

Schoenus clade (Cyperaceae): taxonomy, DNA barcodes and genome evolution

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The African and Australasian genus *Tetraria* is polyphyletic and dispersed into four lineages, with the two South African lineages informally recognized as comprising the *Tricostularia* and *Schoenus* clades. Species boundaries in the *Schoenus* clade are uncertain because of character similarities, possible polyploid origin of narrowly distributed taxa and limited attention by both plant collectors and taxonomists. From broad studies, there is evidence of complex evolutionary relationships within the *Schoenus* clade, and as currently defined, the clade is polyphyletic and includes the genera *Schoenus*, *Tetraria* and *Epischoenus*. The *Schoenus* clade has at least 40 taxa endemic to South Africa, with distributions predominantly in the Fynbos biome and extending into the Drakensberg escarpment (but part of the clade also occurs in Australia and New Zealand). This study aims to increase our understanding of the taxonomy and species distributions of *Schoenus* clade species, to: 1) revise the taxonomy and generate Encyclopaedia of Life (EoL) pages; 2) augment current herbaria specimens of plants from this clade and revise conservation status of all species using the IUCN criteria; 3) acquire genome size data for these species; 4) obtain and publish DNA barcodes for all the South African species in tribe Schoeneae; and 5) improve the understanding of evolutionary relationships within the clade. Field and herbarium studies will run from September 2016 until August 2017 to revise the taxonomy of these species and update their geographical extents. Data on chromosome numbers, genome sizes and genetic (DNA barcode) sequences will be extracted from samples collected in the field to better understand role of polyploidy (and perhaps hybridization) and evolutionary relationships within the clade. The taxonomy of at least 15 species, which are currently flagged as uncertain and whose conservation status is unknown, will be clarified.