

THE PEPPERMINT GROUP OF EUCALYPTS

M. D. WILCOX

Forest Research Institute, New Zealand Forest Service, Rotorua

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ABSTRACT

The peppermints constitute a distinctive natural group of 10 eucalypts of the subgenus *Monocalyptus*. They share several morphological features of bark, seedling characteristics, timber properties, fruits and buds, and are especially characterised by high concentrations of essential oil in the leaves.

While none of these eucalypts is commercially important for forestry in New Zealand, most have been planted on a small scale, and some make handsome ornaments. The group is currently being comprehensively tested for suitability in soil erosion control in the Wairarapa district.

INTRODUCTION

The peppermint eucalypts take their name from their high content of leaf oils which smell like those of the English peppermint, *Mentha piperita* L. (= *M. aquatica* × *M. spicata*). Sydney peppermint, *Eucalyptus piperita*, which is actually best classified in the ash group of eucalypts (Brooker, 1977), was reputedly the first eucalypt used for the commercial extraction of oil (Penfold and Willis, 1961; Small, 1977). Subsequently, certain strains of *E. radiata* subsp. *radiata* and *E. dives* were found to give high yields of oil and become important commercial oil-producing species in Australia. Both are typical members of the peppermint group.

As well as their oil content, the eucalypts of the peppermint group share several other morphological features. The purpose of this article is to highlight the diagnostic features of the group and to compile a list of the species.

All but one of the species occur as exotic trees in New Zealand, though none is commercially important. Several species (e.g., *E. pulchella*, *E. amygdalina*, *E. tenuiracemis*) have grown well in drier parts of New Zealand. The whole group is being tested in the Wairarapa for erosion control on dry sites (R. L. Hathaway and M. King, pers. comm.). This programme is being conducted by the Soil and Water Division, Ministry of Works and Development, and the Wairarapa Catchment Board.

FEATURES OF THE PEPPERMINT GROUP

The peppermint group as discussed here constitutes the series PIPERITAE of the subgenus *Monocalyptus* in Pryor and Johnson's 1971 classification and the series PIPERITALES of Blakely (1965), with the exception that *E. piperita* and *E. andrewsii* have been placed in the related ash group, series OBLIQUAE (Brooker, 1977; Wilcox,

(1979). The transfer of *E. piperita* to the series OBLIQUAE, if formally adopted in a revised edition of Pryor and Johnson's classification, will necessitate the use of the series name AMYGDALINAE for the peppermints (L. A. S. Johnson, pers. comm.).

Peppermint eucalypts can be recognised by the following combination of characteristics:

1. Seedling leaves sessile and opposite for many pairs.
2. Juvenile leaves opposite, highly aromatic and rich in piperitone, phellandrene, and cineole.
3. Midribs of seedling and juvenile leaves, and internodes of seedlings and coppice shoots hispid with numerous raised oil glands.
4. Adult leaves with abundant oil glands, inconspicuous veins at a sharp angle to midribs, not strongly curved, and the same colour on both surfaces.
5. Flower buds usually very numerous, and usually club-shaped.
6. Fruits usually pear-shaped, with flat discs and sunken valves.
7. Timber pale-coloured, of moderate density and strength, generally of low durability, and having a high incidence of kino veins.
8. Coppicing ability usually strong.
9. Bark greyish, sub-fibrous, interlaced and persistent over the bole and larger branches. This is the co-called "peppermint bark" type but is not found in all species of the group.

The headquarters of the group is Tasmania where there are six species, five of them endemic. Others occur in Victoria and southern New South Wales.

In the notes that follow, the letter codes of Pryor and Johnson (1971) are given in brackets, e.g. (MATEB).

NOTES ON SPECIES

1. *Eucalyptus ridsonii* Hook.f.

Risdon peppermint (MATEB)

Confined to a few sites on poor mudstone soils in the vicinity of Risdon Vale, near Hobart, Tasmania. This is a shrub or small tree of poor form, attractively glaucous, and with persistent connate juvenile leaves. Recorded from gardens at Dunedin. (Hogg and Kirkpatrick, 1974; Hall and Gray, 1975).

2. *Eucalyptus tenuiramis* Miq.

Silver peppermint (MATEC)

A gum-barked species of south-eastern Tasmania having very distinctive glaucous leaves and buds. Plantations established in the early 1900s still exist in the Waiotapu area of Kaingaroa Forest and in Whakarewarewa State Forest Park, Rotorua, though the strain used has proved to be a poor choice as a forest tree on account of disappointing growth and stem form. Attractive as an ornamental. (Hall and Gray, 1973).

3. *Eucalyptus pulchella* Desf.

White peppermint (MATEG)

Confined to dolerite soils in the south-eastern part of Tasmania. This species has

been widely planted in New Zealand (usually as *E. "amygdalina"*), and healthy examples can be found throughout the North Island. The strain planted extensively in the Puhipuhi and Whakarewarewa State Forests in the early 1900s proved virtually worthless as a forest tree, having a very crooked stem and only mediocre growth rate. (Hall and Brooker, 1972).

4. *Eucalyptus amygdalina* Labill.

Black peppermint (MATEH)

A common tree on low elevation sites in the dry eastern half of Tasmania and reputedly the most durable of the peppermint timbers in that State. Fairly common in Canterbury and in the southern half of the North Island. (Hogg and Kirkpatrick, 1974; Hall, Johnston and Chippendale, 1975).

5. *Eucalyptus nitida* Hook. f.

Shining peppermint or Smithton peppermint (MATEQ)

The three major occurrences of this species are the western half of Tasmania, King and Flinders Islands in Bass Strait, and western districts of southern Victoria. It varies greatly in stature from little more than a shrub to a tall tree. In Victoria, in places such as the Otway Ranges and Wilson's Promontory, it is frequently associated with *E. baxteri*. In Tasmania it commonly occurs with *E. ovata*, especially on wet acid soils where it may be just a mallee. (Willis, 1972; Hall, Johnston and Chippendale, 1975; Jackson, 1965).

6. *Eucalyptus radiata* Sieb. ex DC. subsp. *radiata*

Narrow-leaved peppermint (MATELA)

This peppermint is one of the most abundant eucalypts of the foothill and tableland forests in Victoria and New South Wales, but is largely spurned as a timber species. The leaves of certain strains have been used for the commercial distillation of oil. For example, the "*australiana*" strain is noted for its high yield of cineole, much valued for medicinal purposes, and the "*pbellandra*" strain yields piperitone and phellandrene in commercial quantities. A notable stand in New Zealand is a shelter belt at Paengaroa in the Bay of Plenty. These large trees have a distinctive weeping habit. There are also groves at Putaruru. It was planted experimentally for pulp near Tokoroa, but the particular strain used grew very poorly. (Penfold and Willis, 1961; Hall, 1970).

7. *Eucalyptus radiata* Sieb. ex DC. subsp. *robertsonii* (Blakely) L. Johnson et D. Blaxell

Narrow-leaved peppermint (MATELC)

This is the largest of the peppermints and is an important element of high country eucalypt forest in New South Wales and eastern Victoria, north and west of the main divide. Although usually of good form, it is not especially sought after by sawmillers on account of kino veins. A peppermint of tall-tree form occurring locally in the Forth and Mersey River valleys in northern Tasmania has usually been referred to as *E. robertsonii* (e.g., Jackson, 1965; Orme, 1971; Specht, Roe and Boughton, 1974; Curtis and Morris, 1975). Johnson and Blaxell (1973) considered this to be a distinctive taxon, as yet undescribed, and excluded it from *E. radiata* subsp. *robertsonii*. Has not yet been identified in New Zealand. (Johnson and Blaxell, 1973; Hall, Johnston and Chippendale, 1975).

8. *Eucalyptus elata* Dehnh.

River peppermint (MATEN)

This is the most coastal of the mainland peppermints, the chief occurrences being in coastal districts of southern New South Wales and eastern Victoria. It grows locally at higher altitudes. In New Zealand the best known examples are at Athenree Forest where there is an attractive grove of trees beside the stream at the public picnic site. There are trees of very good form, and showing excellent resistance to the tortoise beetle (*Paropsis charybdis*), on the property of C. Lethbridge near Te Awamutu. *Eucalyptus elata* also occurs at K. Bartlett's property, Silverdale, at Tokoroa, and in the Bay of Plenty. The species has been suggested as a possibility for pulpwood grown on short coppice rotations. (Hall, Johnston and Chippendale, 1975).

9. *Eucalyptus dives* Schau.

Broad-leaved peppermint (MATEP)

A common eucalypt of dry sclerophyll forests in hill country of New South Wales and Victoria, being especially characteristic of forests dominated by *E. macrorhynca* and *E. rossii*. It is one of the highest yielding oil species. There are strains known to produce oils containing 75% cineole in yields of 3.5% by dry weight of leaves, though the species is mainly noted for its high yield of piperitone-phellandrene oil suitable for several industrial uses. This eucalypt is uncommon in New Zealand. Included in recent trial plantings for erosion control in the Wairarapa. (Hall, Johnston and Chippendale, 1975).

10. *Eucalyptus coccifera* Hook. f.

Tasmanian snow gum (MATES)

This species is confined to Tasmania where it is an important component of subalpine woodland communities. It can also be a large well-formed tree on certain favourable sites in the Hartz Mountains and Mt Field Range. There are several mature, healthy trees in Otago and Southland, and it has recently been included in further species trials in which it shows considerable promise as an alternative to *E. gunnii* for shelter plantings. It could be very suitable as an ornamental for amenity plantings on very cold sites. It is the only peppermint reported to survive in Great Britain and France. (Hall, Johnston and Chippendale, 1975).

FALSE PEPPERMINTS

A number of other eucalypts have the typical peppermint bark type and are commonly referred to as "peppermints", though most are not related to the true peppermints. These false peppermints include *E. nicholii* (narrow-leaved black peppermint), *E. acaciiformis* (wattle-leaved peppermint), and *E. rodwayi* (swamp peppermint) of the swamp gum — brittle gum group; *E. exserta* (Queensland peppermint) of the red gum group; *E. nova-anglica* (New England peppermint) which belongs to the blue gum group; and *E. piperita* subsp. *piperita* (Sydney peppermint), *E. piperita* subsp. *urceolaris* (urn-fruited peppermint), *E. andrewsii* subsp. *andrewsii* (New England blackbutt) and *E. andrewsii* subsp. *campanulata* (New England ash) of the ash group.

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