

Sporobolus copei sp. nov. (Poaceae: Chloridoideae) from Tenerife (Canary Islands, Spain)

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Sporobolus copei F. Verloove sp. nov. is described and illustrated. It has been known since at least the 1970s on the island of Tenerife (Canary Islands, Spain). Until now it has been confused with both *Sporobolus diandrus* and *S. indicus*. Its origin and affinities are discussed. A status as very locally naturalised xenophyte seems most reasonable.

Sporobolus R. Brown is a nearly cosmopolitan genus of about 160 (or more) species, mostly distributed in the tropical, subtropical and warm-temperate regions of the world (Mabberley 2008). In Macaronesia – to which the island of Tenerife belongs – ten species have been recorded so far (Conert and Lobin 1983), but only few on the Canary Islands proper (Hansen and Sunding 1993, Hohenester and Welss 1993, Acebes et al. 2004). Moreover, the exact residence status (native vs non-native) for several species is quite uncertain.

The taxonomy of *Sporobolus* is complex and still insufficiently understood, despite the availability of numerous recent (local) treatments (Clayton 1974, Baaijens and Veldkamp 1991, Phillips 1995, Cope 1998, Simon and Jacobs 1999, Peterson et al. 2003, Zhenlan and Phillips 2006). Formal infrageneric classifications are impractical and non-natural. However, clusters of obviously closely related taxa are sometimes recognized. In particular, the *Sporobolus indicus* complex is a notoriously difficult group (Clayton 1965, Jovet and Guédès 1968, Baaijens and Veldkamp 1991).

During field work on the island of Tenerife (Canary Islands, Spain) in March 2008, a small but perfectly established population was discovered of a species of *Sporobolus* that obviously did not match any of the known species of that genus in Macaronesia. Additional research showed that we were in front of an apparently hitherto undescribed species. A concise revision of a few relevant herbaria yielded some additional records of this enigmatic species of *Sporobolus* from Tenerife. It is here described and depicted and its affinities and origin are discussed.

Sporobolus copei F. Verloove sp. nov. (Fig. 1)

Previously referred to as: *S. diandrus* [auct. Canar., non (Retz.) P. Beauv.]

Planta perennis, erecta, e rhizomate brevi caespitosa. Culmi floriferi haud ramosi, ad 80 cm alti, basi ad 0.3 mm in

diametro. Foliorum vaginae margine ciliatae. Ligula ca 0.2 mm longa, membranacea, fimbriata. Foliorum laminae ad 60 × 0.8 cm, lineares, planae sed basin versus distincte carinatae, rigidae, ad apicem longe filiformem angustatae; pagina abaxialis longe pilosa, pilis patentibus ad 1.5 mm longis; pagina adaxialis laevigata. Inflorescentia ad 42 cm longa, 1.5–2.0 cm lata, paniculata, anguste pyramidalis, aperta, exserta. Inflorescentiae ramuli post anthesin divergentes, omnino spiculiferi, adjacentia internodia aequantes vel longiores, inferiores ad 8 cm longi, solitarii. Spiculae pedicellatae, ad 2.5 mm longae, ellipticae. Pedicellus 0.5–2.0 mm longus, strictus. Glumae membranaceae; gluma inferior ca 1 mm longa, anguste oblonga, subacuta, enervis, glabra; gluma superior ca 1.8 mm longa, lanceolata, acuta, (leviter) 1-nervata, glabra, quam spicula ca 2/3 longior. Lemma ca 2.5 mm longum, anguste ovatum, acutum, (leviter) 1-nervatum. Palea ca 2.3 mm longa, quam lemma leviter brevius, apice subacuta, paulo retusa, (leviter) 1-nervata. Antherae 2, ca 1.1 mm longae. Fructus anguste oblongo-elliptici, ad 1.2 mm longi et 0.6 mm lati, quadrangulares, apice basi truncati.

Type: Spain. Tenerife: El Bailadero, TF12, roadverge, ca 800 m a.s.l., very locally well-established, a monospecific stand of ca 10 m², 14 Mar 2008, F. Verloove 7059 (holotype: BR, isotype: priv. herb. F. Verloove, K, TFC).

Perennial, erect, tufted from a short rhizome. Flowering culms unbranched, to 80 cm high, to 0.3 mm diameter at base. Leaf sheaths ciliate along margin. Ligule ca 0.2 mm long, fringed membrane. Leaf blades to 60 × 0.8 cm, linear, flat but distinctly keeled towards base, stiff, tapering to a long filiform apex; blades abaxially long-pilose with patent hairs up to 1.5 mm long, adaxially smooth. Inflorescence to 42 cm long, 1.5–2.0 cm wide, paniculate, narrowly pyramidal, open, exserted. Inflorescence branches divergent after anthesis, spikelet-bearing throughout, as long as or

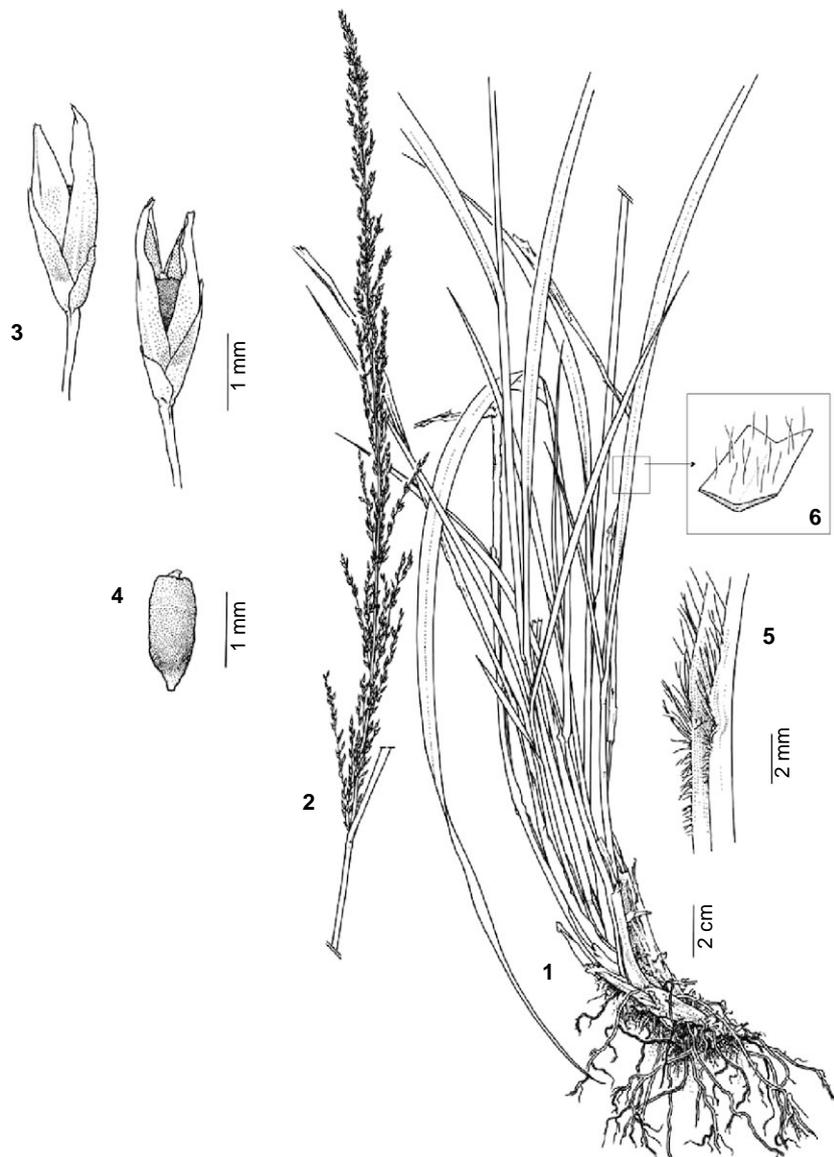


Figure 1. *Sporobolus copei* F. Verloove sp. nov. (1) lower part of culms, including rhizomes, (2) inflorescence, (3) spikelet (adaxial and abaxial view), (4) fruit, (5) leaf sheath and junction with leaf blade, (6) upper leaf surface.

longer than adjacent internodes, the lowermost to 8 cm long, solitary (not whorled). Spikelets pedicellate, to 2.5 mm long, elliptic. Pedicels 0.5–2.0 mm long, straight. Glumes membranous. Lower glume ca 1 mm long, narrowly oblong, subacute, 0-nerved, glabrous. Upper glume ca 1.8 mm long, lanceolate, acute, (weakly) 1-nerved, glabrous, ca 2/3 as long as spikelet. Lemma ca 2.5 mm long, narrowly ovate, acute, (weakly) 1-nerved. Palea ca 2.3 mm long, slightly shorter than the lemma, bluntly acute, slightly retuse at apex, (weakly) 1-nerved. Anthers 2, ca 1.1 mm long. Fruit narrowly oblong-elliptic, to 1.2 mm long and ca. 0.6 mm wide, quadrangular, truncate at apex and base.

Habitat, ecology and etymology

At present *Sporobolus copei* is known from three localities, all confined to the northeastern part of Tenerife. The species is found from near sea level in Santa Maria del Mar to about 800 m a.s.l. near El Bailadero. Little is known about its

phyto-sociological position and ecology. In the type locality *S. copei* forms a dense, nearly mono-specific stand at the margin of a gravelly road verge. Although it grows in a quite remote and natural area in the Anaga Parque Rural, it is chiefly accompanied by xenophytes, viz *Cyperus eragrostis*, *Nassella neesiana* (syn.: *Stipa neesiana*) and *Sporobolus indicus*. Native *Trifolium ligusticum* is found in the gravel. In Santa Maria del Mar *Sporobolus copei* was found on waste ground near a small drain (Hansen 1975). This area has become much altered in the past decades and it is doubtful if *S. copei* still occurs there (A. Reyes-Betancort pers. comm.) although it was perfectly established in the 1970s. Alas, the herbarium label of the collection from the Ladera de Güimar provides no further information.

In short, *S. copei* seems to thrive best in gravelly, slightly to heavily disturbed, well-drained, but often temporarily damp habitats. Its occurrence by road verges and on waste land further pleads for its presumed non-native status.

The new species is named in honour of Dr T. A. Cope (Kew, UK) who has considerably improved the knowledge of *Sporobolus* in several parts of the world.

Similar species

Sporobolus copei is distinguished from all up-to-now described taxa of *Sporobolus* by the following unique combination of characters: shortly rhizomatous habit, leaf blades long-pilose abaxially, to 60 cm long and 0.8 cm wide, spikelets ca 2.5 mm long, upper glumes ca 2/3 as long as the spikelet, anthers 2 and grain ca twice as long as wide.

By far the closest relative of *S. copei* seems to be the African *S. fimbriatus* (Trin.) Nees (Clayton 1974, Phillips 1995) and more precisely its var. *latifolia* Stent (Stent 1929). Like the latter, it arises from a short oblique rhizome. Both furthermore share the narrowly pyramidal inflorescence with long primary branches (up to 8 cm long), the long, acute upper glumes (about 2/3 of the length of the spikelet) and the relatively wide, abaxially long-pilose leaf blades. However, *S. copei* has 2 anthers (vs 3), slightly larger spikelets (ca 2.5 mm vs 1.4–2.2 mm) and much larger, darker grains (1.2 mm long and dark reddish–brown versus ca 0.6 mm long and whitish–brown). Moreover, as a rule, inflorescence branches of *Sporobolus fimbriatus* tend to be more spreading and often become slightly curved outwards at maturity.

Sporobolus natalensis (Steud.) Dur. et Schinz (syn. *S. indicus* (L.) R. Br. var. *laxus* (Nees) Stapf), another native of Africa, is also rather reminiscent of *S. copei*. However, it is a more tufted (not shortly rhizomatous) perennial, has spikelets with shorter upper glumes (at most 1/2 the length of the spikelet), slightly smaller spikelets (2.0–2.3 mm long), much narrower leaves and it always has 3 anthers.

In Tenerife, *S. copei* has been confused up to now with *S. diandrus* (Retz.) P. Beauv. (syn.: *S. indicus* var. *flaccidus* (Roth ex Roemer et Schultes) Veldkamp) (Hansen 1975; initially identified by the late C. E. Hubbard). This Asian species indeed shares the laxly contracted inflorescence of *S. copei* and usually also has 2 anthers, but further seems only remotely related. It is much smaller in all its floral parts (spikelets ca 1.2–1.6 mm long; grain ca 0.6–0.9 mm; anthers 0.6–0.8 mm), has much narrower, sub-glabrous leaves, etc.

Finally, *S. indicus* var. *cinereo-viridis* Baaijens, an endemic of Malesia (Baaijens and Veldkamp 1991), is also more or less similar. Like *S. copei* it was long confused with *S. diandrus*. However, it has 3 anthers and the inflorescence branches tend to curve out at maturity (a rather distinct and constant feature seen in all examined collections). Moreover, it has much shorter and narrower leaves that lack the typical indumentum of *S. copei*.

In order to facilitate the future identification of *Sporobolus* in the Canary Islands, both species that are known to occur at present are opposed in the following key:

1. Inflorescence laxly contracted, lowermost branches up to 80 mm long and slightly diverging at maturity; anthers 2: shortly rhizomatous perennial *S. copei*
– Inflorescence narrow and spiciform, tightly contracted, lowermost branches up to 25 mm long and not diverging at maturity; anthers 3: caespitose perennial *S. indicus* s.l. (incl. *S. africanus*)

Affinities and origin

The affinities and origin of *S. copei* are obscure. Although it occurs (at least in part) in rather remote and natural areas in Tenerife, it is believed to have been formerly (unintentionally) introduced by man. Arteaga et al. (2009) emphasized the role of roads for the dispersal of alien plants to remote areas on oceanic islands in general and Tenerife in particular. Its closest relatives (*S. fimbriatus* and *S. natalensis*) are indigenous in relatively remote parts of Africa (mainly central, eastern and southern Africa) and *S. copei* probably also originates there.

The further accommodation of *Sporobolus copei* within the genus seems critical. Inclusion in the *S. indicus* complex (like *S. natalensis*) is defensible but its seemingly closest relative, *S. fimbriatus*, is usually excluded from this (informal) group (Clayton 1965, Jovet and Guédès 1968, Baaijens and Veldkamp 1991). The latter authors described a new section *Fimbriatae* Veldk. with *S. fimbriatus* as type of the section, but it is hardly distinguished from section *Sporobolus* (to which the *S. indicus* complex pertains).

Additional specimens examined (paratypes)

Spain. Tenerife: Santa Maria del Mar, west of Santa Cruz de Tenerife, on road side near small riverlet, 22 Oct 1974, A. Hansen 1031 (C; sub *S. diandrus*, det. C. E. Hubbard); Tenerife: La Ladera [de Güímar] (Canal), 600 m a.s.l., 4 May 1984, A. Charpin and O. Rodríguez Delgado (TFC 28.082, sub *S. indicus*); Tenerife: El Bailadero, TF12 between 11 and 12 km, road verge, small but dense population, 12 May 2009, F. Verloove 7945 (BR).

A thorough revision of other herbaria will possibly yield supplementary records. However, checking of some randomly chosen herbaria (B, BR, G, GENT, LG, ORT) was unfruitful.

Acknowledgements – Tom Cope (Kew, Great Britain) is thanked for reviewing and commenting on our initial collections. The curators of the herbaria B, BR, C, G, GENT, L, LG and TFC kindly loaned us relevant collections for revision. Sven Bellanger (National Botanic Garden of Belgium) prepared the original line drawing. Finally, Alfredo Reyes-Betancort (Jardín de Aclimatación de La Orotava, Puerto de la Cruz, Tenerife) provided various kind of valuable information about *Sporobolus* in Tenerife and Jacques Lambinon (Univ. of Liège, Belgium) helped with the Latin diagnosis.

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