



## Species delimitation and name application in *Deyeuxia abnormis*, *Agrostis zenkeri*, *A. pleiophylla* and related taxa (Poaceae: Agrostidinae)

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### Abstract

Historically tangled taxonomy and nomenclature of *Deyeuxia abnormis*, *Agrostis zenkeri*, *A. pleiophylla* and their allies is presented. *Deyeuxia abnormis* is recognized as a distinct species. Previous descriptions of this taxon were entangled with concepts of *Agrostis zenkeri* and *Deyeuxia diffusa*. The typification of *Deyeuxia abnormis* by Noltie is rejected in favor of the lectotype designated by Bor. The name *Deyeuxia abnormis* is applied to specimens of this species group with a tufted habit and callus hairs between 0.25 and 0.50 percent of their lemma in length. Specimens previously included in *D. abnormis* that are characterized by scrambling habit, simple or branched culms, and callus hairs between 0.6 and 1.0 percent of the lemma length, are assigned to *D. diffusa*. The taxonomy of *Deyeuxia abnormis* and its allies is clarified and new synonyms are provided, along with amended descriptions, and a key to the complex of *D. abnormis* and its allies. The distributions of *Deyeuxia abnormis* and *D. diffusa* in South Asia are updated. The previous typification of *Agrostis pleiophylla* is rejected and a new lectotype is selected. The names *Anisachne gracilis* (= *Deyeuxia abnormis*) and *Agrostis continentalis* (= *Deyeuxia abnormis*) are typified.

**Key words:** C. Mez, *Calamagrostis*, J.D. Hooker, N.L. Bor, new synonyms, nomenclature, revision, taxonomy, typification, South Asia

### Introduction

*Agrostis* Linnaeus (1753: 61), *Calamagrostis* Adanson (1763: 31) and *Deyeuxia* Clarion ex Beauvois (1812: 43) (Poaceae: Agrostidinae) are closely related northern hemisphere genera, which include several notoriously difficult species complexes, and numerous hybrids (Howard *et al.* 2009, Paszko & Nobis 2010, Paszko 2011, Paszko & Ma 2011, Paszko 2012b). The boundaries between the genera are controversial (Saarela *et al.* 2010), and are problematic in Himalayan species addressed here. The focus of the present study is on species delimitation. Recently, the first author has focused on morphometric analyses of closely related species complexes in Central and Southeast Asia in order to prepare accounts for the Flora of Nepal and Flora of Pan-Himalayas. As a result of this revisionary work new species were discovered (Paszko 2012a, Paszko & Pendry 2013), and the taxonomic problems addressed here came to light.

The main taxa in the present study are three species: two Himalayan species, *Deyeuxia abnormis* Hooker (1896: 268) and *Agrostis pleiophylla* Mez (1921: 301), and one south-eastern Indian species *A. zenkeri* Trinius (1841: 363), which have intertwined concepts in the taxonomic literature (Hooker 1896, Bor 1954a, Bor 1954b, Bor 1960, Korthof & Veldkamp 1984, Noltie 1999, Noltie 2000, Phillips & Chen 2003, Lu *et al.* 2006) (see Table 1). To clarify relationships between *Deyeuxia abnormis* and its allies we included their close relatives in the statistical analysis: two Chinese taxa, *Deyeuxia diffusa* Keng (1941: 94) and *D. flaccida* (Keng ex Keng 1984: 195) Keng ex Lu (1987: 223), and selected specimens of *Agrostis gigantea*