Broombush complex


FIG 1


FIG 2

Dr Margaret Byrne

Broombush (*Melaleuca uncinata*) is a characteristic shrub of the dry woodlands and shrublands of southern Australia. It has very high morphological diversity and is actually a group of species. A recent taxonomic revision has now recognised 11 different species within what was previously known as *M. uncinata*.

There are 11 species recognised in the broombush complex so it is important to know which is which when planting broombush for revegetation.

Recognition of these different species means that selection and development of appropriate germplasm for revegetation can be undertaken more effectively. When a species is planted it is important to know that it has the desired characteristics and will deliver the production or environmental benefits that are required. It is also important that the species is adapted to the conditions in which it is planted.

Each of the newly defined species has a specific geographic range, but the ranges are not mutually exclusive, i.e. more than one species may occur at a given site. At most sites where more than one species occur there is no evidence of hybridisation between them. But hybrid plants have been seen at a few sites.

The species can generally be distinguished by their leaf shape and the distribution of oil glands, by the form of the infructescence (collection of fruit), and by the bark. Most species have circular shaped leaves but true *M. uncinata* has quadrate leaves (they won't 'roll' between your fingers) and two species have flat leaves. The leaves of *M. stereophloia* are flattened but dumbbell shaped in cross section. In most species the oil glands are scattered on the leaves, but in *M. uncinata* and *M. stereophloia* they are in rows along the leaf margins. The cluster of fruits is generally globular-shaped around the stem but is elongated in *M. atroviridis*. The table summarises this information. All species except for *M. atroviridis* (and possibly *M. exuvia*) resprout. There are two variants in *M. atroviridis*, one grows in saline and winter-wet depressions and doesn't resprout, and the other one occurs on upland sites and does resprout.

FIG 3

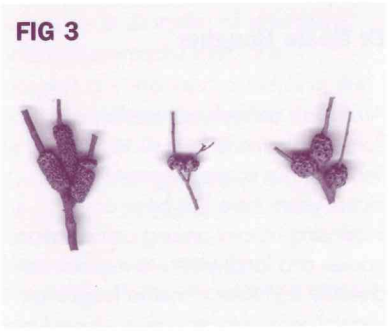

Figure 1. M. stereophloia *showing flat leaves and oil glands in rows.*

Figure 2. M. hamata *showing the typical needle-shaped hooked leaf.*

Figure 3. Fruit clusters (infructescences), showing cylindrical, (M. atroviridis)*; open,* (M. interioris) *and the globular clusters of most species. The cluster of fruits is generally globular-shaped around the stem but elongated in* (M. atroviridis).

Melaleuca species	Leaf shape in cross section	Oil glands	Bark	Infructescence
M. uncinata	quadrate	in rows	papery	globular
M. interioris	circular	scattered	papery	globular, open
M. concreta	linear, flat, thickened	scattered	papery	globular
M. stereophloia	dumbbell	in rows	fibrous	globular
M. osullivanii	circular, fine	scattered	papery	globular
M. hamata	circular, thick	scattered	papery	globular
M. atroviridis	circular	scattered	papery	cylindrical
M. zeteticorum	circular, short, hairy	scattered	papery/ fibrous	globular
M. vinnula	linear, flat, thin	scattered	papery	globular
M. scalena	circular	scattered	papery	globular
M. exuvia	circular	scattered	papery	globular

The species that are common within the BMNDRC are *M. hamata, M. stereophloia* and *M. atroviridis. M. atroviridis* is easily distinguished from the other two species as it is single stemmed and has an elongated fruit cluster. *M. hamata and M. stereophloia* are both multi-stemmed and have globular fruit clusters but *M. hamata* has circular leaves with scattered oil glands, and *M. stereophloia* has dumbbell-shaped flattened leaves with oil glands in rows along the leaf margins.

More detail on the taxonomic revision and on the genetic diversity in the group can be obtained from the following papers:

Craven LA, Lepschi BJ, Broadhurst L and Byrne M (2004) Taxonomic revision of the broombush complex in Western Australia (Myrtaceae, *Melaleuca uncinata* s.l.). Australian Systematic Botany 17: 255-271.

Broadhurst L, Byrne M, Craven L and Lepschi B (2004) Genetic congruence with new species boundaries in the *Melaleuca uncinata* complex (Myrtaceae). Australian Journal of Botany 52: 729-737.