

At present, following Smook (1990), the varieties of *Stipagrostis uniplumis* (Licht.) De Winter and *S. hirtigluma* (Trin. & Rupr.) De Winter in the *Flora of southern Africa (FSA)* region are characterized as follows:

Stipagrostis uniplumis var.:

uniplumis: perennial; inflorescence with spikelets numerous; glumes glabrous, up to 10 mm long; callus of the *uniplumis*-type (short hairs continuous from naked tip up entire length of callus to long hairs at junction of callus and lemma); widespread in *FSA* region.

neesii (Trin. & Rupr.) De Winter: perennial; inflorescence with spikelets few; glumes glabrous, usually longer than 10 mm; callus of the *uniplumis*-type; occurs in northwestern Northern Cape, western Free State, North-West and adjoining area of Botswana and extreme northern Limpopo.

intermedia (Schweick.) De Winter: annual; inflorescence with spikelets numerous; glumes hairy, usually up to 8 mm long; callus of the *uniplumis*-type; dry north-western Namibia.

Stipagrostis hirtigluma var.:

hirtigluma: annual; inflorescence narrow; glumes hairy; callus of the *hirtigluma*-type (with a distinct glabrous break between short hairs on body of callus and long hairs at junction of lemma and callus, best seen at back of callus).

pearsonii (Henrard) De Winter: annual; inflorescence open; glumes hairy; callus of the *hirtigluma*-type.

patula (Hack.) De Winter: perennial; inflorescence open; glumes densely hairy; callus of the *hirtigluma*-type.

The main characters separating *Stipagrostis uniplumis*

from *S. hirtigluma* are the hairs on the callus (see above) and the presence of a distinct pencil of hairs at the branching point of the awns in the former. In the latter species, the column is sometimes hairy, but without a distinct pencil of hairs.

Perennials with hairs on the glumes and a *uniplumis*-type callus have been referred to as a hybrid, *Stipagrostis uniplumis* × *hirtigluma*—see De Winter (1965) and note under *S. uniplumis* var. *intermedia* in couplet 30 of the key in Smook (1990).

Re-examination of all the specimens at PRE that key out as *Stipagrostis uniplumis* × *hirtigluma* showed that a large number of the specimens fitted the description of *S. uniplumis* var. *uniplumis* except for the hairs present on the glumes. It is therefore proposed, for the reasons given below, that the description of var. *uniplumis* be expanded to accommodate those specimens that fulfill all the other criteria for *S. uniplumis* var. *uniplumis* but have hairs on the glumes:

1, hairy glumes are not unknown in *S. uniplumis*, also occurring in var. *intermedia*, an annual from the more arid northwest of Namibia;

2, the density of hairs, even the presence of hairs on the glumes, can vary on spikelets of the same inflorescence. The hairs are often difficult to see (a black background makes them more visible). Hairiness appears not to be a stable character in *S. uniplumis*. De Winter (1965) points out that the presence or absence of hairs on glumes has proved to be diagnostically unreliable in other species of the genus. Therefore, not too much weight should be placed on this character;

3, there are a large number of specimens from across the entire distribution area of var. *uniplumis* that differ from

the typical form only in having hairs on the glumes (see specimens examined below);

4, the callus is of the *uniplumis*-, not *hirtigluma*-type.

In the *Flora zambesiaca* region, Melderis (1971) also placed most specimens from Botswana and Zimbabwe differing only by hairy glumes in var. *uniplumis*, acknowledging that some specimens in Namibia could possibly be hybrids.

The new expanded description of *S. uniplumis* var. *uniplumis* is as follows: perennial; inflorescence with spikelets many; spikelets 8–10(–11) mm long (measured from base of spikelet to apex of longest glume, excluding awns); tuft of hairs at branching point of awns and often hairy partly down column, hairs longer than 1.5 mm; glumes glabrous or long-hairy, hairs dense to sparsely scattered but at least always present on margins; callus of the *uniplumis*-type.

There are still a number of perennial specimens with a pencil of hairs at the branching point of the awns, hairy glumes and a callus of the *uniplumis*-type that are difficult to place in either var. *neesii* or the new extended var. *uniplumis* and will key out as the hybrid *S. uniplumis* × *S. hirtigluma* (see key below).

The emended key in Gibbs Russell *et al.* (1990: 319, 320) is given below, starting at couplet 28 (22) of the original key:

- 28(22) Glumes with long hairs, sometimes sparse and along margins only 29
 Glumes puberulous, scabrid or glabrous 35
 29(28) Inflorescence spiciform, subsecund; culms not visibly or obviously striate, usually densely scabrid
 *S. gonatostachys*
 Inflorescence open or contracted but not spiciform; culms obviously striate, smooth 30
 30(29) Callus with short hairs along entire length (except for naked tip) until long hairs at junction of lemma and callus (*uniplumis*-type) 31
 Callus with distinct glabrous break between short hairs along length of callus and long hairs at junction of lemma and callus (*hirtigluma*-type, best seen at back) 33
 31(30) Plant annual *S. uniplumis* var. *intermedia*
 Plant perennial 32
 32(31) Glumes 8.0–10(–11) mm long *S. uniplumis* var. *uniplumis*
 Glumes longer than 12 mm *S. uniplumis* × *S. hirtigluma*
 33(30) Inflorescence narrow, when fully exerted much longer than wide; annual *S. hirtigluma* subsp. *hirtigluma*
 Inflorescence open, spreading, when fully exerted not much longer than wide; annual or perennial 3
 34 (33) Annual with very few leaves at base
 *S. hirtigluma* subsp. *pearsonii*
 Perennial with dense tuft of basal leaves
 *S. hirtigluma* subsp. *patula*
 35(28) Branching point of awns and short distance down column with hairs longer than 1.5 mm 36
 Branching point of awns and short distance down column glabrous or with hairs shorter than 1.5 mm 37
 36(35) Inflorescence with numerous spikelets; glumes 8–10 mm long; central awn usually straight *S. uniplumis* var. *uniplumis*

Inflorescence with a few spikelets; glumes 10 mm or longer; central awn bent at right angles *S. uniplumis* var. *neesii*
 37 (35) Inflorescence subsecund, branched only in the lower part, spikelets in upper part solitary continue key from couplet 35 in Gibbs Russell *et al.* (1990) advancing the numbers appropriately.

Specimens of S. uniplumis var. *uniplumis* with hairy glumes examined:

NAMIBIA.—1714 (Ruacana Falls): Kaokoland, about 4 km S of Omarundu, (–CC), Smook 7830. 1812 (Sanitatas): 8 miles W of Orowanja Fountain on road to Orupembe, (–BA), De Winter & Leistner 5649. 1813 (Ohopoho): Kaokoland, S of Opuwa on road to Sesfontein, (–DA), Smook 7841. 2014 (Welwitschia): Farm Driekrone OU 516, (–BC), Giess 7915. 2114 (Uis): Messumbege, (–AC), Giess 9662. 2117 (Otjosondou): Farm Omupanda, (–DD), Gibbs Russell & Smook 5371. 2118 (Steinhausen): Farm Merx, (–AB), Gibbs Russell & Smook 5408. 2216 (Otjimbingwe): Farm Friedenau, (–DB), Müller & Kolberg 2112. 2317 (Rehoboth): 24 km S of Rehoboth on main road to Kalkrand, (–CA), Gibbs Russell & Smook 5480. 2417 (Mariental): 20 km W of Mariental on road to Maltahöhe, (–DB), Gibbs Russell & Smook 5509A.

BOTSWANA.—1821 (Andara): Tsodilo Hills, (–DC), Guy 121/64. 1922 (Nokoneng): Mojeje area, (–CD), Smith 1302. 1923 (Maun): Chiefs Island, (–CA), Biggs M462. 2021 (Koanaka Hills): on sides of Groot Laagte fossil river valley, (–CD), Smith 3205.

MPUMALANGA.—2431 (Acornhoek): Farm Rietvley, (–AB), Zambatis 573. 2331 (Phalaborwa): 15 km SE of Shingwidsi, (–AB), Ellis 537.

LIMPOPO.—2229 (Waterpoort): Langjan Nature Reserve, (–CC), Zwanziger 522.

NORTHERN CAPE.—2820 (Kakamas): Augrabies National Park, (–CB), Weger 378. 2824 (Kimberley): Olie River, (–CC), Leistner 1292.

ACKNOWLEDGEMENTS

I wish to thank Ms E. du Plessis for helping with the text, G. Germishuizen for editing and the referees for their input.

REFERENCES

- DE WINTER, B. 1965. The South African Stipeae and Aristideae. *Bothalia* 8: 201–404.
 GIBBS RUSSELL, G.E., WATSON, L., KOEKEMOER, M., SMOOK, L., BARKER, N.P., ANDERSON, H.M. & DALLWITZ, M.J. 1990. Grasses of southern Africa. *Memoirs of the Botanical Survey of South Africa* No. 58: 275.
 MELDERIS, A. 1971. Aristideae in *Flora zambesiaca* 10,1: 133–136.
 SMOOK, L. 1990. *Stipagrostis*. In G.E. Gibbs Russell, L. Watson, M. Koekemoer, L. Smook, N.P. Barker, H.M. Anderson & M.J. Dallwitz, Grasses of southern Africa. *Memoirs of the Botanical Survey of South Africa* No. 58: 318–329.

L. FISH*

* National Herbarium, South African National Biodiversity Institute, Private Bag X101, 0001 Pretoria.
 MS. received: 2005-05-26.