pollination by pompilid wasps. A number of other asclepiad species appear to be specialized for pollination by these wasps. Further studies could ultimately lead to the formal description of a pompilid wasp pollination syndrome in South African grassland plants.

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The genus Oxalis in South Africa and its special approach to heterosty

S.S. Siqueira a, L.L. Dreyer a, K.J. Esler b

a Department of Botany and Zoology, University of Stellenbosch, Private Bag XI, Matieland 7602, South Africa
b Department of Conservation and Ecology, University of Stellenbosch, Private Bag XI, Matieland 7602, South Africa

Currently there are six types of heterosty described in different families of flowering plants. They are all believed to promote out-crossing and thus avoid inbreeding. The genetics and inheritance of these systems are very complex and have been assessed in many studies. A form of heterosty, known as tristyly, has been recorded in about 5 angiosperm families, including the genus Oxalis in the Oxalidaceae. The state of tristyly expression has been studied for various American Oxalis species, and this has shown breakdown in different aspects of the system. Very little is known about tristyly expression among southern African (SA) members. The most recent taxonomic revision of SA very generally states that all species are believed to still be morphologically tristylous, but no in depth study of this has been undertaken. The present study investigates tristyly expression among selected southern African species through an assessment of morph morphology, population structure and self-incompatibility testing. Results show deviations in floral morphologies, the isoplethic equilibrium of morph representation in different populations and/or a breakdown of the self-incompatibility system in various species.

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Phylogenetic relatedness limits co-occurrence at fine spatial scales: Evidence from the Schoenoid Sedges (Cyperaceae: Schoeneae)

J.A. Slingsby, G.A. Verboom

Department of Botany, University of Cape Town, Private Bag, Rondebosch 7701, South Africa

Species co-occurrence at fine spatial scales is expected to be non-random with respect to phylogeny because of the joint effects of evolutionary (trait convergence and conservatism) and ecological (competitive exclusion and habitat filtering) processes. We use data from 11 existing vegetation surveys to test whether co-occurrence in schoenoid sedge assemblages in the Cape Floristic Region shows significant phylogenetic structuring and to examine whether this changes with the phylogenetic scale of the analysis. We provide evidence for phylogenetic over dispersion in an alliance of closely related species (the reticulate-sheathed Tetraria clade) using both quantile regression analysis and a comparison between the mean observed and expected phylogenetic distances between co-occurring species. Similar patterns are not evident when the analyses are performed at a broader phylogenetic scale. Examination of six functional traits suggests a general pattern of trait conservatism within the reticulate-sheathed Tetraria clade, suggesting a potential role for interspecific competition in structuring co-occurrence within this group. We suggest that phylogenetic over dispersion of communities may be common throughout many of the Cape lineages, since interspecific interactions are likely intensified in lineages with large numbers of species restricted to a small geographic area, and we discuss the potential implications for patterns of diversity in the Cape.

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Alien grass infestation in renosterveld fragments: Effect on threatened life-history types and potential controls

R. Stanway

Department of Botany, University of Cape Town, Private Bag, Rondebosch 7701, South Africa

Alien grasses are thought to pose a significant threat to the growth and survival of indigenous species. Within the Cape Floristic Region, there is concern surrounding the establishment of alien grasses in renosterveld fragments. This study aimed to determine the impact of alien grass infestation on the life history type of Moraea tulbaghensis, a threatened geophyte endemic to renosterveld. Moraea tulbaghensis was found to be unaffected by varying densities of alien grass infestation. A second aspect of this study attempted to evaluate potential control methods for alien grasses that would not detrimentally affect indigenous species. Organic amendments in the forms of woodchips and sugar were applied to the alien grass Lolium multiflorum, and the endemic threatened species Lampranthus filicaulis and Moraea tulbaghensis. Additional nitrogen was applied to particular treatments in order to gauge the various responses of alien and indigenous species to nitrogen enrichment. Organic amendments were found to be ineffective in controlling germination and growth of Lolium multiflorum over 5 months, whilst nitrogen enrichment significantly enhanced its growth. Moraea tulbaghensis was unaffected by all treatments, and Lampranthus filicaulis was found to respond positively to nitrogen addition. These findings suggest that alien grass threat may vary according to life