Progress Report SP 2011-001

Taxonomy of selected families including legumes, grasses and lilies

Plant Science and Herbarium

Project Core Team

Supervising Scientist	Terry Macfarlane
Data Custodian	Terry Macfarlane
Site Custodian	Terry Macfarlane

Project status as of July 4, 2016, 4:15 p.m.

Approved and active

Document endorsements and approvals as of July 4, 2016, 4:15 p.m.

Project Team	granted
Program Leader	granted
Directorate	granted

Taxonomy of selected families including legumes, grasses and lilies

T Macfarlane

Context

Successful conservation of the flora requires that the conservation units equate to properly defined, described and named taxa. There are numerous known and suspected unnamed taxa in the grass, legume and lily families, as well as numerous cases where keying problems or anomalous distributions indicate that taxonomic review is required. This is true of various parts of the families but the main current focus is on Lepilaena, *Thysanotus*, *Wurmbea*, *Lomandra*, *Neurachne* and *Trithuria*.

Aims

- Identify plant groups where there are taxonomic issues that need to be resolved, including apparently new species to be described and unsatisfactory taxonomy that requires clarification.
- Carry out taxonomic revisions using fieldwork, herbarium collections and laboratory work, resulting in published journal articles.

Progress

- *Lepilaena*(Potamogetonaceae): a genus of aquatic plants that have been difficult to identify has been studied from all Australian herbarium specimen holdings and species boundaries defined. Paper drafted for one new Western Australia species. Other papers in preparation on pollen structure and variation, and a revision of the genus.
- *Wurmbea* (Colchicaceae): continued field work to assess conservation status of poorly known species and obtain photos. Progress continued on writing paper to describe thirty new species.
- Hydatellaceae: paper published on phylogeography of *Trithuria submersa*; paper in preparation on molecular phylogeny and genetic variation in *Trithuria australis*.
- Poaceae: continuing research collaboration on *Neurachne* and the evolution of C4 photosynthesis.
- *Thysanotus*(Asparagaceae): Review of the taxonomy of the twining species, the *T. patersonii* group, with extensive filed work, preliminary species defining, and preparation of samples for DNA analysis.
- *Lomandra* (Asparagaceae): field and herbarium work on *L. suaveolens* group.
- Haemodoraceae: paper describing seven new Kimberley species published.
- Asparagales: paper on a neglected taxonomically useful flower feature in several plant families still in press.
- Eremosynaceae: book chapter summarising taxonomy and morphology published.

Management implications

- Identification of species known or suspected to have a restricted distribution will enable re-assessment of the conservation status and improve management effectiveness.
- Improved identification tools will enable more effective identification of species and the subsequent assessment of their conservation status.

Future directions

- Complete and submit papers describing new species of *Wurmbea*, *Thysanotus, Lepilaena* and *Lomandra*. Conduct appropriate field searches for species or populations that are insufficiently known.
- Continue to revise plant groups and investigate via field and herbarium studies various putatively new species in order to improve knowledge of the flora, provide stable plant names and provide means of identifying

species. Current targets are new species of *Rytidosperma* (Poaceae) and reviews of *Arthropodium* and *Lepilaena* in Western Australia.

- Publish information on selected plant groups for general audiences. Articles are in preparation for *Wurmbea* and *Thysanotus*.