Some unresolved problems among Somali *Euphorbia* species

SUSAN CARTER

Resum

CARTER, S. (1992). Alguns problemes no resolts respecte a espècies somalis d'*Euphorbia*. Collect. Bot. (Barcelona) 21:57-66.

Espècies d'*Euphorbia* d'àmplia distribució mostren sovint variabilitat. A Somàlia, aquesta variació es presenta en poblacions d'*E. cuneata* Vahl i en els complexos que envolten *E. nubica* N. E. Br., *E. nigrispina* Pax i *E. xylacantha* Pax. Formes de possibles tàxons encara no descrits es troben dins les espècies d'àrea més restringida a Somàlia, com és el cas d'*E. multiclava* Bally & S. Carter i de les més recentment descrites *E. umbonata* S. Carter i *E. atrox* S. Carter.

Mots claus: *Euphorbia,* Somàlia, identificació, distribució, variabilitat.

Abstract

CARTER S. (1992), Some unresolved problems among Somali *Euphorbia* species. Collect. Bot. (Barcelona) 21:57-66.

Species of *Euphorbia* with a widespread distribution often show variability. In Somalia such variation is found in populations of *E. cuneata* Vahl and the complexes surrounding *E. nubica* N. E. Br., *E. nigrispina* Pax and *E. xylacantha* Pax. Possible undescribed taxa are also found in forms of more restricted species within Somalia, such as *E. multiclava* Bally & S. Carter and the more recently described *E. umbonata* S. Carter and *E. atrox* S. Carter.

Keywords: *Euphorbia,* Somalia, Identification, Distribution, Variability.

INTRODUCTION

Work on an account of the *Euphorbieae* for the Flora of Somalia Project (leader Dr. Mats Thulin, Uppsala University), has involved description of many endemic species of *Euphorbia*. The existence of some was already known and these have been newly described, together with others, especially among the succulent groups, which were often closely related but obviously distinct, and often restricted and isolated in distribution. The more difficult problems of identification and delimitation of taxa occurred among those groups that show variability within a wide distribution.

SUSAN CARTER: Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, England.

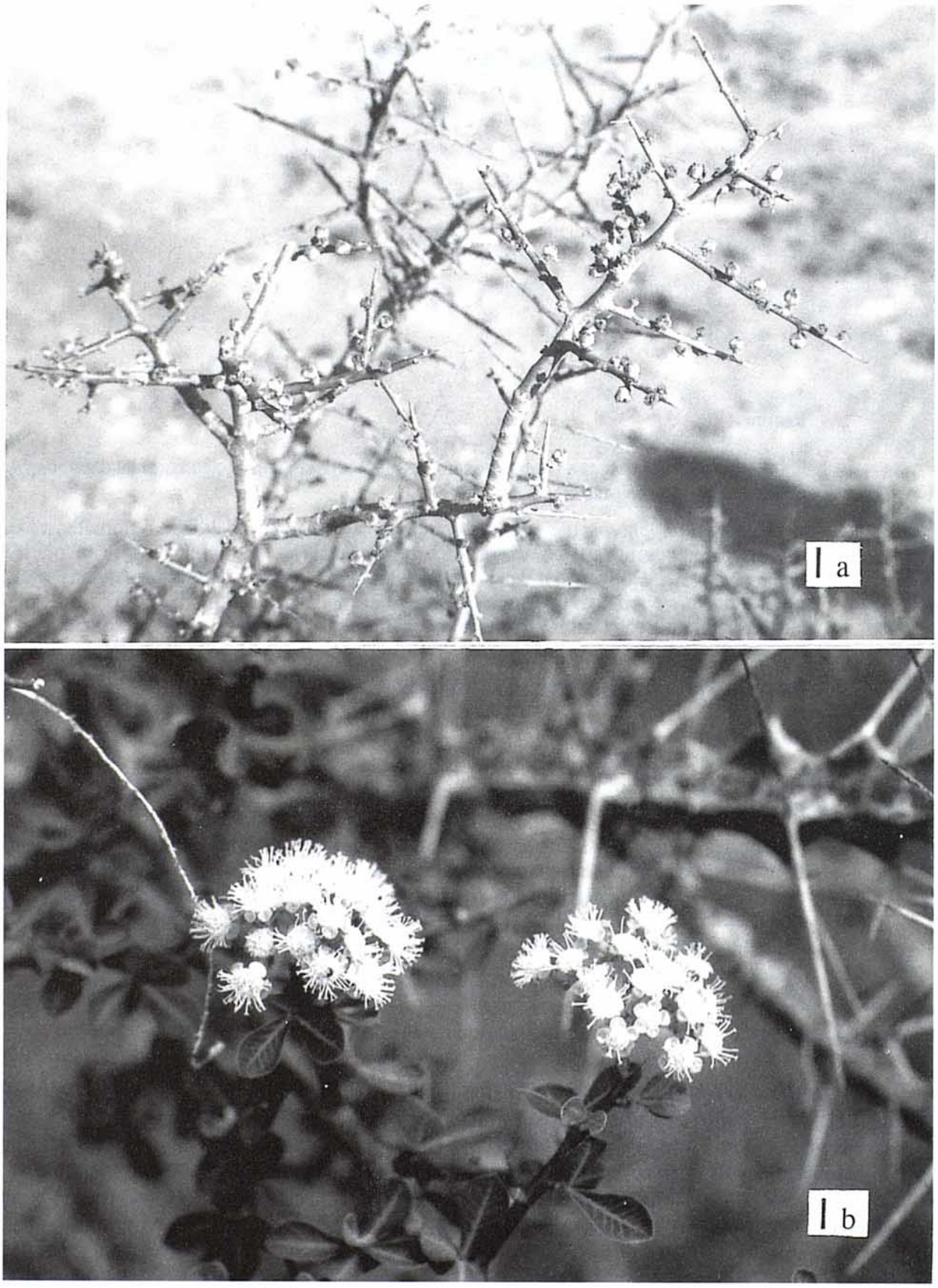


Fig. 1a.—Cyme of the typical form of *Euphorbia cuneata* from the bushland of southern Somalia, with up to 20 cyathia.

Fig. 1b.—*E. cuneata* subsp. *cretacea* from the arid regions of northern Somalia, with solitary (fruiting) cyathia.

DISCUSSION

Euphorbia cuneata Vahl (1791) is a widespread species, ocurring in various forms from the Arabian Peninsula and the Red Sea Hills of Sudan, southwards through Ethiopia, Somalia and Kenya to northern Tanzania. A number of subspecies have been described from East Africa, including subsp. *spinescens* (Pax) S. Carter (1980) from Tanzania and southeast Kenya, subsp. *lamproderma* S. Carter (1980) from the drier regions of northern Kenya and into Ethiopia, subsp. *wajirensis* S. Carter (1980) with a restricted distribution in northeast Kenya and southeast Ethiopia, and subsp. *cuneata* itself, wich seems to occur in East Africa only along the coast as an introduced hedging plant (CARTER, 1980).

E. cuneata was described from a specimen collected by Forskal in north Yemen, and is found in the same form in the Red Sea Hills, in Eritrea, and along the eastern coastal strip of Somalia. It appears as a small tree or shrub, with a shiny peeling golden bark on the trunk, and clusters of 12 or more sweetly-scented cyathia (Fig. 1a.). In the *Acacia-Commiphora* bushland and sandy soils of southern Somalia, its variability in these features is considerable. In habit it can vary from a shrub 1.5m high to a small tree 4m high; in bark colour, especially of the branches, from dull grey to a shiny purple-brown; in pubescence of the young twigs, leaves, cyathia and capsules, being sometimes almost completely glabrous; in the number of cyathia in each cyme, ranging from at least 3 to about 20; and in the involucral glands, which can be almost flat to deeply funnel-shaped. Plants combining several of these features but differing from the typical form, may perhaps represent distinct taxa, but it seems more probable that lack of pubescence, a greater number of cyathia in each cyme, and flatter spreading involucral glands, are features influenced by seasons of good rain when growth is more lush, while pubescence, few cyathia in each cyme, and funnel-shaped involucral glands may be indications of drought conditions.

In support of this suggestion, plants from the arid rocky limestone regions of the north, usually only very sparsely covered in *Commiphora* scrub, are always described by collectors as shrubby, usually less than 1.5m high, with dull brownish-grey bark. The cyathia are also always solitary, the involucral glands deeply funnel-shaped, and the capsules completely sessile (as opposed to often shortly pedicellate). Pubescence, although usually evident, is sometimes lacking, but the consistency of habit, other vegetative, and inflorescence characters within a discreet distribution justified the description of subsp. *cretacea* S. Carter (1992a) as a distinct taxon endemic to this region (Fig. 1b).

Two other forms, with features which differ consistently, have been separated at specific level. One is a more robust shrub than subsp. *cretacea,* occurring on pure gypsum and with distinctive pectinate involucral glands, described as *E. gypsophila* S. Carter (1992a); the other is a very much smaller semi-prostrate shrublet inhabiting the sand-dunes of the eastern coast, and described as *E. dunensis* S. Carter (1992a).

E. gossypina Pax (1894), *E. nubica* N. E. Br. (1911) and *E. consobrina* N. E. Br. (1911) are species characterized by cylindrical spineless stems and branches, quickly deciduous leaves, exserted capsules, and carunculate seeds. Described from East Africa, *E. gossypina* is distinguished by its scrambling habit, distinctly but obtusely 3-lobed capsules, and especially by its semi-persistent cyathial bracts. This same species occurs also in the deciduous woodland of southern Somalia, eastwards to the Webi Schebelli. Further north, throughout the rocky scrub covered regions, it is replaced by what appear to be forms of *E. consobrina.*

The type-locality of *E. consobrina* is in the Red Sea Hills, where it occurs as a fairly compact shrub to 1m high, distinguished further from *E. gossypina* by its smaller umbellate cymes and smaller deeply lobed capsules. Plants from the mountain ranges of northern Somalia are also compact in habit (Fig. 2a), but at lower altitudes to the south, they become taller and more straggling. Some important distinguishing features of *E. consobrina* are evident, however, such as small cyathia, small distinctly lobed capsules and minutely tubercu-

Fig. 2a.—Compact shrub of a form of *Euphorbia consobrina*, from the mountain ranges of northern Somalia.

Fig. 2b.—Large scrambling shrub of a form of *E. nubica*, from northwest Somalia.

late seeds. It is not yet clear whether this habit variation is due to environmental conditions, or is constant enough to merit taxonomic separation.

One form from the extreme northeast has been successfully separated, as *E. papilionum* S. Carter (1992b), a small densely branched shrub to 1m high, characterized by large persistent yellow cyathial bracts and crescent-shaped, instead of entire, involucral glands.

The typical form of *E. nubica,* in Eritrea, appears as a densely branched erect shrub about 1.5m high, with prominently calloused leaf-scars and large obtusely lobed capsules. However, within its distribution in northwest Somalia, the most common form of what appears to be the same species, produces a more scrambling habit to 5m high, but is other wise identical (Fig. 2b). Along the north-facing slopes of the limestone escarpment, frequently covered in mist, another form occurs with a more laxly branched habit and thinner bluish green branches. Neither of these forms can be separated satisfactorily from what is known of the species at its type-locality. However, around Sheikh, there occurs a stiffly erect shrub to about 3m high, with thicker yellow-green branches, which may prove to represent a distinct taxon.

A small shrub from the mountainous regions of the extreme northeast, bearing features of both *E. consobrina* and *E. nubica,* has been described as *E. pachyclada* S. Carter (1992b). Its erect compact habit, small umbellate cymes with short rays and small cyathia relate it to *E. consobrina,* but its fairly large obtusely lobed capsule is comparable to that of *E. nubica.* It is distinguished from both species by its much thicker branches, about 1.5cm in diameter.

E. nigrispina N. E. Br. (1912) is known with certainty only from the type material collected by Ruspoli and Riva from Ueb Caranle in eastern Ethiopia. Specimens from the Gobelli Valley, south of Harar, have been identified with reservation as the same species, and appear to be identical to plants which occur along the northern mountain ranges of Somalia. They produce small shrubs to about 1m high, characterized by 4-5-angled branches about 1cm thick, wih stout spine-shields joined into a horny margin along the angles and bearing paired spines, small yellow cyathia and sessile capsules (Fig. 3a). These shrubs represent one of the most common species of pair-spined succulent *Euphorbia* in northern Somalia, but one which appears in various forms. Some plants, usually in shade, or on the north-facing slopes frequently enveloped in mist, often grow taller, developing a central stem and lax branching rather than a compact shrub. Conversely, shrubs on the drier south-facing slopes are often more robust, with wider branches and a stronger spinescense reminiscent of *E. polyacantha* Boiss. (1860). In the extreme west, this latter species may eventually prove to be involved rather than *E. nigrispina.*

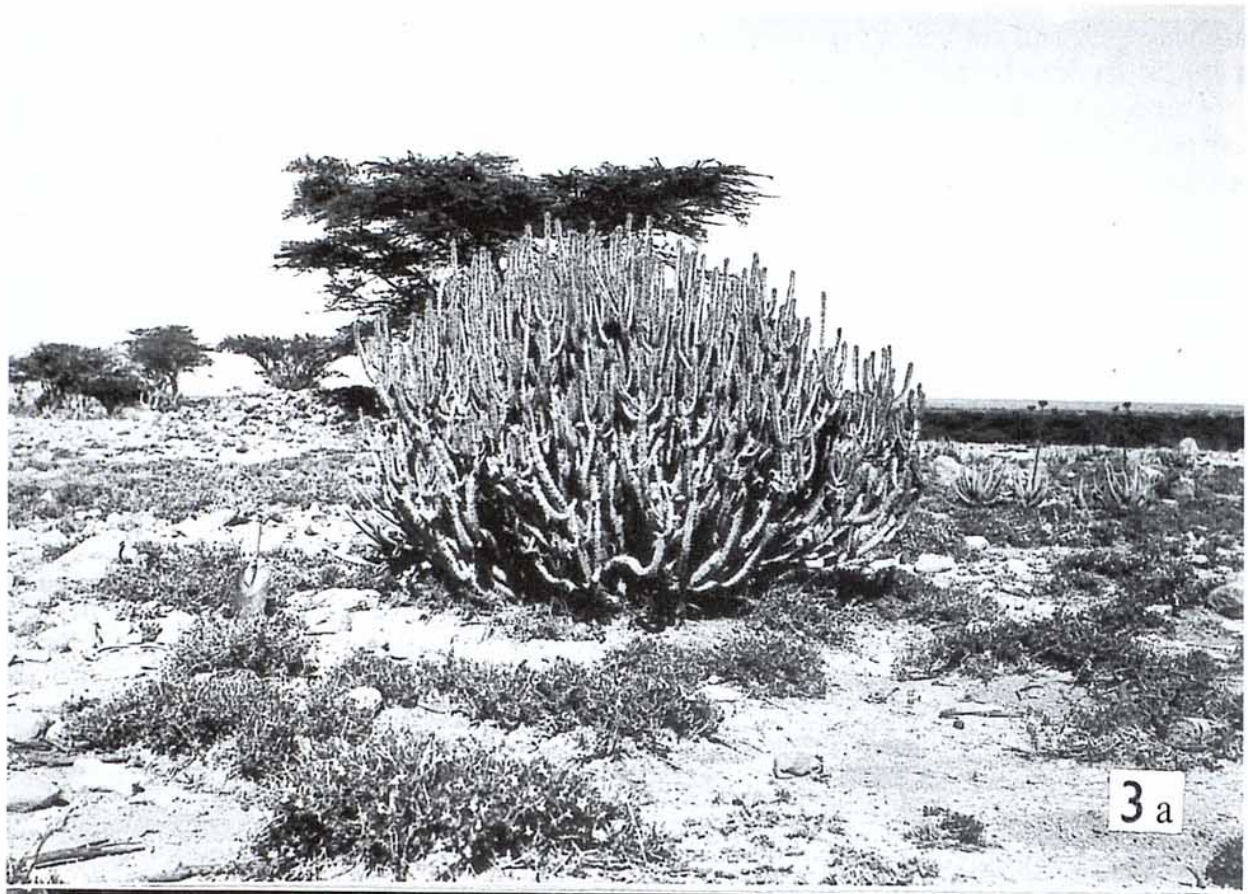
At the eastern end of its range, two forms of the Somali *E. nigrispina* can be more easily distinguished, and these have been identified as distinct species, both with very restricted distributions. *E. geldorensis* S. Carter (1992c) differs in habit, usually developing as a spreading tangled clump, with 6-angled instead of 4-angled branches, and with spine-shields separated by the flowering-eyes instead of joined into a continuous horny strip along the angles.

A little further to the east, *E. geldorensis* is replaced by *E. galgalana* S. Carter (1992c), differing in a more laxly branched, sprawling habit, and by 4 or 5-angled branches with very obviously separated spine-shields bearing longer, curved spines (Fig. 3b).

A number of fleshy herbs from the northern regions of Somalia, with a generally low sprawling habit, cylindrical branches with separated spine-shields, single instead of paired spines, and sessile capsules, have been identified in the past with *E. triaculeata* Forssk. (1775) from Yemen. However, the typical form of this species does not appear to occur in Somalia.

One distinct species in this complex, described as *E. myrioclada* S. Carter (1992c), occurs in the northwest, and is easily separated by its smaller habit, and much slenderer, more densely tufted branches which rebranch more frequently and bear shorter spine-shields.

Conversely, *E. erigavensis* S. Carter (1992c), restricted in distribution to an area around Erigavo, produces far fewer, sparsely branched, thicker cylindrical branches, with very robust spine-shields and spines. It is easily separated as a distinct species.



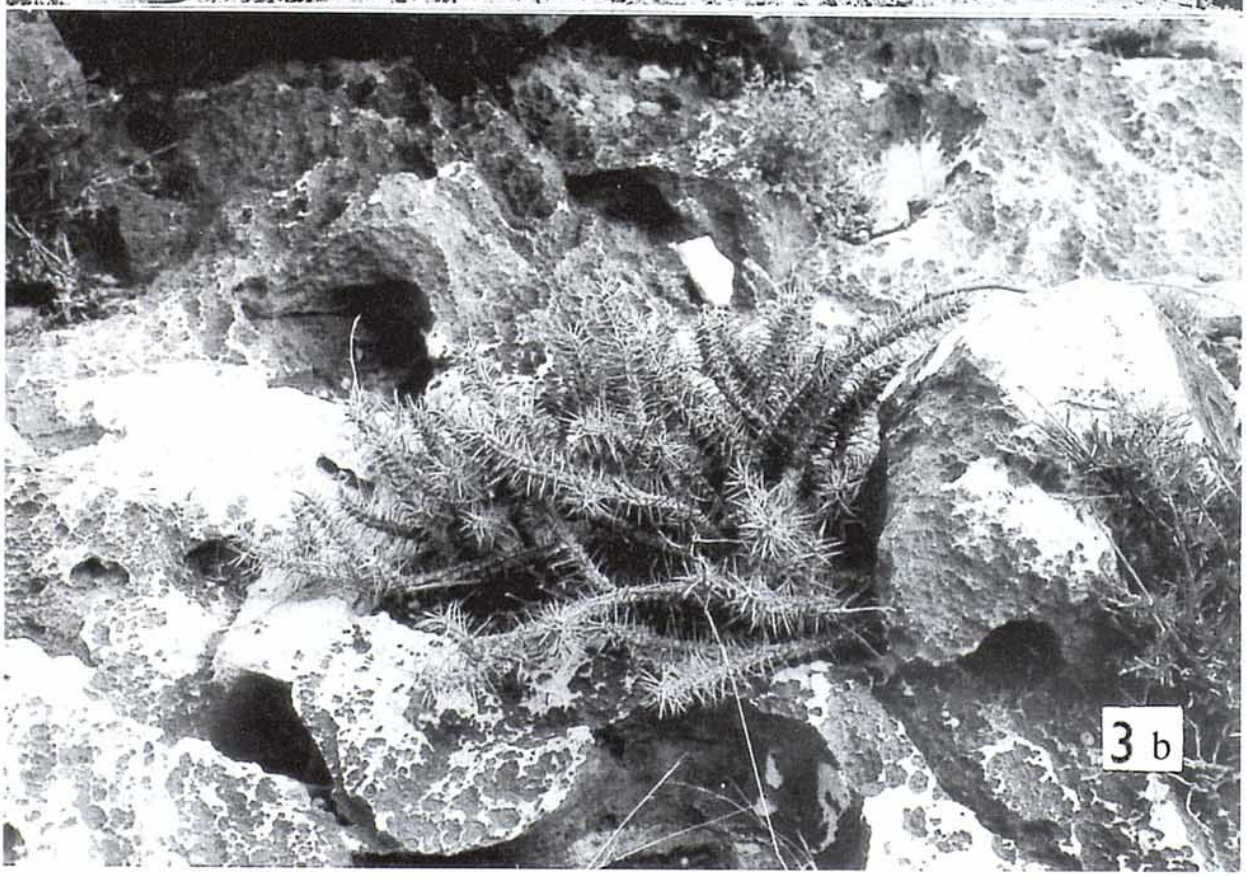


Fig. 3a.—Widespread form of *Euphorbia nigrispina* from northern Somalia, with compact branching to about 1m high.

Fig. 3b.—*E. galgalana* from northwest Somalia, with branches sprawling to about 1m in diameter.

The most wildespread form of the complex occurs throughout the rocky limestone plains of the northen half of Somalia, and differs from *E. triaculeata* principally by its smaller size and spreading tangled growth-habit (Fig. 4a). This appears to be *E. xylacantha* Pax (1904), which was described from two collections of Ruspoli and Riva that cannot be precisely located but must have originated from near Hargeisa. Most collections from this area, matching the two syntypes, seem to represent a weaker form of the species, which becomes progessively more robust towards the east, with the sturdiest form occurring in Bari Region. What appears to be no more than poor growth of some of the plants around Hargeisa, may perhaps be the result of trampling and overgrazing in a densely populated area (Fig. 4b).

However, one form which produces shorter, thinner, tufted branches and more slender spines even under the most favourable conditions, has been described as *E. immersa* Bally & S. Carter (1967). This is known only from the heavily grazed limestone hills surrounding Hargeisa, but intermediate forms between *E. immersa* and less robust forms of *E. xylacantha* similar to the syntypes, have also been collected in the Hargeisa area. The situation here needs more investigation.

Further east plants are consistent in all features (apart from increasing robustness), but southeast of Galgallo a form with thinner branches, curved spines, and longer prickles possibly merits specific status.

The greatest concentration in Somalia of endemic species with restricted distributions, lies in the rocky limestone hills of the northeast. Separation and identification of what appear to be distinct species from this remote area, do not usually present difficult problems. However, so few collections have been made, that often only single gatherings represent what may be distinct taxa, and more material is needed before positive decisions can be taken.

Several related pair-spined species from northeast Somalia have been described recently, characterized by a fibrous root-system, a short much-branched stem producing a compact "cushion" habit, cylindrical branches bearing separated spirally arranged spine-shields, and tiny capsules exserted on recurved pedicels.

One of these species, *E. perarmata* S. Carter (1992c), is distinguished by its obovate spine-shields in 5 longitudinal series bearing slender spines to 2cm long (Fig. 5a). These features compare well with the suborbicular spine-shields and spines to about 1cm long of *E. umbonata* S. Carter (1992c) and *E. ponderosa* S. Carter (1992c). The latter species is further distinguished by its shorter thicker branches, with spine-shields in 7 series (Fig. 5b). *E. perarmata* and *E. ponderosa* can be separated without difficulty, but two forms appear to exist within the distribution of *E. umbonata*. The typical form is distinguished by its terete branches, with spine-shields in spiral series, while the other has a more compact habit, with strongly variegated branches and spine-shields arranged longitudinally, thus producing obscure angles. These differences are slight, and can only be measured on living material, but the differences in variegation and spine-shield arrangement are especially noticeable at the seedling stage and may indicate that separation is needed.

Differences are sometimes evident in populations of some species which indicate the possibility of distinct taxa, but may be due equally to climatic or local ecological factors. The type-locality of the "cushion" -forming *E. atrox* S. Carter (1992c) is situated at the eastern end of the Al Madu Range, but populations of what appear to be the same species from lower altitudes nearer the eastern coast, are slightly more robust. These are perhaps no more than forms, influenced by local habitat conditions. However, plants of one discreet population in this same area, differ also in their larger spine-shields bearing longer, strongly curved spines. When more is known of this particular population, such differences may prove sufficient to justify the erection of a distinct taxon, or to be the result of desiccation due to the extremely arid conditions of the local habitat.

The branching habit of the "cushion" -forming, multi-angled *E. multiclava* Bally & S. Carter (1974), is regularly dichotomous, but a population at the eastern end of its distribution

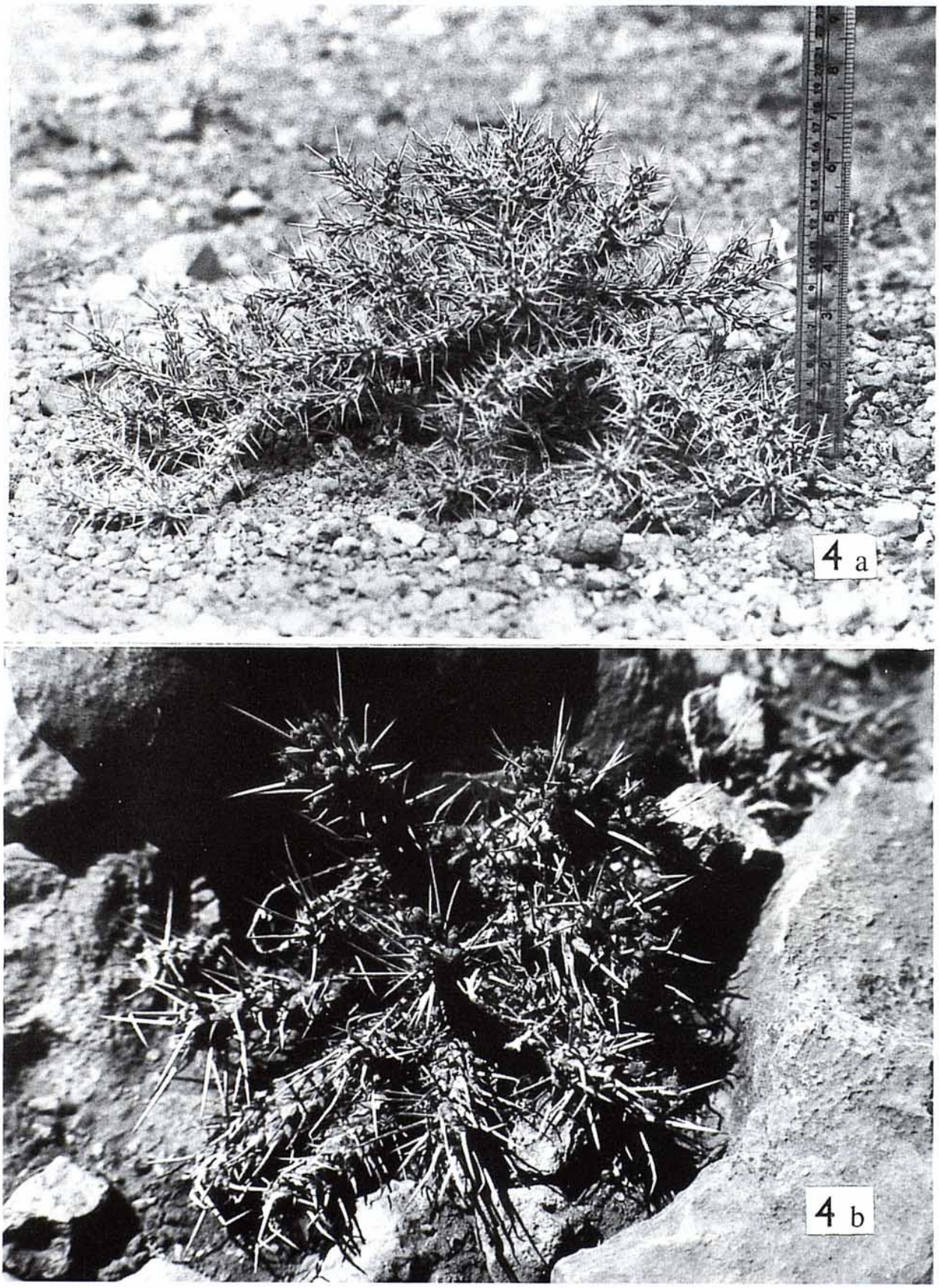


Fig. 4a.—Typical form of *Euphorbia xylacantha* in northern Somalia, with spreading tangled branching.

Fig. 4b.—Form of *E. xylacantha* (in fruit) from near Hargesia, with branches short, possibly due to overgrazing.

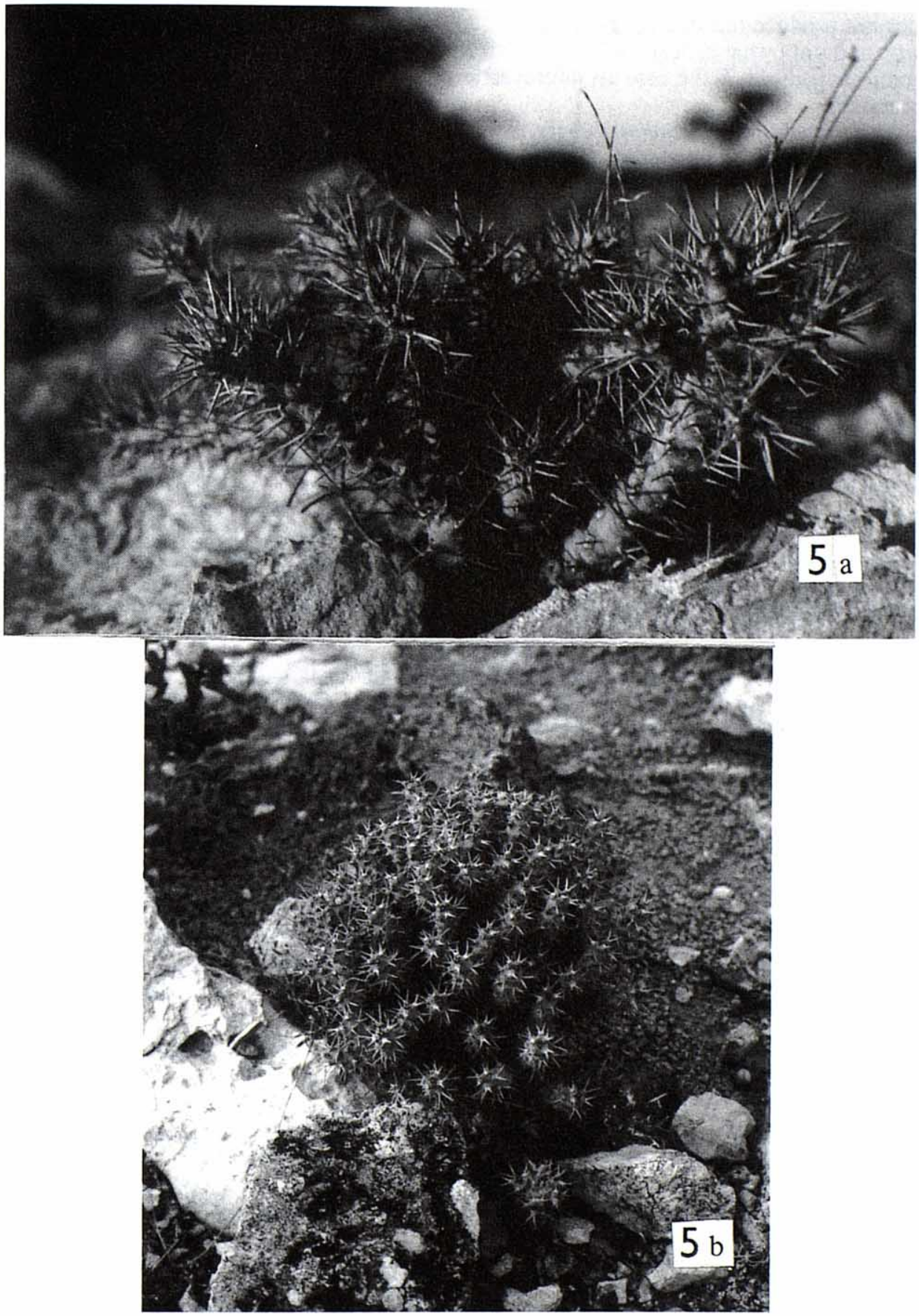


Fig. 5a.—*Euphorbia perarmata,* with lax branching and slender spines about 2cm long.

Fig. 5b.—*E. ponderosa,* with compact branching and stout spines about 1cm long.

does not produce this characteristic. In all other respects plants are identical to the typical form, and until what appears to be only a slight difference can be coupled with other more significant features, in this case the discrepancy does not seem sufficient to jusitify taxonomic separation.

The account of the *Euphorbieae* for the Flora of Somalia (CARTER, ed. THULIN, 1992d) is as comprehensive as is possible at this time, but together with all other aspects of the flora, it is obvious that our knowledge is not yet complete. As well as unresolved problems such as the ones detailed here, it is beyond doubt that further discoveries of species new to science are still to be made, and that further, probably similar problems of identification will arise.

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(Received 3 April 1992, accepted 22 April 1992)