



Targeted taxonomy: describing Western Australia's conservation-listed flora

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Background

Western Australia has a diverse and complex flora that both delights and confounds the scientists who study and manage it. There are over 12,000 native plant taxa, with new species continuing to be discovered through the scientific assessment of herbarium collections, botanical surveys and the evaluation of mineral leases. The challenging task of conserving and managing this many species is made more difficult by the fact that a significant proportion have not been formally described. Currently there are more than 1,500 undescribed taxa in Western Australia, about a third of which are listed on the *Declared Rare and Priority Flora list for Western Australia*.

Undescribed taxa are often under-collected and poorly understood, and in the absence of readily accessible diagnostic information can be very difficult to recognise. This inhibits both threatened flora management and the assessment of Priority taxa for listing as threatened flora.

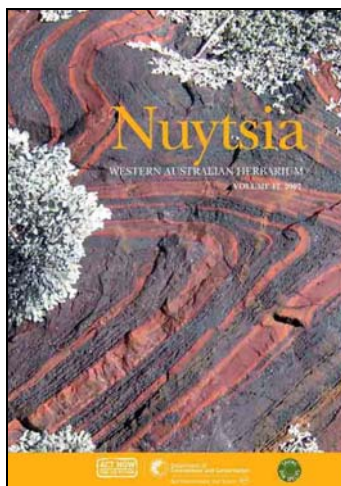
One approach recently adopted by DEC to deal with the State's taxonomic backlog has been to fund taxonomic research that targets rare and poorly known species, particularly those that are vulnerable to mining activities.



Stylidium sp. Yalgoo (D. Coultas et al Opp 01), a small geophytic triggerplant recently discovered during botanical surveys of a mining lease in the Mid West region. Photograph: Juliet Wege.

Findings

A major outcome of this project has been the publication in 2007 of a special issue of *Nuytsia* (Volume 17) which focused on naming new species from the Banded Iron Formation (BIF) Ranges of the Yilgarn and the Ravensthorpe region. This large scale collaboration, coordinated by staff at the Western Australian Herbarium, drew on the botanical expertise of over 70 botanists from across Australia to describe 95 new taxa from Western Australian, 78 of which are rare or poorly known.



Amongst the new species described in the special edition of *Nuytsia* were (L to R): a native foxglove known only from a single banded ironstone outcrop (*Pityrodia iphthima* K.A.Sheph., photograph R. Meissner); a new and potentially threatened *Drummondita* from the Koolanooka Hills (*Drummondita rubroviridis* R.A.Meissn., photograph R. Meissner); and a critically endangered triggerplant (*Stylidium amabile* Wege & Coates, photograph J. Wege).

Since 2007, a number of additional new species have been formally named and described as part of this DEC initiative, including: *Marianthus aquilonaris* N Gibson & Wege (DRF), a threatened species discovered during DEC surveys of the Bremer Range; *Hakea oligoneura* KA Shep. & RM Barker (P4), a geographically restricted species from limestone habitats on the Swan Coastal Plain; *Tetrateca plumosa* R Butcher (P1), currently known from only a single population on private property near New Norcia; *Hibbertia abyssa* Wege & KR Thiele (DRF) and *Hibbertia atrichosepala* Wege & KR Thiele (P1), two narrow range endemics from the Ravensthorpe region; *Platytheca anasima* R Butcher (P2), a geographically restricted species from the Whicher Range; *Tecticornia annelida* KA Sheph & M Lyons (P1), one of three new samphires identified during DEC's Salinity Action Plan surveys of the Central Wheatbelt region; and *Stylidium perplexum* Wege (P1), an unusual triggerplant known only from a single occurrence near a mineral sands mine.



L to R: DEC Scientist Neil Gibson in the Bremer Range with the threatened species *Marianthus aquilonaris* (photograph: J. Wege); *Tetrateca plumosa* (photograph: R. Butcher); DEC Scientist Kevin Thiele examines *Stylidium perplexum* (photograph: J. Wege); *Tecticornia sparagosa* K.A. Sheph. & M. Lyons (photograph K. Shepherd).



Commersonia sp. Mt Groper (R. Cranfield & D. Kabay 9157)
(photograph: Carol Wilkins).

A number of new species discoveries are the subject of ongoing research at the Western Australian Herbarium. These include *Atriplex* sp. Yeelirrie Station (L Trotter & A Douglas LCH 25025), a saltbush recently discovered on a uranium mining lease; *Stylidium* sp. Yalgoo (D Coultas et al. Opp 01), a tiny triggerplant recently discovered on a mining lease in the Midwest region; and *Commersonia* sp. Mt Groper (R Cranfield & D Kabay 9157), a threatened species growing on a magnetite mine north-east of Albany.

Management Implications

Effective conservation and management of the State's flora is reliant on a sound taxonomic framework. This project has led to a significantly improved knowledge of some of Western Australia's Declared Rare and Priority Flora through the provision of detailed descriptions and updated conservation assessments, thereby improving the ability of conservation and industry personnel and members of the public to identify these highly significant species.

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DEC Scientist Ryonen Butcher surveys for *Stylidium* sp. Yalgoo (D. Coultas et al. Opp 01) at Karara Station (Photograph: J. Wege).