



What's in a taxon?

COLLECTING, identifying and using acacia seeds can be a confusing business, particularly when the species are both newly 'discovered', and widespread in their natural geographic range.

The naming of acacias, as with all plants, is governed by an international framework. Under the International Code of Botanical Nomenclature, formulated in 1905, the plant kingdom is organised into a hierarchy of ranks that share common characters. These ranks are order, family, genus, species, subspecies and variety. Each rank is broader and more general than the next and lower rank. Hence a member of one rank will contain one to many members of lower ranks. For example, a family contains many genera and each genus contains many species.

The basic unit of plant classification is the species. This name is made up of two words: the name of the genus to which the species belongs, and a specific or species name.

In all classification systems the word 'taxon' describes something that is clearly distinct from all other entities. In botanical classification, a taxon can exist in any rank, but the term commonly refers to a particular species. Taxa is the term used to refer to collections of taxons, and the study and application of principles and practices of classification is called taxonomy.

For example, the taxonomic or botanical 'code' name for the taxon commonly known as elegant wattle is *Acacia victoriae*. *Acacia* is the genus, *A. victoriae* the species. The name used for a plant or group is based on particular 'type' specimens stored in herbaria.

To complete the official name of a particular rank, the name of the person who first described or named it is usually added. This means *Acacia* is officially *Acacia* Miller (because Miller described the genus *Acacia*), and *A. victoriae* is *Acacia victoriae* Benth. (because Bentham described the species *A. victoriae*).

A kingdom of change

Botanical names established under the International Code of Botanical Nomenclature enable people around the world to identify and cite plant species without having to worry about different languages or classification systems. Because botanical knowledge is always expanding, however, new names are introduced and older ones sometimes dropped in light of new information about the characteristics of each taxa, and the relationships between them.

Ultimately the establishment or dropping of names depends on the publication of papers written by botanists that describe the taxa, and reasons for the proposed change. It also depends on whether their peers agree. Argument about the status of names may continue in the scientific literature for years, and some taxa may undergo several changes before their names and relationships are accepted by most botanists.

In the midst of such change are some of Australia's inland acacias. Trials conducted by CSIRO's Australian Tree Seed Centre (ATSC), and detailed examination of plants in nature, have revealed different growth and survival characteristics among acacias previously considered morphologically similar enough to belong to two species (*A. cowleana* Tate and *A. holosericea* A. Cunn.).

As a result, three additional species – *A. colei* Maslin and L. Thomson, *A. thomsonii* Maslin and McDonald (in press) and *A. neurocarpa* A. Cunn. ex Hook. – have been formally recognised. A fourth, *A. elachantha* MS, will be published soon. (The 'ex' in A. Cunn. ex Hook. indicates that Cunningham

made the collection and described the taxon in his notes, recognising it as new, and Hooker wrote the formal description of the taxon which was published. MS, short for manuscript, indicates that a name is in use, but not yet published.)

Three of these species are 'new', while *A. neurocarpa* A. Cunn. ex Hook., is an old name that has been resurrected. The species was first described in 1837 by Cunningham and Hooker, but in 1978, Queensland herbarium taxonomist Les Pedley argued that it was no different from *A. holosericea* A. Cunn. As a result, the name *A. neurocarpa* was dropped. In 1993, WA Herbarium taxonomist Bruce Maslin put forward a new case for the existence of *A. neurocarpa* as a separate entity. Hence its reinstatement.

Other *Acacia* taxa may be reviewed in future. For example, ATSC has recognised several distinct forms of *A. dictyophleba* F. Muell., *A. tumida* F. Muell. and *A. torulosa* Benth. ex F. Muell. in the field in the past two years. *A. victoriae* was reviewed in 1993 by Maslin, resulting in the description of five new species from various locations across the range of this widespread group!

Keeping track

In view of changes such as these, how does anyone know which actual tree or seedlot belongs to what species?

According to ATSC botanist Jock Morse, the only way that taxonomic certainty can be achieved in botanical research is by collecting and holding voucher specimens of the plants of interest. For example, it is vitally important that the botanical integrity of ATSC seedlots is backed up by voucher specimens for each collection.

'In the case of our trials, we need to be certain that when we make statements about particular species and their performance, we can, at any time in the future, refer back to a voucher specimen lodged in a herbarium to verify the current name/identity of the entity we tested,' Morse says.

'If we did not hold voucher specimens for our seed collections, it might become impossible for us to say which of the entities our seedlots represent.'

Bryony Bennett

party

al image to the world. Food and medicines from Australian native flora and fauna also have significant economic potential for indigenous communities.

While the debate goes on about the appropriate method to protect traditional owners' knowledge, conscience dictates that such knowledge should be regarded as an asset of its traditional indigenous custodians. It should not be exploited by others without appropriate arrangements being made with such traditional indigenous owners.

Tim Moore
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Reconciliation