Euphorbia momccoyae Lavranos: a new and long misidentified species from the Sultanate of Oman

Author: Lavranos, John J.

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JOHN J. LAVRANOS

Euphorbia momccoyae Lavranos: a new and long misidentified species from the Sultanate of Oman

Stretching for about 250 kilometers, along the shores of the Arabian Sea to the Yemeni border, is a region of the Sultanate of Oman known as the Dhofar. Unlike much of the rest of the Sultanate, which is largely desert, this unique area is thickly vegetated and even heavily forested in parts. This is due to the effects of the southwest monsoon, or *Khareef,* which brings rain and mist for a period of about four months each year, starting usually in June. It is this weather pattern, quite exceptional for Arabia, which is responsible for this most distinct ecosystem along the Dhofar coast, and has, in turn, created conditions favorable to

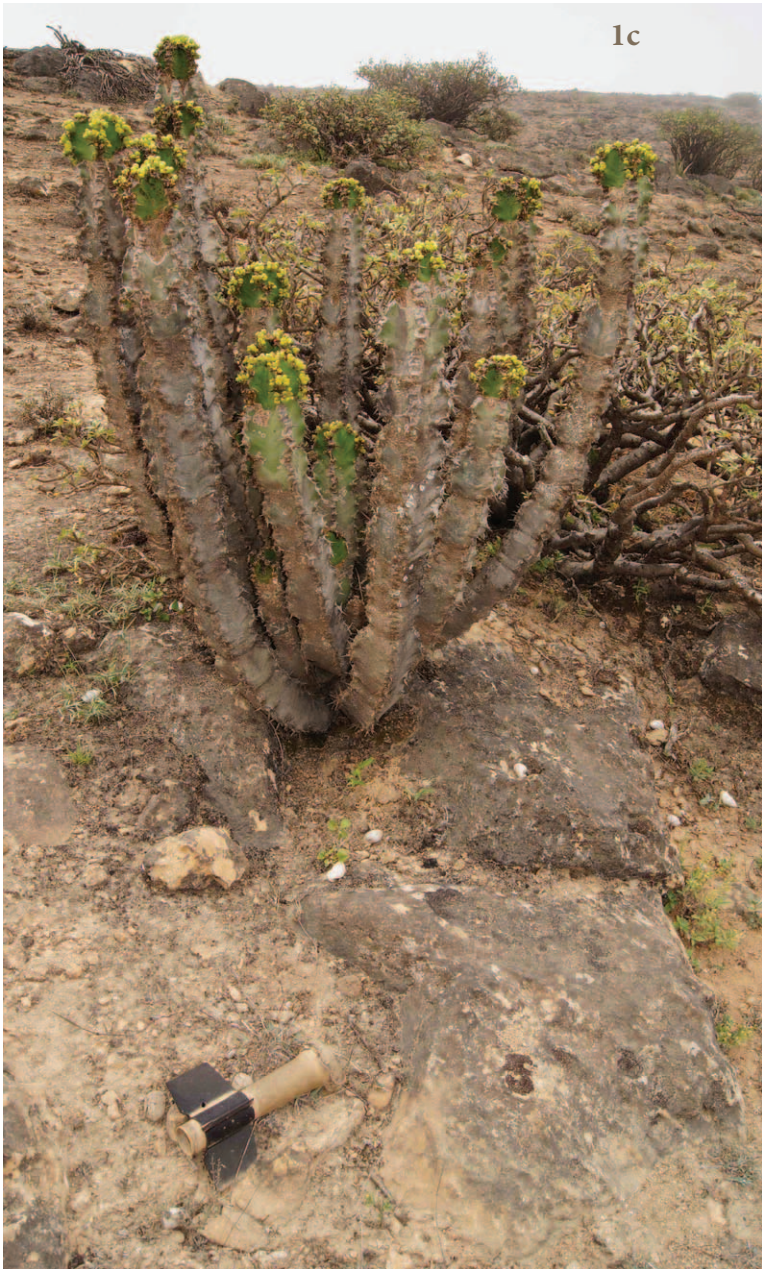
1a A general view of *Euphorbia momccoyae* habitat, with plants of *Dracaena aff. ombet* in the background, and a spreading *Commiphora sp.* growing over the rocks. ***1b*** A group of *E. momccoyae,* at the type locality. ***1c*** *E. momccoyae* with the tail section of an exploded mortar round, a grim reminder of the recent battles fought here.

the evolution of many endemic species of animals and plants.

Succulents are well represented in the Dhofar with several species of *Aloe,* the Stapelieae, *Euphorbia* and *Kleinia* recorded from here. Perhaps one of the most notable plants from the area is *Boswellia sacra* Flueck., from which the legendary frankincense is produced.

Although the Dhofar was well known and visited in ancient times most specifically for the acquisition and trade of frankincense, it was only relatively recently that the area has once again become accessible and began to be explored botanically. Up until the end of the 1970s or early 1980s, it was a site of an attempt by communists, based in South Yemen, to overthrow the Omani government. As a result, the region became a kind of "no man's land" and this prevented much scientific work being done. Reminders of this conflict are present today with many landmines still lying about the countryside undetected, thus adding to the other risks of traveling by foot in the hinterland.

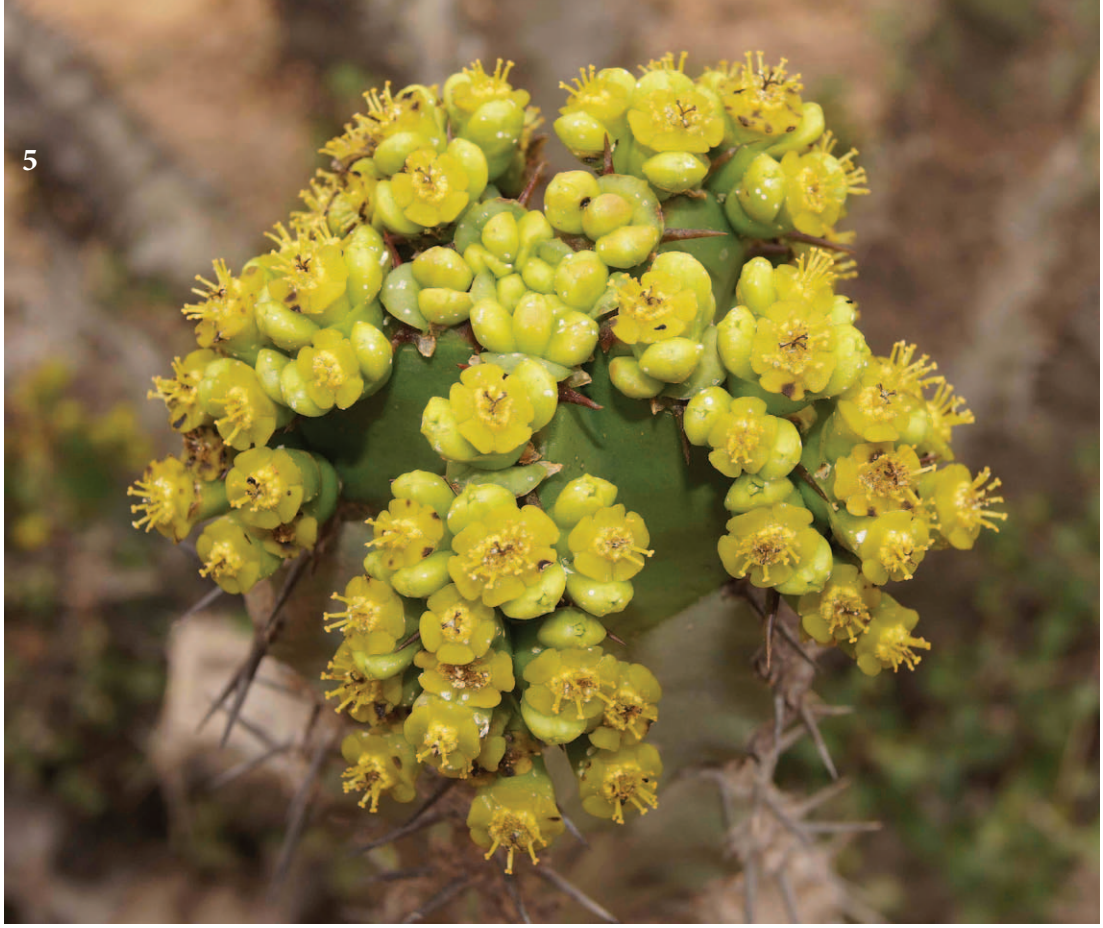
For more than a decade Tom McCoy has been exploring the Dhofar, either alone or in the company of his family, and ever since his first trip there, he has discussed with me the largest species of *Euphorbia* that occurs there (Fig. 1). Earlier



2 *Euphorbia cactus,* from the base of the Raidah Escarpment, southern Saudi Arabia. Notice the very different stem morphology, with this species possessing deeply constricted and very narrowly winged stems, unlike *E. momccoyae*.

3 General shot of *Euphorbia momccoyae* at its type locality, growing with *E. balsamifera ssp. adenensis*.
4 *Euphorbia momccoyae* seed capsules.

botanical workers had ascribed these plants to *E. cactus* Ehrenb., which is known from the Yemen, Eritrea and the Kingdom of Saudi Arabia (Fig. 2). Over the years, McCoy had spent a great deal of time observing *E. cactus* in these regions and knew the species well. The Dhofar plant has also been thought by some to be a form of *E. ballyi* S. Carter, but McCoy studied the latter at its type locality in



5 Close up of flowers of *Euphorbia momccoyae*.

Somalia, near Erigavo and confirmed that it differed considerably from the Dhofar plant. Based on his observations, McCoy became convinced that he was in the presence of an undescribed species and on his return from these trips, he has provided me with new information and details. I agree that his accumulated data now suffices for a formal description.

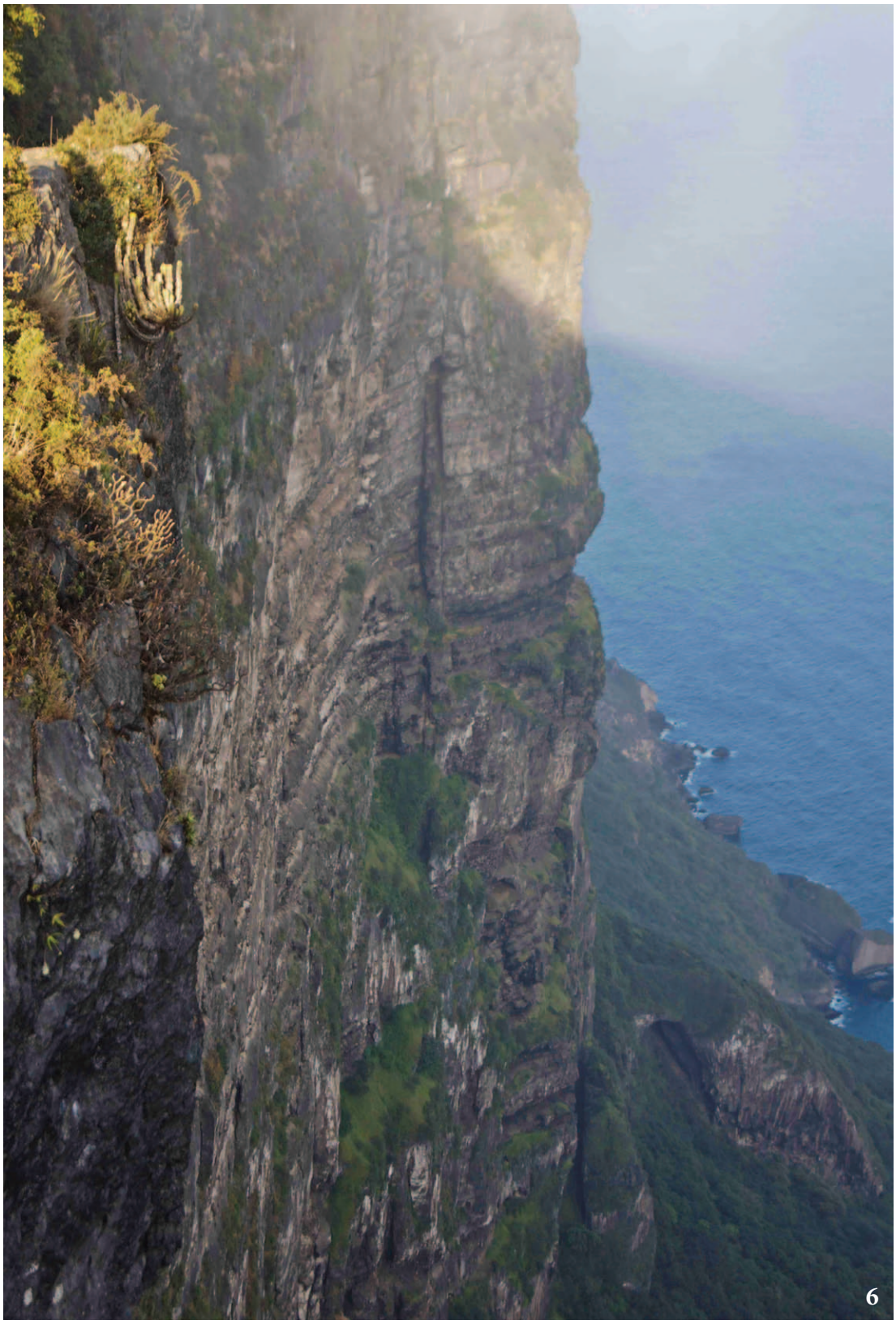
The new species seems to present similarities to other *Euphorbia* species found in the Horn of Africa. This is to be expected, as the separation of the Arabian Peninsula from Africa by the opening of the Red Sea and Gulf of Aden rifts, is of relatively recent geological age, having been initiated during the Miocene. By this time many of the ancestors of the various taxa now encountered in both North East Africa and Arabia are likely to have evolved. In fact, it would seem that our plant is much closer to *E. polyacantha* Boiss. from Ethiopia or the very rare *E. makallensis* Carter, than to *E. cactus*. Similarities between *E. polyacantha* and the species here described can be sought particularly in the form and surface texture of the stems (Fig. 3), and in the general form of the globular, not triangular or deeply tri-lobed capsules (Fig. 4), bearing in mind, however, the other differences enumerated below.

Euphorbia momccoyae Lavranos, sp nov., ad *E. polyacantham* Boissier similis sed ab illa aspecto minore, ramis valde paucioribus, haud confertis, 5 angulos exhibentibus, spinis satis brevioribus, capsulis quasi sphaericis, aetate rubro-brunneis distinguenda.

Type locality: Sultanate of Oman, Dhofar Province, on limestone, approximately 50 km east of Sarfait, 16° 50′ N, 53° 24′ E, alt. 1000 m. McCoy 3811, 23 September 2011. Holotype FT.

Plant a succulent, spiny, candelabriform, monoecious shrub to 125 cm high.

Branches 10–30, arising from a common, scarcely exposed stem, spreading, erect or incurved, uniformly dark green and finely asperulous, becoming grey with age, strongly 5 (– 6) angled, 4–5 cm across, with paired spines along slightly compressed angles. **Spines** reddish brown, becoming grey with age, to 15 mm long, pungent, with a rounded apex, the pairs situated below the leaf scar or flowering eye, often with a pair of very small prickles present on the sides of the flowering eye or on the sides of the leaf scar**. Spine shields**



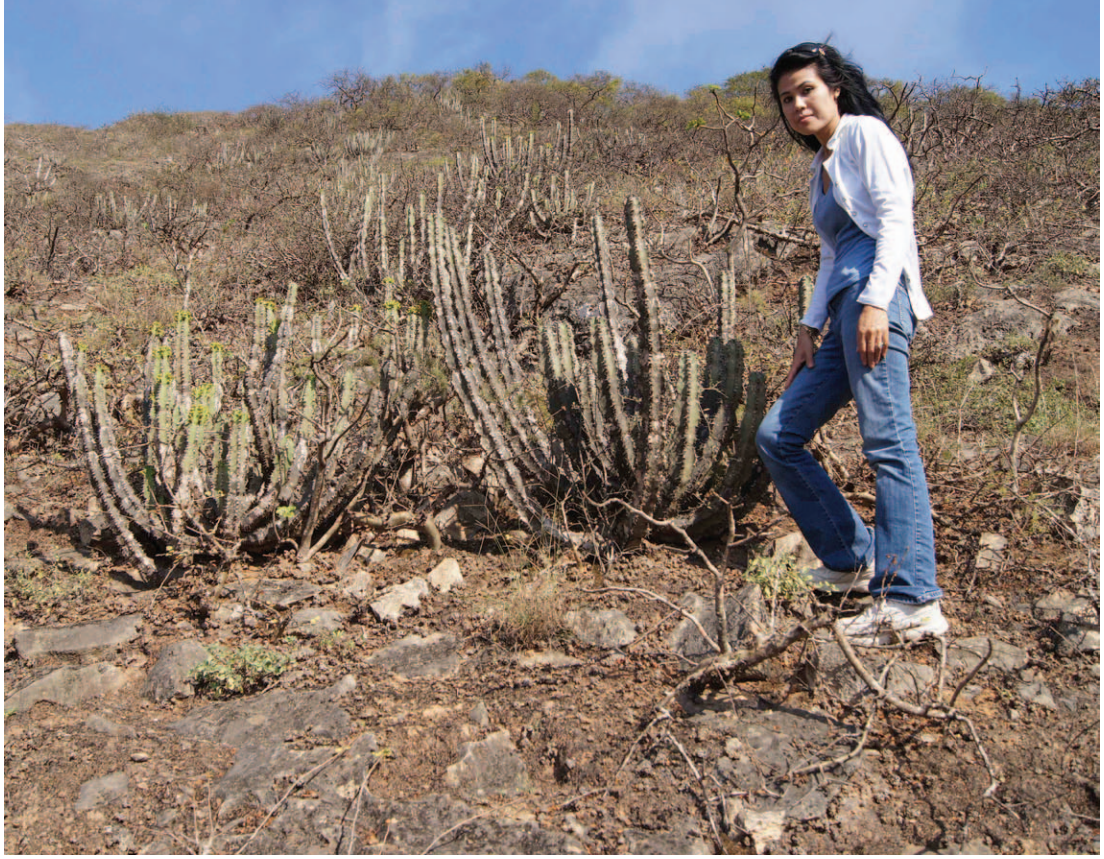
6 An example of *Euphorbia momccoyae* growing on the cliffs at Shaat, Dhofar.

Table 1

	EUPHORBIA MOMCCOYAE	*EUPHORBIA CACTUS*
GROWTH HABIT	To 125 cm tall.	To 250 cm tall.
STEM ANGLES	5 (6), scarcely winged.	3 (4) strongly compressed to form large wings
STEM COLOR/ PATTERN	Uniformly dark green, becoming grey with age.	Usually patterned with yellow to light green markings.
STEM REBRANCHING	No	Yes
STEM CONSTRICTIONS	Slight to none at all.	Very strongly constricted at intervals forming irregularly shaped segments.
HABITAT	Seemingly restricted to limestone. Found on hillsides or often growing as a cremnophyte on cliffs.	Not restricted to a single soil type. Rocky hillsides, as well as alluvial wadi courses. Never occurring as a cremnophyte.
DISTRIBUTION	Only recorded from the Dhofar region of Oman.	Saudi Arabia, Yemen and Eritrea.

7 Close-up of flowers of *E. momccoyae,* showing ant and fly activity. All photos by Tom McCoy.

confluent, forming a continuous grey margin along the stem-angles. **Leaves** broadly deltoid, 2-3 mm long, 4–5 mm wide, rapidly deciduous. **Flowering cymes** axillary on the angles of recent growth, produced in groups of three from each flowering eye, on a peduncle 2.5–3 mm long. **Cyathia** actinomorphic, produced in groups of three, the central, male, opening first, the two flanking female cyathia opening later. **Involucres** broadly conical, greenish yellow, 5–7 mm wide, 5 mm deep. **Glands** 5, separate, spreading, yellow, 1.5 mm in length, 3.5 mm wide with obovate lobes. **Male flowers** in groups of up to 15 from the mid-flowering eye, as single, yellow stamens, with a 2 mm long filament and 1 mm long, two-lobed anther. **Female flowers** with a green, glabrous, ovary, becoming brown in time, and a yellow, three-lobed, style, 3–4 mm long, with the lobes connate from the



8 Mo McCoy with *Euphorbia momccoyae* in habitat.

base to the middle, then becoming bifid at apex. **Seed capsules** barely exserted, globose, 3-lobed, 8 mm wide, reddish brown upon ripening. **Seeds** 2.5–3 mm, across, smooth, grey.

Since this new species has been constantly misidentified as *E. cactus* Eherenberg. Table 1 shows the differences between the two taxa. It must be added that *E. cactus* is quite variable in habit but has been found, over it extensive range, to bear constantly deeply three-lobed seed-capsules. In floral details, like many of the other species from Southern Arabia and North-East Africa, both *E. momccoyae* and *E. cactus* produce similar-looking cymes composed of two female flowers on each side of a single male cyathium (Fig. 5).

Euphorbia momccoyae seems restricted to the limestone terrain that makes up most of the Dhofar. While it mostly occurs on low hillsides or almost level ground, it also may occasionally be found growing as a cremnophyte on some of the very imposing cliffs of the area. One site in particular is on the upper face of the cliffs of Shaat that drop an incredible distance straight into the Indian Ocean (Fig. 6). Here this *Euphorbia* shares the habitat with two other very rare endemics, *Aloe whitcombei* Lavranos and *Kleinia butleri* McCoy and Lavranos. McCoy has also found a few specimens of this new *Euphorbia* in the *Adenium /Jatropha* association near the summit of the Dhofar's highest mountain, Jebel Samhan. He reports that the flowers of *E. momccoyae* produce sweet nectar that attracts many species of ants and flies that act as the plants' pollinators (Fig. 7).

It is with great pleasure that I dedicate this new species, not to the intrepid plant hunter Tom McCoy, but instead to his wife, Mo McCoy (Fig. 8). This is not only for her interest in the genus *Euphorbia,* and for considerable help in the field, but also for the years of support she has given Tom in his endeavors at botanical exploration in Arabia and elsewhere in often unsettled or distant lands. I thank Tom McCoy for making his notes, photos and fieldwork so freely available to me, which made this description possible.

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