

main building, high up on slope amongst big boulders, (–CB), 7 Feb. 2009, *Struwig 41* (PUC, WIND). **2114** (Uis): Numas Gorge, high up in kloof, underneath *Acacia montis-usti* behind big boulders, (–BA), 6 Feb. 2009, *Struwig 39* (PUC, WIND); Brandberg Mountain, on top, Baswald Rinne Area, (–BC): 19 May 1977, *Craven 490* (PUC, WIND). **2115** (Karibib): Klein Spitzkoppe, against mountain slope amongst rocks, (–CC), 5 Feb. 2009, *Struwig 36* (PUC, WIND). **2214** (Swakopmund): Swakopmund district, 63 miles SE of Walvis Bay in Namib area, (–DA), 2 Mar. 1965, *Barnard 85* (PRE, WIND). **2215** (Trekkoepje): Tsaobis Leopard Farm, S of Karibib, (–DD), 21 Feb. 1990, *Hardy 7017* (PRE, WIND). **2416** (Maltahöhe): Naukluft Mountains at Bullspoot, (–AA), 16 Dec. 1947, *Rodin 2833 & Strey 2132* (BOL); C14, Naukluft Mountains, mountain slope behind the river, (–AA), 13 Feb. 2009, 7 Apr. 2010, 8 Apr. 2010, *Struwig 59, 160, 163* (PUC, PRE, WIND); Farm Tsais-Maltahöhe, (–AB), 16 May 1978, *Müller & Tilson 894* (PRE, WIND); C19, Tsaris Mountains, (–AB), 8 Apr. 2010, *Struwig 164* (PUC, WIND); Maltahöhe, Farm Mooirivier MAL 160, on S-facing slopes, (–CA), 11 Apr. 1980, *Müller 1362* (PRE, WIND). **2616** (Aus): Kuibis, (–DD), 1 Mar. 1912, *Range 1283* (BOL).

#### ACKNOWLEDGEMENTS

The curators of the following herbaria are acknowledged for providing access to study material: BOL, PRE, PUC, and WIND (acronyms according to Holmgren *et al.* 1990). The North-West University and National Research Foundation provided financial support.

#### REFERENCES

- AFRICAN PLANT DATABASE. 2012. *Version 3.3*. Conservatoire et Jardin botaniques de la Ville de Genève and South African National Biodiversity Institute, Pretoria, <http://www.ville-ge.ch/musinfo/bd/cjb/africa/> [accessed Apr. 2012].
- BOHLIN, J.-E. 1988. A monograph of the genus *Colignonia* (Nyctaginaceae). *Nordic Journal of Botany* 8: 231–252.
- CRAVEN, P. (ed.). 1999. *A checklist of Namibian plant species*. Southern African Botanical Diversity Network Report No. 7. SABONET, Windhoek.
- DOUGLAS, N.A. & MANOS, P.S. 2007. Molecular phylogeny of Nyctaginaceae: Taxonomy, biogeography and characters associated with a radiation of xerophytic genera in North America. *American Journal of Botany* 96: 856–872.
- GERMISHUIZEN, G. & MEYER, N.L. (eds.). 2003. Plants of southern Africa: an annotated checklist. *Strelitzia* 14. National Botanical Institute, Pretoria.
- HEIMERL, A. 1896. Nyctaginaceae. In E. Aufran, *Bulletin de l'Herbier Boissier* 1: 813. Imprimerie Romet, Genève.
- HOLMGREN, P.K., HOLMGREN, N.H. & BARNETT, L.C. 1990. *Index Herbariorum, part 1: the herbaria of the world*. 8<sup>th</sup> edn. New York Botanical Garden, New York.
- KLOPPER, R.R., CHATELAIN, C., BÄNNINGER, V., HABASHI, C., STEYN, H.M., DE WET, B.C., ARNOLD, T.H., GAUTIER, L., SMITH, G.F. & SPICHTER, R. 2006. *Checklist of the flowering plants of sub-Saharan Africa. An index of accepted names and synonyms*. South African Botanical Diversity Network Report No. 42. SABONET, Pretoria.
- NOWICKE, J.W. 1970. Pollen morphology in the Nyctaginaceae. *Grana* 10: 79–88.
- POHNERT, H. 1953. *Commicarpus fallacissimus* (Heimerl) Pohnert. In K. Suessenguth, *Mitteilungen der Botanischen Staatssammlung München*, 8:337. München.
- SCHREIBER, A. 1969. Nyctaginaceae. In H. Merxmüller, *Prodromus einer Flora von Südwestafrika* 25. J. Cramer, Lehre.
- STANDLEY, P.C. 1916. Systematic investigations of tropical American plants. *Contributions from the United States National Herbarium* 18: 101. Government Printing Office, Washington.
- STRUWIG, M., SIEBERT, S.J. & KLAASSEN, E. 2011. Nyctaginaceae. Notes on *Commicarpus* Standl. in southern Africa, including a new record for Namibia. *Bothalia* 41: 289–292.
- STRUWIG, M. 2012. *A systematic study of Boerhavia L. and Commicarpus Standl. (Nyctaginaceae) in southern Africa*. Ph.D. thesis, North-West University, Potchefstroom.

M. STRUWIG\*† and S.J. SIEBERT\*

\*A.P. Goossens Herbarium, School of Environmental Sciences and Development, North-West University, Private Bag X6001, 2520 Potchefstroom, South Africa.

† Author for correspondence: madeleen.struwig@nwu.ac.za.  
MS. received: 2012-04-24.

## POACEAE

### THE TAXONOMIC AND CONSERVATION STATUS OF *AGROSTIS ERIANTHA* VAR. *PLANIFOLIA*

#### INTRODUCTION

*Agrostis eriantha* Hack. (1904) is a tufted, rhizomatous perennial that grows in wetlands of Swaziland, Lesotho, Limpopo, Mpumalanga, Gauteng, Free State, KwaZulu-Natal, and Eastern Cape. This relatively rare grass appears to be sensitive to disturbance and is mainly found in pristine habitats. In 1945, Goossen & Paperndorf described a form of the species collected by Pole-Evans on the farm Doornkloof, Irene, as *A. eriantha* var. *planifolia* Gooss. & Paperndorf. The main diagnostic character used to distinguish the two varieties was the length of the callus hairs as shown in Figures 1 and 2. In *Agrostis eriantha* var. *eriantha*, the callus hairs are up to one third the lemma length while in var. *planifolia*, the callus hairs are up to half the lemma length. Another suggested difference was in the leaf blades, which are said to be folded in var. *eriantha* and flat in var. *planifolia*. Other possible differences are discussed in the results section.

The only known collections of *A. eriantha* var. *planifolia* are the type specimen and another Pole-Evans collection from Irene, collected two days after the type specimen. However, examination of Pole-Evans' register shows that he made mistakes with localities and was also not consistent with dates, casting doubt on whether the second specimen was really another collection rather than a duplicate of the type. Unfortunately, as with the Type specimen, there is very little information. Since this plant was first discovered, forms with callus hair length equal to that of the type specimen have never been found again, despite repeated searches at the type locality and nearby habitat.

Various unanswered questions concerning *A. eriantha* var. *planifolia* have made it difficult for an assessment of the conservation status of this plant to be made. Since it has only been collected once, it remained uncertain whether it is extremely limited in distribution and still awaiting re-discovery, or alternatively, extinct. However,

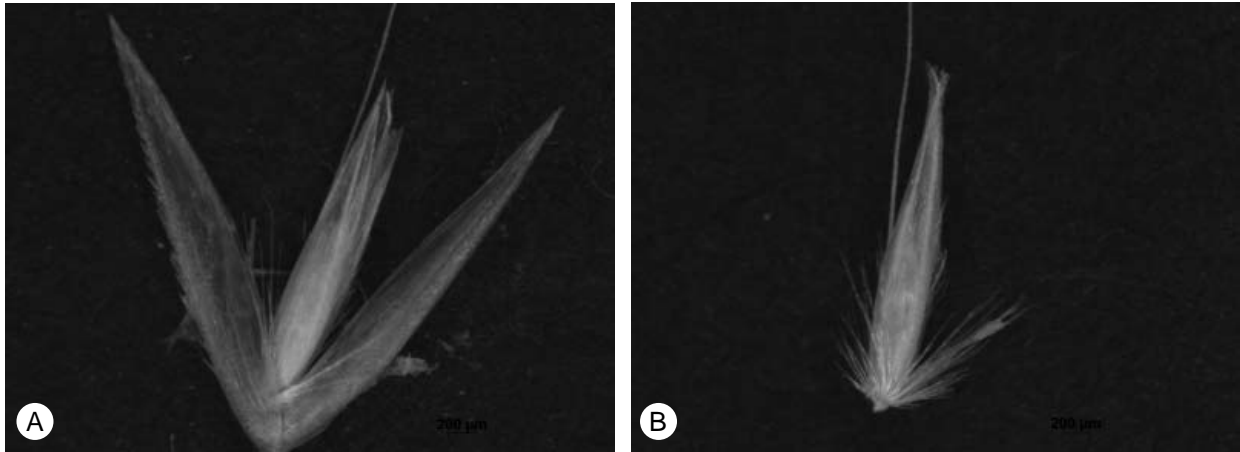


FIGURE 1.—*Agrostis eriantha* subsp. *planifolia*, Pole-Evans 666 (PRE). A, spikelet; B, lemma. Scale bar: A, B, 200 µm. Photographer: Caroline Mashau.

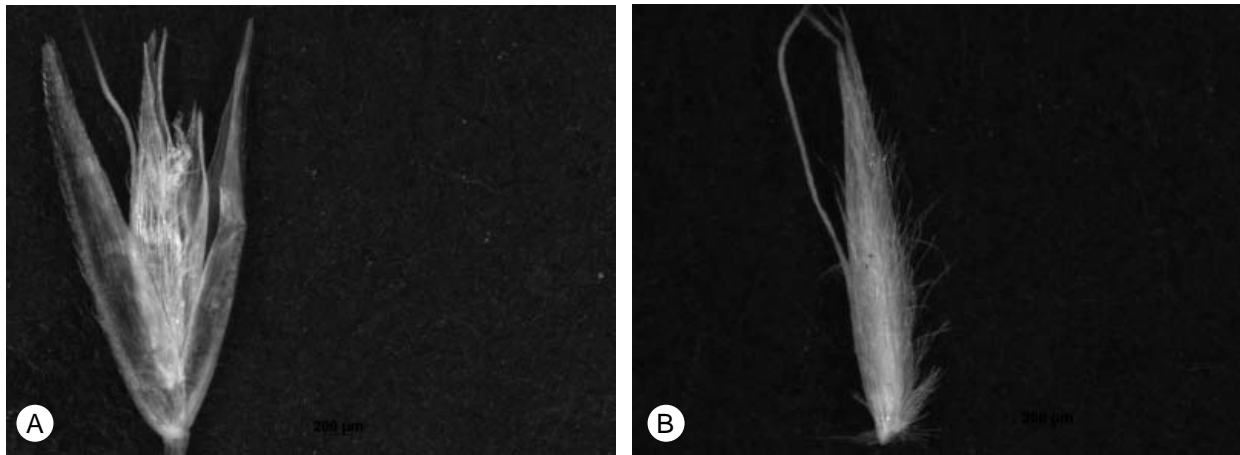


FIGURE 2.—*Agrostis eriantha* subsp. *eriantha*, Smook 5026 (PRE). A, spikelet; B, lemma. Scale bar: A, B, 200 µm. Photographer: Caroline Mashau.

it is also possible that this taxon is merely an aberrant form of *A. eriantha*. In recent years, development proposals in the vicinity of this taxon have been complicated by its potential (but unconfirmed) presence, a situation which has financial implications for developers. Thus it is of great importance to clarify the taxonomic and conservation status of this taxon.

The current conservation status of this variety (Raimondo *et al.* 2009) is Data Deficient (DD). Additionally it is flagged 'T', indicating taxonomic uncertainty (Victor 2006).

#### METHODS

Fieldwork was conducted at the type locality and surrounding areas in Gauteng. The type locality has been transformed and no *Agrostis eriantha* remains there. The two closest wetlands to the type locality that are in a relatively reasonable condition are Rietvlei Nature Reserve and the Grootfontein Agricultural Holdings. Specimens of *A. eriantha* were collected from both of these sites. Callus hairs of the specimens were compared with those of *A. eriantha* var. *planifolia*. In addition, the callus hairs of 94 specimens of *Agrostis eriantha* var. *eriantha*

housed in the National Herbarium (PRE) were investigated to determine variation in callus hair length within this taxon.

As a comparison, callus hair variation in *Agrostis lachnantha* Nees, a closely related and sympatric species, was investigated to determine the consistency of this character. Samples from 11 specimens were investigated.

#### RESULTS

The comparison shows that the morphological characteristics of specimens collected near the type locality match the type and description of *A. eriantha* var. *eriantha*. No specimen of *A. eriantha* var. *eriantha* has callus hairs quite as long as *A. eriantha* var. *planifolia*, but some variation in length was found (Table 1).

Variability of callus hair length between different specimens of *Agrostis lachnantha* was investigated to assess the reliability of callus hair length as a character. This investigation revealed that callus hair length varied up to one third the lemma length not only between specimens but also within the same specimen.

TABLE 1.—Differences between *Agrostis eriantha* var. *eriantha* and *A. eriantha* var. *planifolia*

Character	<i>A. eriantha</i> var. <i>eriantha</i>	<i>A. eriantha</i> var. <i>planifolia</i>	Character reliability
Leaf blade	Folded.	Flat.	Could be artefact of pressing.
Glumes (apices)	Acute to acuminate.	Acute.	Overlapping character insufficient to distinguish between two taxa.
Lemma	Hairy.	Glabrous, margins hairy.	Variability of hairiness cannot be assessed on just two specimens.
Palea	± Equal to slightly shorter than lemma.	Shorter than lemma.	Overlapping character, not sufficient to distinguish varieties.
Callus	Hairs up to 1/3 the lemma length, but variable.	Hairs up to 1/2 the lemma length, variability uncertain due to small sample size.	Character variable throughout genus, and too variable to constitute a reliable difference between these varieties.

## DISCUSSION AND CONCLUSION

*Agrostis lachnantha* was divided into two varieties, *A. lachnantha* var. *lachnantha* and *A. lachnantha* var. *glabra* on the basis of hairiness of the lemma by Goossen & Papendorf (1945). However it was later found, and confirmed in this investigation, that hairs on the lemma are variable in length and cannot reliably be used to distinguish varieties. The variety was therefore reduced to synonymy under *A. lachnantha* (Gibbs Russell *et al.* 1990).

The results of our investigations suggest that variation in callus hair length is not a reliable character to use to distinguish between taxa in *Agrostis eriantha*. Given that *A. eriantha* var. *planifolia* has never been recollected (with the exception of one other specimen from the type locality), it is probable that it is an aberrant form. *Agrostis eriantha* var. *planifolia* is therefore reduced to synonymy under *A. eriantha*. This species is a widespread grass and the conservation status is confirmed to be Least Concern.

***Agrostis eriantha* Hack.** in Vierteljahresschrift der Naturforschenden Gesellschaft in Zürich 49: 172 (1904). Syntypes: South Africa, [Gauteng], 'in humidis prope Pretoria', Jan. 1894, *Schlechter 4144* (PRE, syn.!); [Eastern Cape], 'in collibus prope Middleburg', Dec. 1893, *Schlechter 4052* (PRE, syn.!).

*Agrostis eriantha* Hack. var. *planifolia* Goossens & Papendorf: 181 (1945), syn. nov. Type: South Africa, [Gauteng], Irene, Doornkloof, *Pole-Evans 666* (PRE, holo.!).

## ACKNOWLEDGEMENTS

The Botanical Education Trust is gratefully acknowledged for the financial award that was granted to the Taxonomic Problems in Plants of Conservation Importance Project. We would like to thank Mrs Lorraine Mills of the Department of Nature Conservation, Gauteng, for fieldwork assistance, and Mrs Lyn Fish of SANBI for assistance and advice throughout this project.

## REFERENCES

- 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. National Botanic Gardens/Botanical Research Institute, Pretoria.
- GOOSSEN, A.P. & PAPENDORF, M.C. 1945. The Genus *Agrostis*. *South African Journal of Science* 41: 181–184.
- HACKEL, E. 1904. *Vierteljahresschrift der Naturforschenden Gesellschaft in Zürich* 49: 172.
- RAIMONDO, D., VON STADEN, L., FODEN, W., VICTOR, J.E., HELME, N.A., TURNER, R.C., KAMUNDI, D.A. & MANYAMA, P.A. (eds). 2009. Red List of South African plants. *Strelitzia* 25. South African National Biodiversity Institute, Pretoria.
- VICTOR, J.E. 2006. Data Deficient flags for use in the Red List of South African plants. *Bothalia* 36: 85–86.

J.E. VICTOR<sup>†</sup>, A.C. MASHAU<sup>\*\*</sup> and V.J. NGOBENI<sup>\*</sup>

<sup>\*</sup> South African National Biodiversity Institute, Private Bag X101, 0001 Pretoria. E-mail: † j.victor@sanbi.org.za / c.mashau@sanbi.org.za.

<sup>\*\*</sup> Student affiliation: Department of Botany, University of Pretoria, 0002 Pretoria.

MS. received: 2012-01-13.

## RUBIACEAE

TAXONOMIC NOTES ON *SERICANTHE ANDONGENSIS* AND A NEW COMBINATION AND STATUS IN *SERICANTHE* FROM LIMPOPO, SOUTH AFRICA

Rubiaceae Juss. is one of the five largest families of flowering plants with over 13 000 species (Bremer 2009) and belongs in the order Gentianales Juss. ex Bercht. & J.Presl (APG III 2009; Reveal 2012b). Members of Rubiaceae can be recognized in the vegetative state by their opposite, sometimes whorled, entire leaves and interpetiolar stipules with axillary colleters. The flowers are usually bisexual or sometimes unisexual or

functionally unisexual and polysymmetric, often with a narrow corolla tube and spreading lobes; the ovary is inferior in most species, with a nectary or disc on top, except in members of tribe Gaertnereae in subfamily Rubioideae, which have a secondarily superior ovary (Jansen *et al.* 1996), and the fruit is baccate, drupaceous, or capsular (Stevens 2001–[accessed December 2011]). There is strong molecular support for three subfamilies: