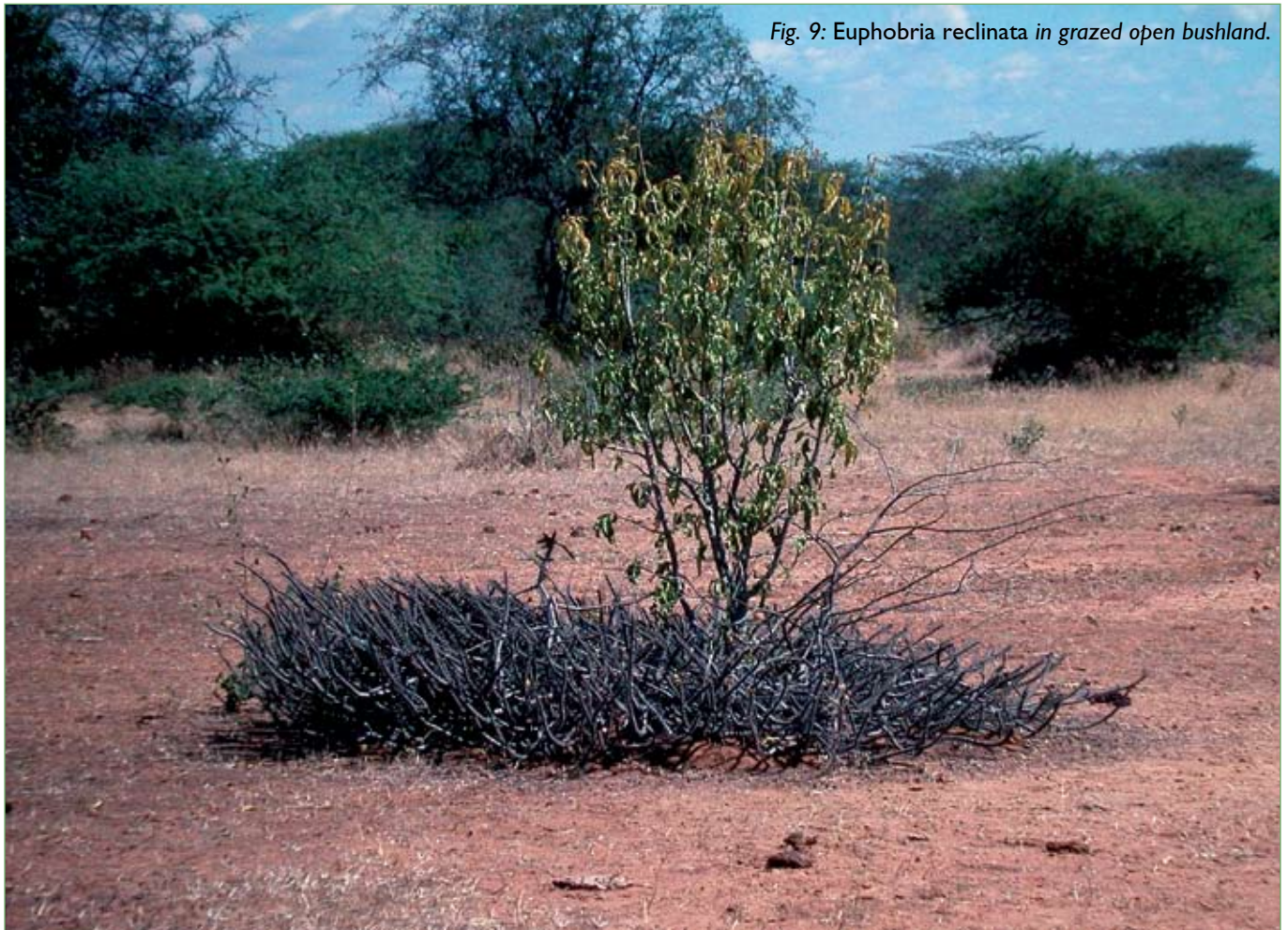
to 75 cm high. It, too, produces fleshy leaves to 17 cm long and a large spreading inflorescence, both with cartilaginous bristles rather than prickles. The bracts surrounding the cyathia are particularly handsome, forming a 'cup' to 25 cm wide, pale creamy green with a network of purple veining. Also amongst the undergrowth we come across large mats of *M. schubei* (Pax) N.E.Br., with stout stems to 5 cm thick, erect sometimes to nearly 1 m high. These are covered with prominent tubercles, each crowned by a cluster of 5 tiny spines at the base of minutely hairy leaves and producing in their axils cymes with pink-rimmed cyathia enclosed by pinkish grey bracts.

Travelling southwestwards through open bushland we see that *E. quadrangularis* is plentiful, but has often been grazed and does not compare well with plants in the Ruaha Valley. A low-growing tangle of spiny, greenish brown stems catches our eye and proves to be a fine plant of *E. reclinata* P.R.O.Bally & S.Carter, with fine spines over 1 cm long and dull red cyathia. In the foothills of the mountains bordering Malawi and Zambia we find the tufted, tuberous-rooted *E. tetracanthoides* Pax, with its bright yellow cyathia. This is one of numerous related species that occur further south beyond the border.

Progressing northwards amongst the low hills along the eastern shore of Lake Tanganyika, *Euphorbia grantii*



Fig. 8: *Monadenium schubei* in the undergrowth of open woodland.

Fig. 9: *Euphobia reclinata* in grazed open bushland.

Oliv. appears as a small, sparsely branched tree, with soft, pliable branchlets, pale green, almost linear leaves to 30 cm long, and large cyathia to 3 cm across, with colourful green and red glands to 8 mm wide fringed with up to 10 finger-like processes. Related to it is *E. goetzei* Pax, a fleshy perennial shrublet about 3 m high, with obovate leaves that have long hairs on the underside, and cyathia flanked by circular bracts 1.5 cm across. This species also occurs in Zambia and Malawi, as does a woody shrub with sharply pointed branchlets, *E. matabelensis* Pax, which is even more widespread further south as far as South Africa. It is easily identified by its trichotomous branching pattern. There are other, spiny species amongst these hills, often mat-forming on rocky outcrops, such as *E. angustiflora* Pax, with long-pedunculate cymes and cyathia with glands standing erect and long-exserted stamens (male flowers). *E. rubrispinosa* S.Carter is another, with bright green 4-angled stems bordered by dark red spine-shields.

There are sure to be a number of unknown species in the western parts of Tanzania, as there are still parts of the country that have not yet been thoroughly explored botanically. Throughout eastern tropical Africa, where the spiny succulent species of *Euphorbia* abound, there

are corners where the plants that interest us so much are waiting to be discovered! ♦

Fig. 10: *Euphorbia tetraanthoides* on rocky slopes.