

CYPERACEAE

COLEOCHLOA SETIFERA NEW TO THE FLORA OF KWAZULU-NATAL

Recently, Niels Jacobsen conducted a botanical survey on and near the site of a proposed new dam in the Vryheid District of KwaZulu-Natal. The area is botanically almost unexplored, as it has a very rugged terrain. In February 1997 *Coleochloa setifera* (Ridl.) Gilly was collected, representing yet another addition to Ross's *Flora of Natal* and Gordon-Gray's *Cyperaceae in Natal* (1995). For workers who are unfamiliar with the plant, a brief description (based partly on Nelmes 1954) follows.

Coleochloa setifera (Ridl.) Gilly in *Brittonia* 5:14 (1943); Nelmes: 378 (1954); Compton: 73 (1976); Haines & Lye: 363 (1983); Forbes: 39 (1987); Kativu: 36 (1994); Lebrun & Stork: 173 (1995). Syntypes: Madagascar, *Deans Cowan s.n.*; *Hilsenberg & Bojer s.n.*

Fintelmanna setifera Ridl.: 337 (1883). *Eriospora setifera* (Ridl.) C.B. Clarke: 676 (1894); Chermeson: 270 (1937).

Eriospora rehmanniana C.B. Clarke: 297 (1898); Schönland: 65 (1922). *Coleochloa rehmanniana* (C.B. Clarke) Gilly: 14 (1943). Type: Northern Province, Houtbosch, *Rehmann 5624* (K. hol. [PRE. fragm.]).

Mat-forming perennial up to 400 mm tall, leaves and culms sparsely to densely hairy. *Shoots* densely tufted,

intravaginal. *Leaves* 2-ranked, striate; *sheaths* open, lower glossy reddish brown, upper reddish brown at extreme base, otherwise green; *ligule* comprising a line of hairs; *blades* convolute, ± 1 mm diam., upper surface glabrous, lower sparsely to densely villous, ultimately blades deciduous. *Culm* striate, rounded, ± 1.5 mm diam. *Inflorescence* a slender, 1–3-noded, suberect panicle. *Spikelets* in rounded pedicelled clusters 4–5 mm long; glumes chartaceous, pale to reddish brown, distichous, 4 or 5 per spikelet, upper 2 or 3 fertile, sometimes male only, or female below and male above, uppermost sometimes empty. *Style* becoming pyramidal, hollow; stigmas 3. *Nutlet* whitish, 3–4 mm long, with pericarp not fused to endosperm (thus resembling perigynium in *Carex*), subtended by a cupule of whitish hairs less than, to equalling length of nutlet. Flowering and fruiting mostly mid- to late summer (October to March). Figure 9.

KWAZULU-NATAL.—2731 (Louwsburg): Vryheid Dist., Farm Dipka 590, ± 23 km north of Coronation on Manzana River, 720 m. (–CA), *Jacobsen 5484* (PRE).

This new record for KwaZulu-Natal is not altogether unexpected, as *C. setifera* is quite widespread in hard rocky outcrops (composed of e.g. quartzite, granite or norite) in Northern Province, North-West, Gauteng, Mpumalanga and Swaziland (Figure 10). It also occurs



FIGURE 9.—*Coleochloa setifera*. Habit, $\times 0.3$. Photograph by A. Romanowski.

in eastern tropical Africa (Mozambique, Zimbabwe, Zambia, Malawi, Kenya, Tanzania) and on Madagascar. In KwaZulu-Natal the species was observed growing in crevices in exposed quartzite on a steep east-facing slope above the Manzana River on Dipka Farm. It was also observed in the vegetative state on the neighbouring No. 1 of Skurwerand 277 Farm, Paulpietersburg District.

The genus is confined to Africa and Madagascar, represented by seven species and one variety distributed in

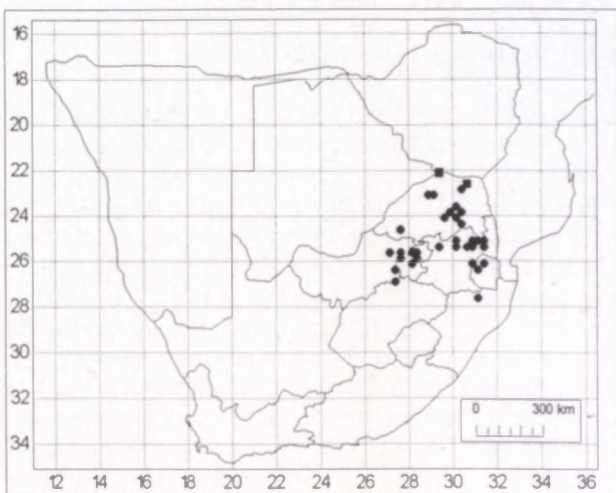


FIGURE 10.—Distribution of *Coleochloa* Gilly in southern Africa (specimens in PRE). *C. setifera*, ●, *C. pallidior*, ■.

the eastern half of tropical Africa. The other southern Africa species, *C. pallidior*, occurs on the Soutpansberg in Northern Province (Figure 10), and nearby in southern Zimbabwe.

C. setifera has some economic value, for example in Mpumalanga the wiry leaves and culms are used to make rope (cf. *Van der Schijff* 729, PRE) and in Swaziland they are woven into mats (cf. *Compton* 26119; 30861, both PRE).

There are additional reasons why the species merits further study:

1. *Taxonomic confusion*

The unique loosely attached pericarp was initially interpreted as a perigynium; therefore *Coleochloa* and related genera were once classified in the Tribe *Cariceae* Kunth ex Dumort. (Clarke 1897/1898). More recently they have been classified in other tribes including *Sclerieae* Kunth ex Fenzl (Clarke 1908; Raynal 1963), and *Lagenocarpeae* Gilly (Gilly 1943) but have finally been placed in their own small tribe, *Trilepideae* Goetgh. (Goetghebeur 1985), which comprises *Coleochloa* Gilly, the South American *Trilepis* Nees and the West African *Afrotrilepis* (Gilly) J. Raynal and *Microdracoides* Hua.

At species level, there is some doubt as to the distinction between *C. setifera* and its geographically nearest neighbour, *C. pallidior* Nelmes. Nelmes (1954) distinguished them by the latter species having, *inter alia*, loosely tufted extravaginal shoots, glabrous leaves and culms, leaves 3–4 mm wide, and nutlet 3.0–3.5 mm long, subtended by a cupule of hairs less than half the length of the nutlet. Browning & Gordon-Gray (1992) and Kativu (1994), however, suggest that the differences are not nearly as clear-cut as indicated by Nelmes and that there is a need for extensive fieldwork. At present in the National Herbarium the two species are retained as separate entities.

2. *Ecophysiology*

Members of the tribe colonise habitats which experience periods of extreme desiccation. The other three genera produce aerial stem-like structures composed of the remains of leaf bases intergrown with thick adventitious roots, similar to the ‘stems’ in *Xerophyta* Juss. (Velloziaceae). This stem-like development is not very marked in *Coleochloa* itself, however. *C. setifera*, studied by the author in several field localities and in the herbarium, was seen to form dense mats of leaf bases and roots, filling the cracks in rocks. It has been shown (Porembski & Barthlott 1995), that these roots possess a velamen which is able to absorb water rapidly, thus the plant is able to capitalise on brief showers of rain.

REFERENCES

BROWNING, J. & GORDON-GRAY, K.D. 1992. The genus *Coleochloa* Gilly. *Notulae cyperologicae* 8. *Cyperaceae Newsletter* 11: 7–9.
 CHERMEZON, H. 1937. 29e famille—Cypéracées. In H. Humbert, *Flore de Madagascar*: 270. Tananarive.
 CLARKE, C.B. 1894. *Eriospora setifera*. In T.A. Durand & H. Schinz, *Conspectus florae Africae* 5: 676. Brussels.

- CLARKE, C.B. 1897/1898. Cyperaceae. In W.T. Thiselton-Dyer, *Flora capensis* 7: 149–310. Reeve, London.
- CLARKE, C.B. 1908. New genera and species of Cyperaceae. *Kew Bulletin*, add. ser. 8.
- COMPTON, R.H. 1976. The Flora of Swaziland. *Journal of South African Botany*. Suppl. Vol. 11.
- FORBES, P.L. 1987. Cyperaceae. In T.K. Lowrey & S. Wright, *The Flora of the Witwatersrand* Vol. 1. The Monocotyledonae: 29–64. Witwatersrand University Press, Johannesburg.
- GILLY, C.L. 1943. An Afro-South American Cyperaceous complex. *Brittonia* 5: 1–20.
- GOETGHEBEUR, P. 1985. Studies in Cyperaceae 6. Nomenclature of the suprageneric taxa in the Cyperaceae. *Taxon* 34: 617–632.
- GORDON-GRAY, K.D. 1972. Cyperaceae. In J.H. Ross, *Flora of Natal. Memoirs of the Botanical Survey of South Africa* No. 39: 99–103.
- GORDON-GRAY, K.D. 1995. Cyperaceae in Natal. *Strelitzia* 2.
- HAINES, R.W. & LYE, K.A. 1983. *The sedges and rushes of East Africa*: 363. East African Natural History Society, Nairobi.
- KATIVU, S. 1994. Notes on *Coleochloa* Gilly (Cyperaceae) in the *Flora zambesiaca* area. *Kirkia* 15: 33–37.
- LEBRUN, J.-P. & STORK, A.L. 1995. *Énumération des plantes à fleurs d'Afrique tropicale* Vol. III—Monocotylédones: Limnocaritaceae à Poaceae. Conservatoire et Jardin botanique de la Ville de Genève, Genève.
- NELMES, E. 1954. Notes on Cyperaceae: XXXI. The African genus *Coleochloa*. *Kew Bulletin* 1953: 373–381.
- POREMBSKI, S. & BARTHLOTT, W. 1995. On the occurrence of a velamen radicum in Cyperaceae and Velloziaceae. *Nordic Journal of Botany* 15: 625–629.
- RAYNAL, J. 1963. Notes cypérologiques. 1. *Afrotrilepis*, nouveau genre africain. *Adansonia*, sér. 2, 3: 250–265.
- RIDLEY, H.N. 1883. Descriptions and notes on new or rare Monocotyledones plants from Madagascar, with one from Angola. *Journal of the Linnean Society Botany* 20: 337.
- SCHÖNLAND, S. 1922. Introduction to South African Cyperaceae. *Memoirs of the Botanical Survey of South Africa* No. 3. Government Printer, Pretoria.

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