Abstract Detail

Systematics

Hughes, Olivia [1], Choudhury, Bailey [1], Shepherd, Kelly A. [2], Dillon, Steven [2], Jabaily, Rachel Schmidt [3].

Molecules to the rescue - clarification of new Australian wildflower species in *Goodenia* 'Clade B' to facilitate conservation.

Efforts are ongoing to build a comprehensive phylogeny, or evolutionary tree, of *Goodenia* sensu lato., the largest clade of the predominantly Australian angiosperm family Goodeniaceae. The species-rich *Goodenia* Clade B includes many regionally restricted species that are of conservation interest. Australian collaborators have collected uncommon or unusual specimens from two species complexes from the remote north-west Pilbara region (*Goodenia pascua* complex) and across the southern parts of the continent (*G. pinnatifida* complex) that may represent cryptic or otherwise distinct but as yet unrecognized new species. Past efforts by our lab only included one accession of each of the widespread species *G. pascua*, *G. pinnatifida* and known relatives in phylogenetic analyses. Our current efforts have expanded sampling to include multiple accessions of these and other species, including potentially new species based on various morphological differences. We have extracted DNA from 45 new accessions from 14 species, including 33 unnamed accessions, and sequenced the chloroplast region *trnL-trnF*, and the nrITS locus for phylogenetic analysis to test for monophyly. Phylogenetic evidence may support the expansion of widespread species to include more restricted taxa, or the splitting of widespread taxa into multiple new species. The monophyly of some potentially unnamed species is assessed. The outcomes of this research will provide an independent data set that can be used to inform concomitant morphological studies to delimit new species. This in turn will provide a greater understanding of the known distributions and conservation status of a number of poorly known species endemic to Western Australia.

1 - Rhodes College, 2000 N. Parkway, Memphis, TN, 38112, United States
2 - Western Australian Herbarium, 17 Dick Perry Avenue, Technology Park, Western Precinct, Kensington, WA, 6151, Australia
3 - Rhodes College, Botany, 2000 N. Parkway, Memphis, TN, 38112, USA

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