

POACEAE

DIVERSE NOTES ON SOUTHERN AFRICAN POOIDS

While preparing the account of the Poeae for the *Flora of southern Africa*, I have encountered the following problems, which require a more detailed treatment than is desirable in the Flora. A full taxonomic treatment of the tribe will shortly appear in the Flora, so I will not repeat it here.

1. *Festuca elatior* L.

This taxon has been known in the last decades under the name *F. arundinacea* Schreb. When Linnaeus described *Festuca elatior* in 1753, he included in his protologue elements of two taxa, *F. pratensis* Hudson and *F. arundinacea* Schreb. Subsequently the name has been used for either taxon, or for both, or as *F. elatior* subsp. *arundinacea* (Schreb.) Wimm. and *F. elatior* subsp. *pratensis* (Hudson) A. Gray. Terrell (1967) dealt in detail with the typification of *F. elatior* L., and argued convincingly that this name applies to *F. arundinacea* and not to *F. pratensis* Hudson. Following European practice he then rejected the name as a *nomen ambiguum*. However, subsequent to the Leningrad Conference, *nomina ambigua* no longer exist, and the name must be used. According to Terrell (1967: 131) the type specimen is specimen no. 92.17 in LINN. I formally propose it here as the lectotype:

Festuca elatior L., Sp. Pl. 75 (1753). Type: Hortus Upsaliensis, specimen no. 92.17 (LINN, lecto.) (lectotypified here).

2. *Festuca dracomontana* Linder, sp. nov., a *Festuca camusiana* Saint-Yves arista subterminali, a *Festuca simensis* A. Rich. auriculis parvioribus et aristis brevioribus recedit. Type: Lesotho, 3028 (Matatiele): Letsing La Letsie slopes (–AC), P. C. V. du Toit 2714 (PRE, holo.!: K!; MO!).

Plants perennial, 0,5–0,8 m tall. Culms smooth, terete, rhizomatous at the base and occasionally swollen. Leaves cauline; sheaths smooth; ligules membranaceous, glabrous, less than 1 mm long and often lacerated; auricles glabrous, 1–2 mm in diameter; blades expanded, 2–8 mm wide, acute, smooth or somewhat rough, to 200 mm long. Inflorescence an open panicle, exserted, to 250 mm long; rhachis smooth, branches somewhat compressed and rough on the edges. Spikelets pale green, 10–12 mm long, 3–7-flowered. Glumes unequal, acute; lower glume 2,5–4 mm long, 1 (3)-nerved; upper glume 4,5–5 mm long, 3-nerved. Lemmas acute, dorsally rounded, 5-nerved, 5,5–8 mm long, scabrid in the upper half with the upper margins membranous; awn subterminal, scabrid, 1–4 mm long. Paleas about as long as the lemmas, keels scabrid. Stamens 3; anthers 3 mm long. Styles 2; mature ovaries not seen. Fig. 18.

Habitat montane grassland in the Natal and Transvaal Drakensberg; rather rare.

LESOTHO.—3028 (Matatiele): Letsing La Letsie slopes (–AC), P. C. V. du Toit 2714 (K; MO; PRE).

TRANSVAAL.—2528 (Pretoria): Pretoria (–CA), Meebold 13800 (PRE). 2329 (Pietersburg): Haenertsburg, grassy hillsides (–DD), Ellis 1874 (PRE).

This curious species, with its disjunct distribution, is quite distinct from all other southern African fescues, but approaches the tropical African species *F. camusiana* Saint-Yves and *F. simensis* A. Rich. The former has terminal awns, and the transverse section (ts) of the leaf is somewhat different. The leaf ts of the latter is the same as *F. dracomontana*, but it has much longer awns and larger auricles. *F. dracomontana* is probably a southern vicariant of *F. simensis*, but it is surprising that *F. simensis* does not reach further south than Kenya.

3. Leaf anatomy of southern African fescues

The arrangement of the vascular bundles and the distribution of sclerenchyma is generally held to be almost species-specific in *Festuca*, especially in the narrow-leaved fescues. Saint-Yves (1929) published drawings of the leaf anatomy of four of the nine southern African species.

Transverse sections of the leaves were prepared from herbarium material, which was briefly softened in boiling water, the silica removed by soaking in HCl for 12 hours, and the leaves sectioned at 20 µm on a slide microtome. The sections were stained with



FIG. 18. — *Festuca dracomontana*.

Safranin, and mounted in 50% glycerol. The results are presented in Fig. 19.

The following groups may be recognized:

(a) *Festuca caprina* Nees: leaves less than 1,5 mm wide, usually folded, with 5–7 vascular traces, and small bundles of sclerenchyma opposite the bundles, more or less embedded in the epidermis, and not reaching the bundles (Fig. 19a; see also Saint-Yves 1929: 97, Fig. 15). *Schelppe* 1396 differs from this pattern by having small sclerenchyma bundles on the

inside of the vascular traces. This collection also differs morphologically from the typical *F. caprina*, but other collections that agree with *Schelppe* 1396 in external morphology have a typical leaf ts.

(b) *Festuca costata* group (*F. costata* Nees and *F. killickii* K.-O'Byrne): leaves with at least 9 traces, often flat. Vascular traces of alternating size. Sclerenchyma reaching from the inner to the outer epidermis, expanded on the inner surface in a T-shaped girder. In *F. costata* the sclerenchyma is continuous

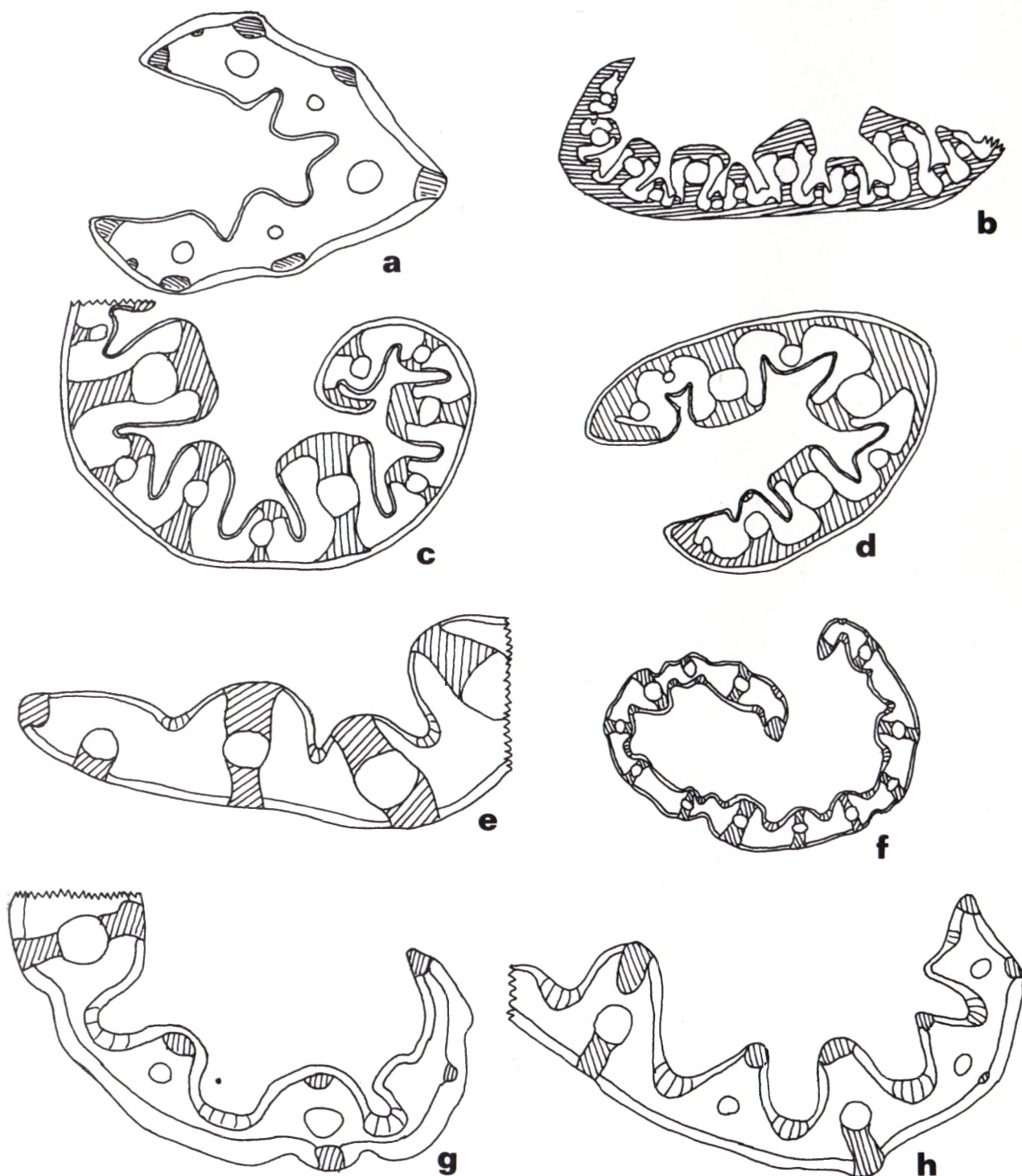


FIG. 19. — Transverse sections of leaves of southern African fescues. Shaded areas indicate sclerenchymatous tissue: a, *F. caprina*, $\times 100$, from McCallum Webster N 483a; b, *F. costata*, $\times 40$, from Hilliard & Burt 7200; c, *F. killickii*, $\times 100$, from Hilliard & Burt 15211; d, *F. costata*, $\times 100$, from Manning, Hilliard & Burt 16008; e, *F. scrabra*, $\times 100$, from Acocks 19731; f, *F. longipes*, $\times 40$, from Rogers 12744; g, *F. vulpioides*, $\times 100$, from Liebenberg 3811; h, *F. dracomontana*, $\times 100$, from Du Toit 2714.

under the outer epidermis (Fig. 19b, d). In some specimens the leaves are about 0.5 mm wide, and are folded, (Fig. 19d) and agree exactly with Saint-Yves's (1929: 99, Fig. 17) illustration of *F. obturbans* Saint-Yves. However, *F. obturbans* is a northern vicariant of *F. caprina*, occurring from Mt Kilimanjaro northwards to the Yemen, and is in external morphology scarcely distinct from *F. caprina*. *F. killickii* (Fig. 19c) lacks the subepidermal sclerenchyma that characterizes *F. costata* (Fig. 19d).

(c) *Festuca scabra* group (*F. scabra* Vahl, *F. longipes* Stapf, *F. vulpioides* Steud., *F. africana* (Hack.) W. D. Clayton and *F. dracomontana* Linder): this group has wide, expanded leaves with numerous vascular bundles, all about the same size, seated between two sclerenchymatous bundles, which connect the vascular bundles to the upper and the lower epidermisses (Fig. 19e, f, g, h). Usually the inner epidermal cells in the folds are enlarged. In *F. vulpioides*, *F. africana* and *F. dracomontana* the sclerenchyma of only some bundles reaches the epidermis.

4. The typification of many of the Poeae and Bromae indigenous to Southern Africa is difficult. Most of them were described by Nees ab Esenbeck (1841).

Nees frequently recognized several varieties in his species. When he recognized varieties, he included all the material in these varieties, that is, he did not recognize a 'typical' form. As in his study of the Restionaceae (see Linder 1985), these varietal names are not correct, as he did not consistently employ binomials [ICBN 1983, art. 23 (c)]. For example, p. 21: '*Panicum monodactylum* var. a. inferioribus vaginisque pilosulis'; and p. 33: '*Panicum numidianum* var. B. Culmo magis ramoso, vaginis rhachi et ramis racemi hirsutis'. However, later authors occasionally cite the Nees varieties in their diagnoses of new species, such as *Festuca longipes* Stapf, based on *F. costata* 'var. fascicularis' of Nees, and *Bromus firmior* Stapf, based on *B. speciosus* 'var. firmior' of Nees. The course which allows the most consistent treatment of Nees's infraspecific categories appears to be to ignore them for formal nomenclatural purposes.

Nees's herbarium has been scattered, and I have not been able to find any specimens annotated by Nees. Nees identified his material only by collector and locality, so that the identification of isotypes may also be difficult. Generally I have accepted the locality and collector date given on the sheets at Kew, although much of it was added in a hand different to that of the collector.

I have lectotypified isotype material, and where there are several syntypes, I selected the best material as the lectotype. These lectotypifications are given below:

***Bromus firmior* (Nees) Stapf** in F.C. 7: 733 (1900). *Bromus speciosus* Nees var. *firmior* Nees, Fl. Afr. Austr. 454 (1841). Type: Cape, in the Stormberge and the Witteberg, 5000–6000 ft, *Drège s.n.* (SAM, lecto.!:; TCD!).

***Cynosurus odoratus* Lehm ex Nees**, Fl. Afr. Austr. 439 (1841). Type: Cape Province, ? Swellendam Distr., *Mundt* (SAM, lecto.!). Nees cited a *Mundt* collection from the Swellendam District as type. In SAM are two *Mundt* collections, *Zeyher 128*: 'probabiliter in sylvaticus ad Plettenbergs bay lectus', and *Zeyher 25*: 'verisimiliter in distr. George locis sylvaticus lectum'. These labels may be wrong, as this species has not since been recorded from forests, but the collections are probably isotype material.

***Festuca africana* (Hack.) W. D. Clayton** in Kew Bull. 40: 727 (1985). *Brachelytrum africanum* Hack. in Bull. Herb. Boissier 3: 382 (Aug. 1895). Type: Transvaal, Houtbosch, *Rehmann 5732* (K, lecto.!).

***Festuca caprina* Nees**, Fl. Afr. Austr. 443 (1891). Type: Cape Province, Los Tafelberg near Queenstown, Dec., *Drège s.n.* (K, lecto.!).

***Festuca costata* Nees**, Fl. Afr. Austr. 447 (1841). Types: Cape Province, Katberg, *Drège s.n.* (K, lecto.!:); Windvogelberg, *Drège s.n.* (SAM!); Winterberg near Phillipstown, *Zeyher s.n.* (K!); at Herrenhuter Mission, *Ecklon & Zeyher s.n.* (not found).

***Festuca vulpioides* Steud.**, Syn. Pl. Glum. 1: 305 (1859). *Vulpia megastachya* Nees, Fl. Afr. Austr. 441 (1841), non *Festuca megastachys* Hegetscher & Heer (1840). Type: South Africa, without precise locality, *Drège s.n.* (K, lecto.!:; TCD!).

***Poa binata* Nees**, Fl. Afr. Austr. 578 (1841). Types: Cape Province, Queenstown Division, Los Tafelberg, *Drège s.n.* (K, lecto.!:; E!; TCD!); in mountains between Klipplaatsrivier and Katrivier, *Drège s.n.* (not found).

***Puccinellia angusta* (Nees) C.A. Sm. & C. E. Hubb.** in Kew Bull. 1929: 85 (1929). *Sclerochloa angusta* Nees, Fl. Afr. Austr. 381 (1841). Type: Cape Province, Uitenhage, along the Swartkops River, December, *Ecklon s.n.* (SAM, lecto.!:; K!).

ACKNOWLEDGEMENTS

The work for this paper was done at the Royal Botanic Gardens, Kew. I am grateful to Dr Tom Cope, Dr W. D. Clayton and Mr S. Renvoize for much stimulating discussion, and to the Directors of PRE, BOL, STE, and NBG for the loan of their material of the Poeae.

REFERENCES

- LINDER, H. P. 1985. Conspectus of the African species of Restionaceae. *Bothalia* 15: 387–503.
- NEES AB ESENBECK, C. G. 1841. *Florae Africae Australioris*. Glogau.
- SAINT-YVES, A. 1929. Contribution à l'étude des *Festuca* (subgen. *Eu-Festuca*) de l'Afrique australe et de l'Océanie. *Candollea* 4: 65–129.
- STAFLEU, F. A. 1983. *International Code of Botanical Nomenclature*. Utrecht: Bohn, Scheltema & Holkema.
- TERRELL, E. E. 1967. Meadow fescue: *Festuca elatior* L. or *F. pratensis* Hudson? *Brittonia* 19: 129–132.

H.P. LINDER