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POACEAE

THE TAXONOMIC AND CONSERVATION STATUS OF AGROSIS ERIANTHA VAR. PLANIFOLIA

INTRODUCTION

Agrosis 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 & Papenrnord described a form of the species collected by Pole-Evans on the farm Doornkloof, Irene, as A. eriantha Hack.var. planifolia Gooss. & Papenrnord. The main diagnostic character used to distinguish the two varieties was the length of the culm hairs as shown in Figures 1 and 2. In Agrosis eriantha var. eriantha, the culm hairs are up to one third the lemma length while in var. planifolia, the culm 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 culm 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,
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

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

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.

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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 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: