

Notes on some South African species of the Genus *Euclea*

By

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EUCLEA CRISPA, *E. LANCEOLATA*, *E. OVATA* AND SOME HYBRIDS.

The fact that *Celastrus crispus* Thunb. represents a species of *Euclea* was realised by Sonder who states in a note in Harvey & Sonder Fl. Cap. 1: 461 (1859-60) "*Celastrus crispus* Thunb. = *Eucleae* (Ebenac)". Later this was taken up by Guerke in Pflanzenfamilien 4, 1: 158 (1891) who credited the combination to Sonder.

Under the modern Rules of Botanical Nomenclature a new combination is only valid if the combination is actually made, hence in the present case, Guerke not Sonder is the effective author.

Guerke regarded *Celastrus crispus* as representing the same species as *E. ovata* Burchell, Pflanzenfam. 4, 1: 158 (1891). When the type specimen of *C. crispus* was examined by me, it was found to agree more closely with the type of *E. lanceolata* E. Mey. ex DC. However, Hiern, in the Fl. Cap., and later Sim, in his Forest Flora of Cape Col. p. 262, noted that *E. lanceolata* and *E. ovata* cannot easily be distinguished. I have failed to find sufficient difference to justify keeping them as distinct species.

I regard *E. lanceolata* to be a synonym of *E. crispata* and *E. ovata* a variety of *E. crispata*.

***Euclea crispata* (Thunb.) Sond. ex Guerke**, aggregate species.

(a) var. ***crispata***.

E. crispata (Thunb.) Sond. ex Guerke in Pflanzenfam. 4, 1: 158 (1891). Type: Cape, Thunberg s.n. *E. lanceolata* E. Mey ex DC. Prodr. 8: 217 (1844); Hiern in F.C. 4, 1: 467 (1906). Type: Klipplaat River, Drege s.n.

Celastrus crispus Thunb. in Hoffm. Phytogr. Blätt 1: 23 (1803).

(b) var. ***ovata* (Burch) de Winter** comb. et stat. nov.

E. ovata Burch. Trav. S. Afr. 1: 387 (1822); Hiern in F.C. 4, 1: 468 (1906). Type: Hay, Sluipslang, Burchell 1706.

When studying the var. *ovata* it was found that the leaves of some specimens are indistinguishable from the leaves of *E. coriacea*, a species very different in its floral characteristics. The undulate margin, indumentum and acute apex of the leaves of var. *ovata* are reminiscent of *E. coriacea*, and the area of distribution is so situated that the idea that var. *ovata* originated due to hybridization between *E. coriacea* and *E. crispata* presents itself. The floral structure, however, offers little evidence for the suggestion since the flowers of the var. *ovata* have deeply cleft corollas, quite unlike those of *E. coriacea*, in which the corollas are only very shallowly lobed. One could assume that the gene for a deeply cleft corolla is dominant. In some forms of *Euclea natalensis*, which, on the evidence available, can only be regarded as the result of hybridization between *E. natalensis* and *E. tomentosa*, the same obstacle presents

itself. Here again the acceptance of the deeply lobed corolla as being controlled by a dominant gene will give a reasonable explanation of the absence of plants with intermediate floral characteristics. Should the presence of this dominant gene be accepted, it is clear that the var. *ovata* could have acquired some of the leaf characteristics of *E. coriacea* by introgressive hybridization, while the flowers have remained more or less unaltered and resemble those of *E. crispata*. *E. coriacea* has on the other hand apparently remained unchanged, a fact which could be regarded as evidence against hybridization having taken place. It is significant, however, that the studies of Stebbins and others on hybridization and its effects (Variation and Evolution in Plants 1950) offer examples which agree almost in detail with the case discussed here (Chap. 7: 262–265).

On the importance of the environment for the success of hybridization I quote Stebbins: “Hybridization between well-established and well-adapted species in a stable environment will have no significant outcome or will be detrimental to the species populations. But if the crossing occurs under rapidly changing conditions or in a region which offers new habitats to the segregating offspring, many of these segregates may survive and contribute to a greater or lesser degree to the evolutionary progress of the group concerned”.

According to Acocks in Veld Types of S. Afr., Bot. Survey Mem. No. 28, the Karroo vegetation has advanced considerably eastward since the advent of man in the southern tip of Africa. When the maps drawn up by Acocks depicting conditions in 1400 A.D. and 1950 A.D. are superimposed, the supposed original boundary between Karroo and tropical grassveld and the actual boundary in 1950, enclose an area which agrees in remarkable detail with the area of distribution of var. *ovata*. It can be inferred that conditions in this area, which can be regarded as transitional, are unstable and offer a range of new habitats. On the other hand it seems unlikely that the var. *ovata* is of very recent origin, which suggests that the unstable conditions of this area go back to much earlier times than estimated by Acocks.

Another possibility is that the var. *ovata* has become better adapted to arid conditions than either of its parents, due to a recombination of characters. In this case the distribution may be mainly determined by rainfall. The distribution of rainfall, however, does not agree nearly as closely as the former with the area of distribution of the var. *ovata*, nor does geological data combined with rainfall offer a better solution.

EUCLEA SCHIMPERI, E. DAPHNOIDES AND E. MACROPHYLLA.

An examination of the Abyssinian species *E. schimperi*, shows that the two S.A. species *E. macrophylla* and *E. daphnoides* are not specifically distinct from it. *E. macrophylla* agrees in all essentials, but *E. daphnoides* differs somewhat in the shape and texture of the leaves; these are narrower and often become thicker and more coriaceous than those of typical *E. schimperi*. *E. macrophylla* is, therefore, placed in synonymy under *E. schimperi* and *E. daphnoides* is reduced to varietal rank in the same species:—

E. schimperi (A. DC.) Dandy, aggregate species.

(a) var. ***schimperi***.

E. schimperi (A. DC.) Dandy in Andrews Flow. Pl. Anglo-Egypt. Sudan 2: 370 (1952). Type: Abyssinia, *Schimper* s.n. *E. Kellaua* Hochst. in Flora 26: 83 (1843). *E. macrophylla* E. Mey. ex A. DC. Prodr. 8: 218 (1844); Hiern. in F.C. 4, 1: 472 (1906). Type: Cape, between Kei and Bashee Riv., *Drege* s.n. *E. racemosa* Murr. var. *burchellii* Hiern. in F. C. 4, 1: 474 (1906).