(> 600 m) for *E. pulchella* are known from sites in the south-east at Snug Tiers, the southern Central Plateau near Waddamana and in the Eastern Tiers towards the northern limits of its range. Its flowering period extends from August to February, peaking from October to December (Figure 58).

Eucalyptus pulchella most frequently occurs as a small to moderate-sized spreading tree of grassy to heathy dry sclerophyll open forests and woodlands. Occasionally, it extends onto moister sites with shrubbier understoreys where it has a straighter form. In the south-east, and most notably in the D'Entrecasteaux Channel region, *E. pulchella* characteristically forms sharp ecotonal transitions and narrow hybrid zones with *E. amygdalina* where there is a juxtaposition of dolerite and sandstone substrates, and more rarely with *E. tenuiramis* in the contact zone between mudstone and dolerite. It frequently forms mixed stands with other eucalypts such as *E. viminalis*, *E. globulus* or *E. rubida*, depending on local site conditions.

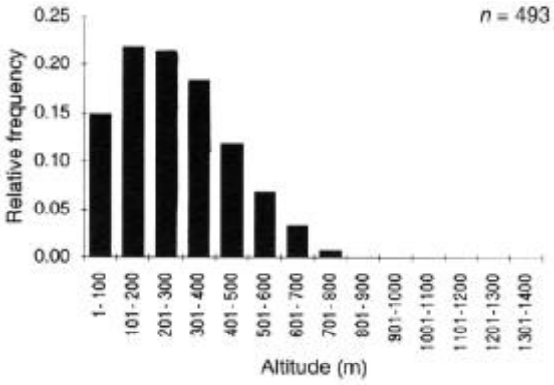


Figure 57. Altitude distribution of E. pulchella.

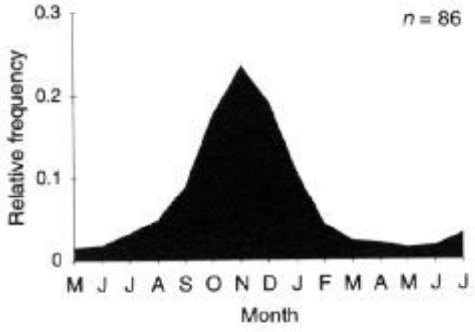


Figure 58. Flowering times for E. pulchella.

COMMENTS: There are many inconsistencies in the northern extent of the distribution of *E. pulchella* due to problems of field distinction between it and 'half-barked' intergrading forms of *E. amygdalina* (Kirkpatrick and Potts 1987). Jackson (1965) indicated that the northward distribution of *E. pulchella* extended no further than Bothwell (cell 5030), Oatlands (cell 5331) and Swansea (cell 5633). However, there are persistent records for *E. pulchella* throughout the Eastern Tiers, including the Douglas–Apsley region, and these are included in the mapping. Records for *E. pulchella* that exist north of the Fingal Valley were treated as unverified outliers (e.g. cells 5145, 5537, 5538, 5637, 5639, 5738, 5741, 5742, 5846, 5939, 5940, 5941, 5942, 5944, 6039, 6042, 6043) and the few occurrences of *E. pulchella* that were not related to dolerite substrates were considered to be misidentifications of *E. amygdalina* (e.g. cells 6033, 6034, 6035).

Eucalyptus pulchella has also been recorded from the southern Midlands and the lower plateau surface north of Bothwell and near Interlaken (i.e. 4733, 4834, 4932). These records may represent identification problems of 'half-barked' *E. amygdalina*, although the essential oils of a 'half-barked' population from Bakers Tier (cell 4933) did have close affinities with *E. pulchella* (Li *et al.* 1995). Other Midland and south-eastern Central Plateau populations recorded as intergrading forms between *E. pulchella* and *E. amygdalina* have been treated here as *E. amygdalina* (i.e. cells 5035, 5036, 5233, 5235, 5237). Recent studies of morphology and ecology indicate that some populations of a 'half-barked' peppermint in the Eastern Tiers, north of Swansea (e.g. cell 5935), are distinct from the southern forms of both *E. amygdalina* and *E. pulchella* (K. Williams, unpublished data). However, the nature of the morphological and ecological distinction

between *E. amygdalina* and *E. pulchella* across their full geographic and substrate range requires comprehensive study. Some western occurrences of a peppermint recorded as *E. pulchella* are considered to be misidentifications of *E. nitida* or various intergrading forms between *E. nitida*, *E. coccifera* and *E. amydalina* (i.e. cells 3633, 3945, 4333, 4622, 4723, 4819, 4918, 4919).

KEY REFERENCES: Davidson and Reid (1989); Davidson *et al*. (1987); Kirkpatrick and Marks (1985); Kirkpatrick and Potts (1987); Ladiges *et al*. (1983); Potts and Reid (1983).

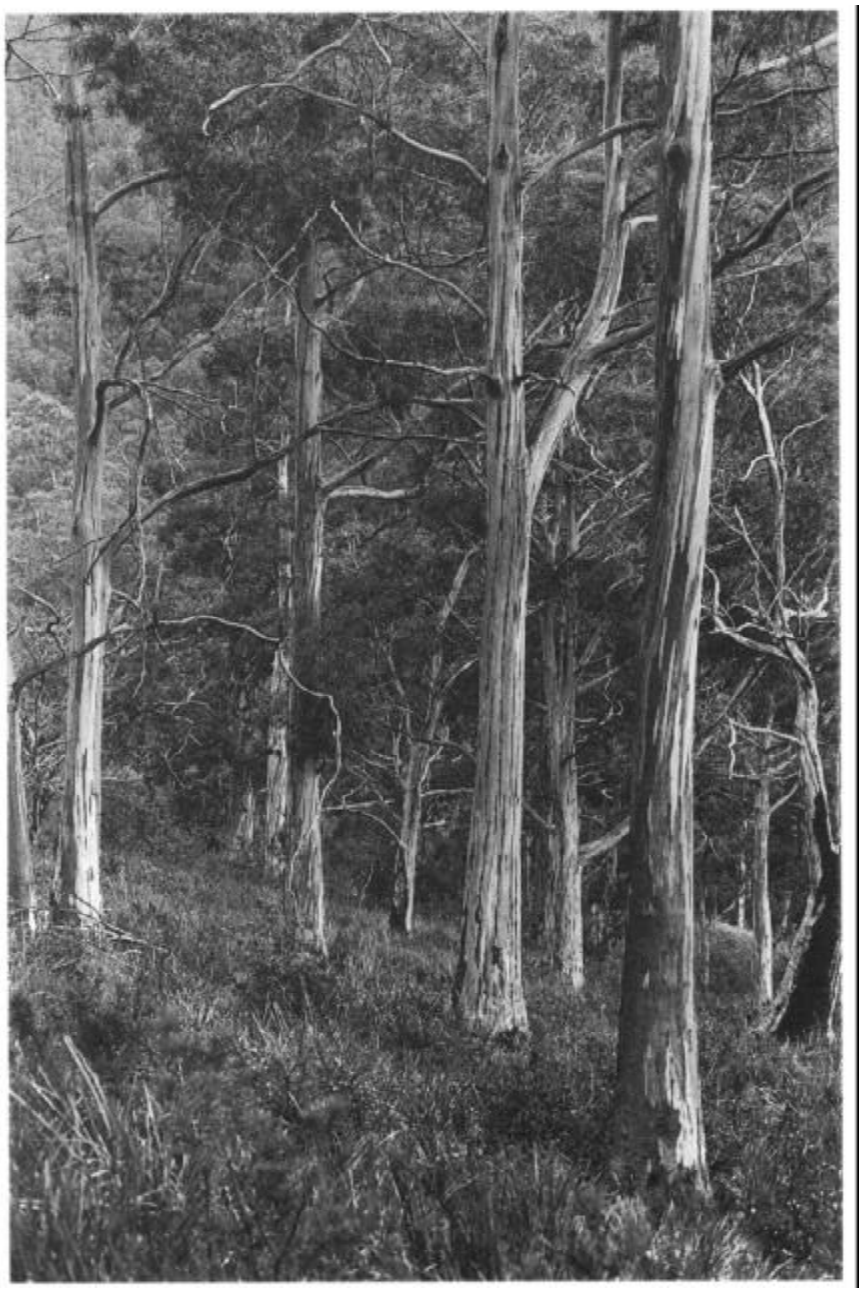


Photo 19. Eucalyptus pulchella *in heathy dry sclerophyll forest.*

Eucalyptus aff. *radiata*

SUBGENUS: *Monocalyptus*
SERIES: *Piperitae*

Common name:
none designated

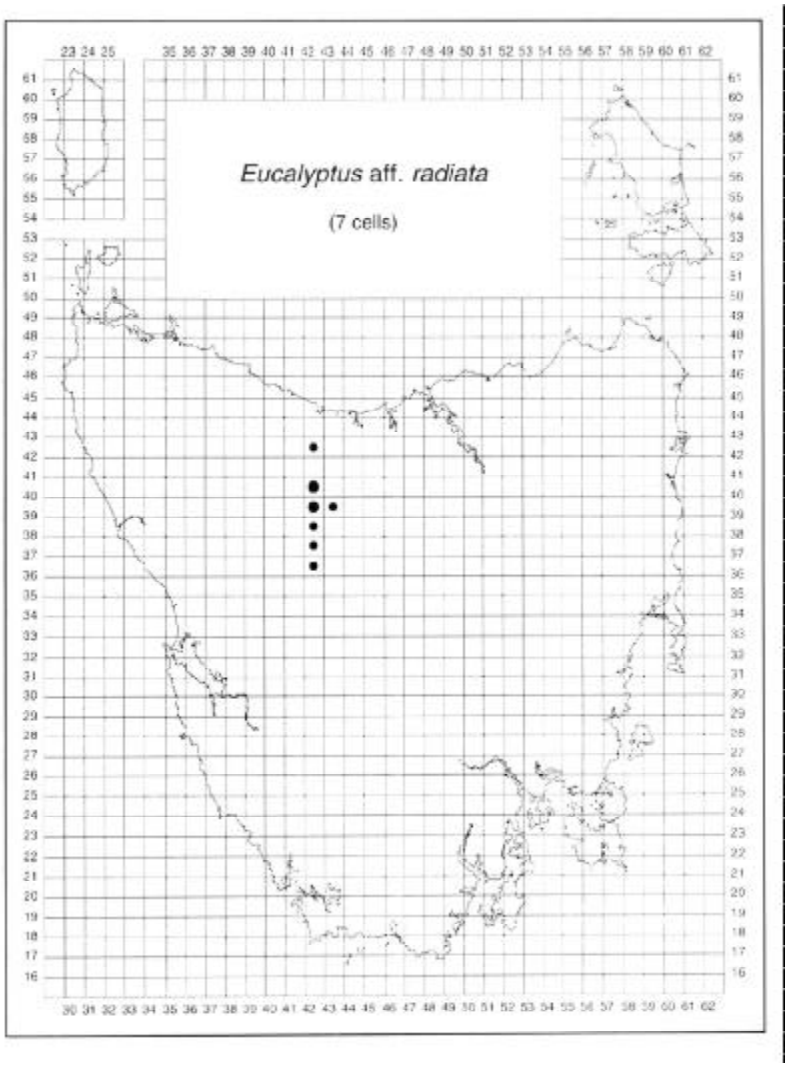


Figure 59. Distribution of E. *aff.* radiata *in Tasmania.*

This species has been referred to as *E. radiata* subsp. *robertsonii* by Curtis and Morris (1975), although they indicate that this nomenclature had been questioned by Johnson and Blaxell (1972), and that 'the taxon is considered to be distinct, not yet named, and related to *E. amygdalina*'. Furthermore, in the recent texts by Chippendale (1988) and Boland *et al.* (1984), *E. radiata* subsp. *robertsonii* is not shown to occur in Tasmania. Duncan (1989) considered it sufficiently distinct to warrant recognition as an endemic species. Recent unpublished work on the chemical profile of the population near the Lemonthyme Power Station has indicated that the species has closest affinities to mainland forms of *E. radiata* subsp. *radiata* (D. Rankin, pers. comm. 1995) and recent inspection of the population by M.I.H. Brooker (pers. comm. 1996) also suggests that it would classify within *E. radiata* subsp. *radiata.* Other biochemical work has shown this population to have close affinities to other populations of the Tasmanian *Piperitae* (Li *et al.* 1995), although comparisons were made only amongst Tasmanian species. Until the

Photo 20. Juvenile leaves (pressed) of E. *aff.* radiata.

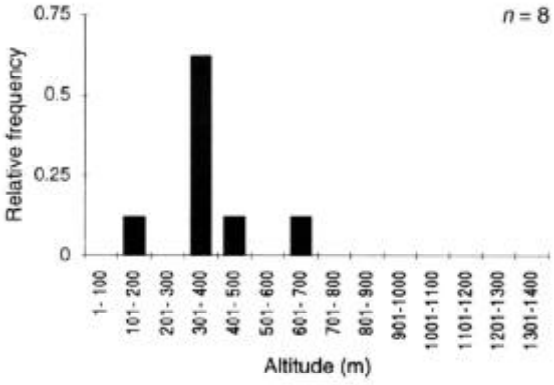


Figure 60. Altitude distribution of E. *aff.* radiata.

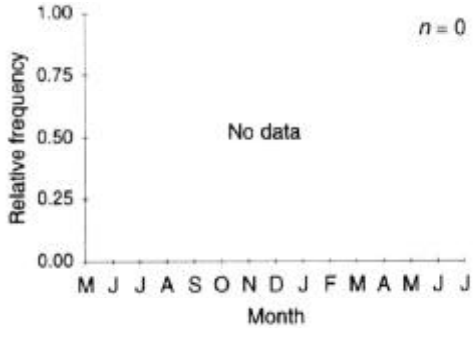


Figure 61. Flowering times for E. *aff.* radiata.

taxonomic affinities of this species have been clarified, we have adopted the terminology of *'E.* aff. *radiata'* to indicate uncertainty in the current nomenclature.

Eucalyptus aff. *radiata* is rare in Tasmania, having a restricted, remnant distribution in the mid to upper valleys of the Mersey, Forth and Wilmot River systems on well-drained slopes and flats of Ordovician gravels (Figure 59 and cf. Jackson 1965). It may be overlooked as a tall-tree variant of *E. amygdalina*, but the juvenile foliage is distinct, being broad-lanceolate with rounded bases rather than lanceolate or narrow linear (Curtis and Morris 1975) (Photos 20, 21). It generally occurs in a limited altitude range between about 300 m to 400 m (Figure 60) following the availability of suitable habitats. However, an occurrence at 150 m is recorded adjacent to the Wilmot River and it extends up to 610 m, following the Forth River valley. The flowering time of *E.* aff. *radiata* is unknown.

Eucalyptus aff. *radiata* occurs as a dominant of shrubby wet or dry sclerophyll forest, or subdominant with *E. obliqua* on the moister sites. It appears to be hybridising with *E. amygdalina* near Croesus Caves (M.J. Brown, pers. comm. 1987). The habitat of *E.* aff. *radiata* is not well known and much of it appears to have been flooded by hydro-electric schemes in the Mersey and Forth River valleys. Some remaining populations have been further disturbed by forestry operations and clearing for agriculture.

COMMENTS: Jackson (1965) mapped occurrences of *E.* aff. *radiata* from the Wilmot, Forth and Mersey Rivers. Most records for the distribution of *E.* aff. *radiata* have come from observations of the most accessible population adjacent to the Lemonthyme Power Station (cell 4239) in the Forth River valley. It also extends along the upper Forth River in the region of the Wolfram Mines (e.g. cells 4236, 4237, 4238), and below the power station adjacent to the Lake Cethana impoundment (cell 4240). Details of the extent of the population near Lake Cethana have been recorded by J. Davies and D. Chester

Photo 21. Eucalyptus *aff.* radiata.

(Forestry Tasmania, unpublished data). Other occurrences are known from the Mersey River valley above Liena, adjacent to Croesus Caves (cell 4339), and in the Wilmot River, below the Iris River tributary (cell 4242). The Leven River has been investigated for occurrences of this species without success (M.J. Brown and K. Williams, unpublished data). Other tributaries of the Forth River (e.g. Dove River) and the Mersey River (e.g. Arm River) may also support stands of *E.* aff. *radiata*, although none was found following a search of the latter (cell 4338) (*loc. cit.*). An unverified outlier has been suggested for the upper Murchison River (cell 4035) by J.B. Davies (pers. comm. 1992), where samples were collected from individuals located on gravel banks in early 1978 and their identity confirmed by W.D. Jackson, although no voucher specimens are available. The uncertain taxonomic status of *E.* aff. *radiata* has probably contributed to it being overlooked by researchers and field surveyors.

KEY REFERENCES: Duncan (1989); Curtis and Morris (1975); Johnson and Blaxell (1972).

Eucalyptus regnans

SUBGENUS: *Monocalyptus*
SERIES: *Obliquae*

Common name:
giant ash

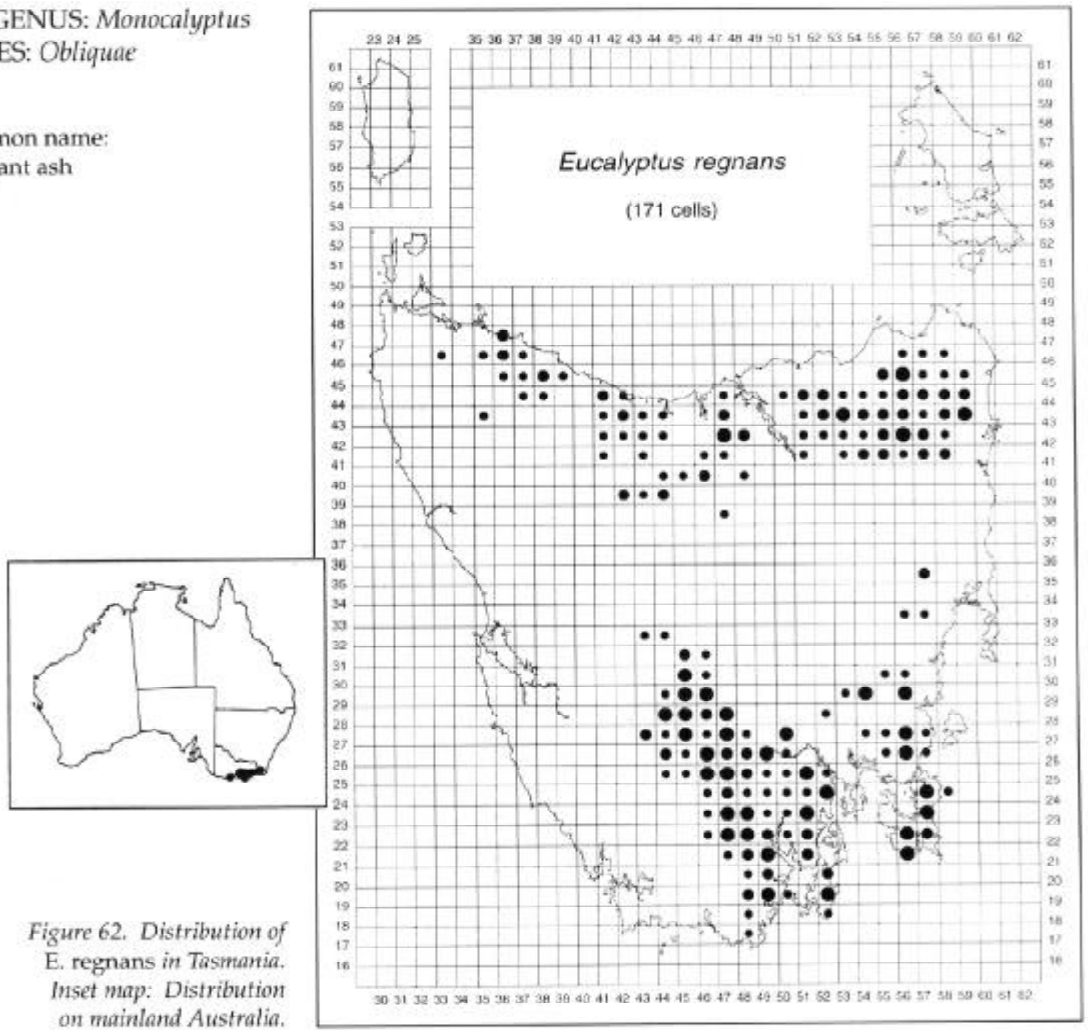


Figure 62. Distribution of E. regnans *in Tasmania. Inset map: Distribution on mainland Australia.*

Eucalyptus regnans is widespread in Tasmania, although in a restricted habitat, with major population centres in the north-east and south, and scattered occurrences in the north, north-west and east (Figure 62). It occupies deep, well-drained soils of moist, fertile sites characterised by a low fire frequency. On sites prone to higher fire frequencies, it is replaced by *E. obliqua* and, at higher altitudes, by *E. delegatensis*.

Eucalyptus regnans mostly occurs between 200 m and 500 m altitude (Figure 63), reflecting a preference for mesic sites in fire-sheltered aspects of coastal foothills and inland mountain valleys. Occasionally, it extends up to 870 m or down to 20 m. The highest altitude sites (> 600 m) are known from central regions in the vicinity of the upper Florentine and Broad River Valleys, the northern face of the Western Tiers and the north-eastern highlands. The low-altitude occurrences (< 100 m) are mostly recorded from Tasman Peninsula and river valleys of the Southern Forests. The main flowering period for *E. regnans* is February to May, peaking in March and April (Figure 64).

Eucalyptus regnans (Photo 22) is a tall, wet forest species, towering above rainforest as a sparse emergent or more densely over tall, mesophytic shrubs. With recorded heights of up to 100 m, it is the tallest flowering plant in the world (Boland *et al.* 1984).

Eucalyptus regnans usually occurs in pure stands but may hybridise with *E. obliqua* at ecotonal boundaries (Ashton 1981a). Some hybrids between these two species may appear similar in tree morphology to *E. delegatensis* and may be mistakenly identified as such (M.J. Brown, pers. comm. 1994).

Eucalyptus regnans lacks lignotubers and is usually killed by fires of sufficient intensity to burn rainforest or wet forest during infrequent (about 200–300 years), extreme fire-weather events (Gilbert 1959). However, the tree morphology of *E. regnans*, with long, deciduous bark streamers and open crowns, promotes these periodic fires and the species is well adapted for regeneration following fire, with a pulse of regrowth from seed protected in woody capsules retained in the canopy (Cremer 1965a, b, 1966). In the absence of fire (> 300–400 years), rainforest predominates as emergent eucalypts senesce and become locally extinct (Jackson 1968). Natural oldgrowth forests of tall *E. regnans* are prized for their sawn-timber qualities, and considerable provenance-based research has been undertaken to define the physiological and genetic range for forestry purposes (e.g. Rook *et al.* 1980; Wilcox 1982a, b; Griffin 1983; Griffin and Cotterill 1988; Raymond and Volker 1993).

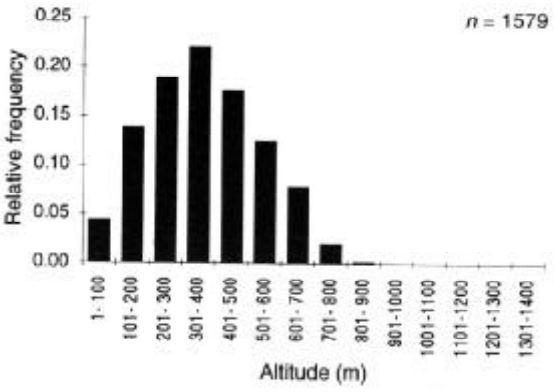


Figure 63. Altitude distribution of E. regnans.

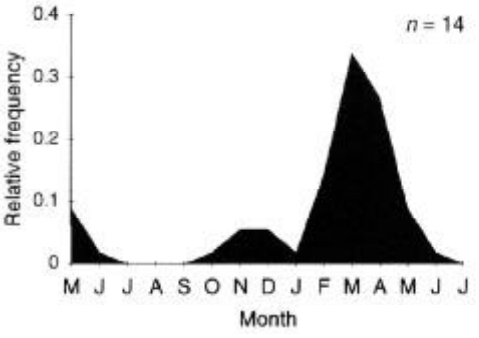


Figure 64. Flowering times for E. regnans.

COMMENTS: Throughout the Eastern Tiers, poorly verified, patchy occurrences recorded for *E. regnans* (cells 5735, 5633, 5733), and other unverified outliers in this vicinity (cells 5739, 6037, 5632, 5730), may be indicative of a potential link between population centres in the north-east and south. However, this is not consistent with the distribution suggested by Jackson (1965), and clarification of the distribution of *E. regnans* in the Eastern Tiers region is needed. In the north-west, outliers of the main distribution near Christmas Hills (cell 3446) and Mount Bertha (cell 3543) add credence to the disparate, unverified outliers near the Interview River (cell 3239) and the Huskisson River (cell 3738), suggesting a southern extension of the western range. In the Western Tiers, the putative extension for *E. regnans* in the upper Mersey or Forth River Valleys is unverified (cell 4237). Occurrences from the south-western mountains are also spurious (i.e. cell 4520). *Eucalyptus regnans* is also unverified from central regions north of Tarraleah (cell 4632), the southern Midlands (cells 4930, 5030), coastal hills in the north-east (cell 5145, 5942) and the south-east, on parts of Tasman Peninsula (cells 5521, 5522, 5523, 5623, 5721).

KEY REFERENCES: Ashton (1958, 1975a, b, c, 1976, 1981a, b, c, 1979, 1984); Ashton and Sandiford (1988); Ashton and Turner (1979);

Ashton and Williams (1973); Ashton and Willis (1982); Attiwill (1991); Cremer (1965a, 1966); Cunningham (1957); Dess and Ashton (1982); Eldridge (1965, 1970, 1972); Eldridge and Griffin (1983); Fripp *et al.* (1987); Gilbert (1959); Griffin (1980, 1983); Griffin and Cotterill (1988); Griffin and Eldridge (1980); Griffin and Hand (1979); Griffin *et al.* (1982, 1987); Hallam *et al.* (1989); Hardner and Potts (1995b); Moran *et al.* (1989); Nielson and Pataczeck (1991); Pederick (1976, 1990); Podger *et al.* (1980); Raymond and Volker (1993); Rook *et al.* (1980); Sedgley *et al.* (1989); West (1979, 1981, 1982); Wilcox (1982a, b).

Photo 22. Eucalyptus regnans *(giant ash) is the tallest flowering plant in the world, with recorded heights of up to 100 m.*

Eucalyptus risdonii

SUBGENUS: *Monocalyptus*
SERIES: *Piperitae*

Common name:
Risdon peppermint

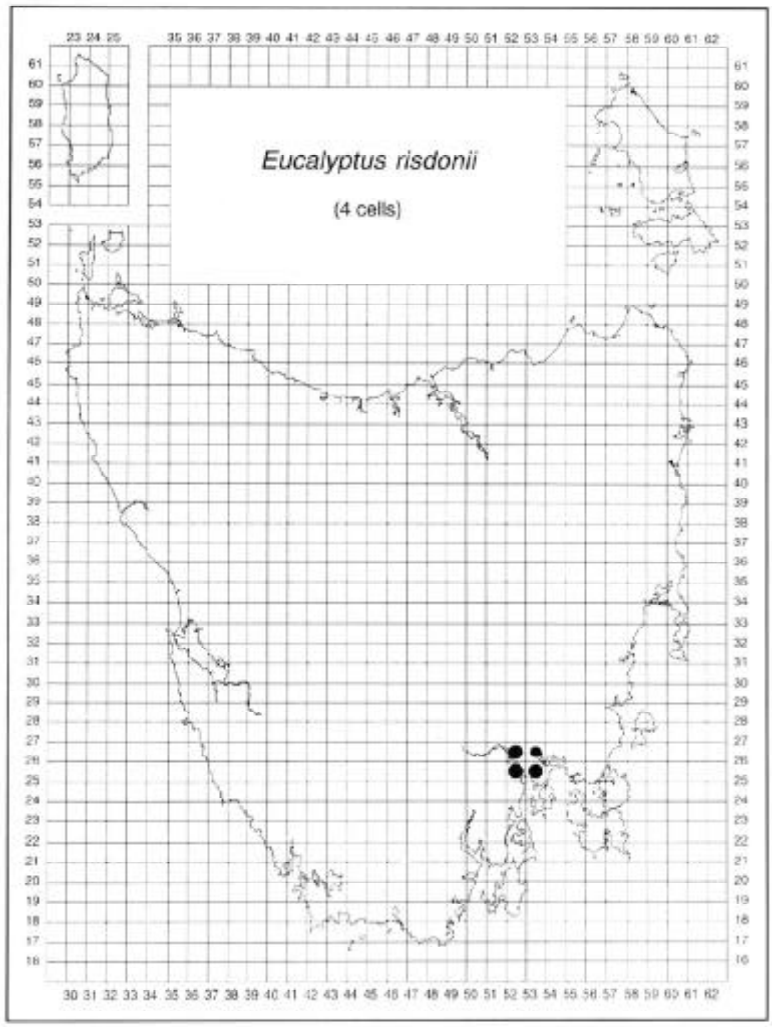


Figure 65. Distribution of E. risdonii *in Tasmania.*

Eucalyptus risdonii is a rare endemic species of low open forest, with a limited, localised distribution in a relatively uniform habitat in south-eastern Tasmania (Figure 65). It occurs as numerous, small, disjunct populations on very sunny ridges and north-west facing upper slopes of the Meehan Range and associated northern foothills adjacent to the Derwent River estuary. It grows in drought-prone, shallow, Permian mudstone soils which become relatively impermeable to water after prolonged periods of low rainfall, locally exacerbating the duration and intensity of drought. *Eucalyptus risdonii* is closely related to and clinally intergrades with *E. tenuiramis* where populations are geographically contiguous on the Meehan Range. The genetic variation between reproductively mature individuals of *E. risdonii* which retain the connate, juvenile leaf morphology and *E. tenuiramis* which bears petiolate, adult leaves is small and continuous in this transitional area (Wiltshire *et al.* 1991a, 1992).

Eucalyptus risdonii is a lowland species occurring predominantly below 200 m

altitude to near sea-level (2 m) at Bedlam Walls, and with localised occurrences up to 280 m on the Meehan Range (Figure 66). Its main flowering period is from August to December, peaking in October and November (Figure 67).

Eucalyptus risdonii is locally dominant in relatively small areas of low open forest and woodland. It occurs as a small tree or mallee shrub, the latter being a deflection from the tree form due to frequent, low-intensity fires and subsequent coppice regeneration from lignotubers (Photo 23). *Eucalyptus viminalis* may be present as a minor species. *Eucalyptus amygdalina* forms a more-or-less continuous population surrounding the disjunct *E. risdonii* patches. Hybridisation between these two closely related species is common in localised areas (Potts 1986; Potts and Reid 1985c). The potential evolutionary significance of hybridisation as a gene dispersal mechanism is discussed by Potts and Reid (1988). The conservation role of such hybrid zones in maintaining insect biodiversity has also been considered (e.g. Whitham *et al.* 1991, 1994).

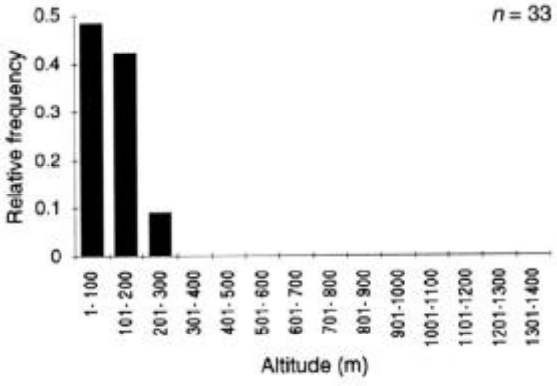


Figure 66. Altitude distribution of E. risdonii.

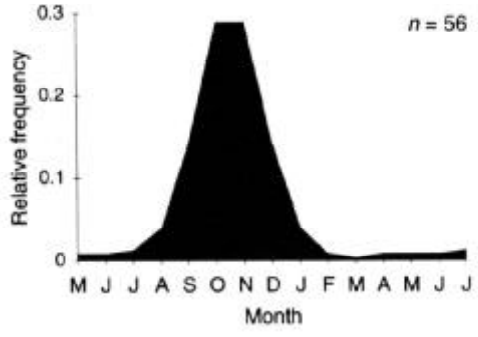


Figure 67. Flowering times for E. risdonii.

Photo 23. Coppice regeneration in E. risdonii.

COMMENTS: The natural distribution of *E. risdonii* is known only from four contiguous grid cells (Figure 65). A western extension along the Derwent River (cell 5126) needs verification. Many of the location errors for *E. risdonii* actually represent records for *E. tenuiramis*, being either misidentifications of geographically intergrading forms or old herbarium collections reflecting early names for *E. tenuiramis* that had not been updated (i.e. cells 5026, 5027, 5125, 5133, 5223, 5328, 5329, 5424, 5622, 5723). Records of *E. risdonii* from Bruny Island, Southport Lagoon and other south-eastern coastal sites (e.g. cells 4918, 5219, 5221, 5321) most probably represent *E. tenuiramis* individuals which have developed floral buds on juvenile, epicormic foliage due to salt and wind pruning of exposed branches.

KEY REFERENCES: Brown and Bayly-Stark (1979b); Hogg and Kirkpatrick (1974); Kirkpatrick and Nunez (1980); Ladiges *et al.* (1983); Potts (1986, 1988); Potts and Reid (1985c, 1988, 1990); Pryor and Briggs (1981); Whitham *et al.* (1991, 1994); Wiltshire (1991); Wiltshire *et al.* (1989, 1991a, 1992).

Eucalyptus rodwayi

SUBGENUS: *Symphyomyrtus*
SERIES: *Ovatae*

Common name:
black swamp gum

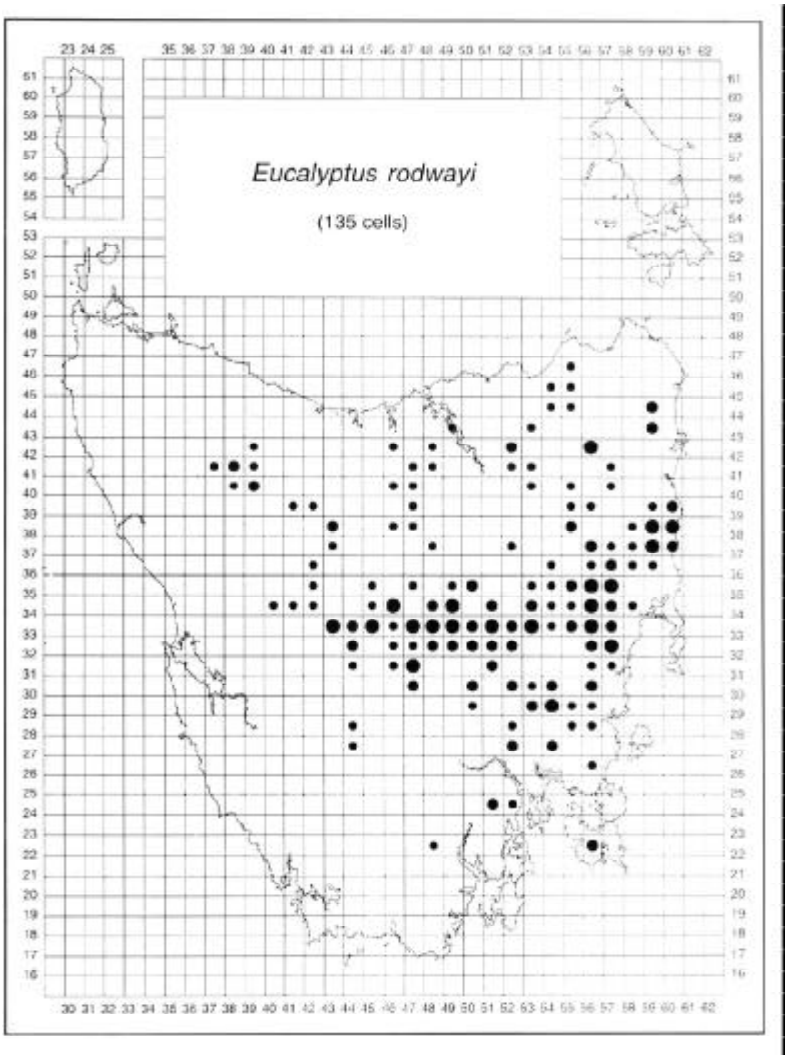


Figure 68. Distribution of E. rodwayi *in Tasmania.*

Eucalyptus rodwayi is a widespread endemic species scattered throughout inland areas of northern, eastern and central Tasmania (Figure 68). It occurs locally on poorly drained, upper valley flats, or on plateaux subject to seasonal waterlogging where severe frosts and cold-air drainage generally preclude *E. ovata*. It grows as a medium to small tree or mallee shrub depending on fire frequency and the severity of frost and waterlogging.

Eucalyptus rodwayi is predominantly a mid- to high-altitude species in the range from 300 m to 800 m (Figure 69), occasionally extending up to 1120 m, or down to 60 m (Table 3, p. 124). Low altitude sites (< 300 m) are widespread throughout northern, north-eastern, eastern and south-eastern regions, and generally reflect subcoastal plains and hollows exposed to seasonal frosts or cold-air drainage. The high-altitude sites (> 800 m) are recorded from the southern to south-eastern Central Plateau, the Eastern Tiers and the north-eastern highlands. The outlying high-altitude record (1120 m) is known from near the scarp of the Western Tiers at Westons Rivulet. The

broad distribution and associated altitude profile for *E. rodwayi* is reminiscent of the patterns observed for *E. pauciflora* which follows the stepped topography from coastal to subcoastal hills and plains to inland mountain regions. The main flowering period of *E. rodwayi* is between November and May, peaking from January to March (Figure 70).

Eucalyptus rodwayi occurs as a dominant of grassy and sedgey woodlands. Grassy communities develop where waterlogging is less severe and fertility is sufficient to favour the dominance of grasses in the understorey. Such sites, especially in lowland situations, are relatively arable in summer and many have been drained, cleared and converted to pasture. In poorly drained, upland situations, *E. rodwayi* often forms pure stands, or may occur as scattered individuals on the edge of buttongrass moorland. In woodlands or open forests at the margins of plains where drainage improves and cold-air effects are less severe, *E. rodwayi* may co-exist with an ash species (*E. delegatensis* or *E. pauciflora*) or peppermint (*E. amygdalina* or *E. coccifera*). Other white gums such as *E. dalrympleana, E. gunnii, E. archeri* or *E. urnigera* may also co-occur with *E. rodwayi* in the transition from woodland to open forest on the Central Plateau (Jackson 1973). *Eucalyptus ovata* co-occurs with *E. rodwayi* in some ecotonal situations at the lower altitudes where the effects of frost and cold-air drainage are less severe.

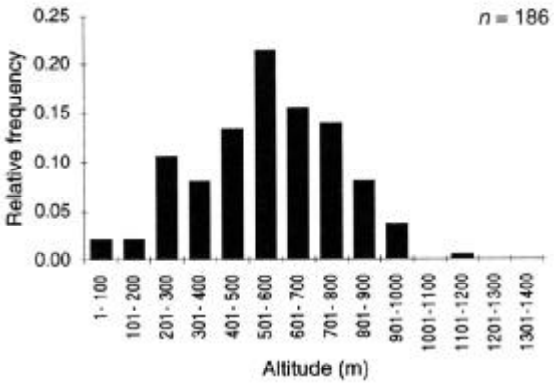


Figure 69. Altitude distribution of E. rodwayi.

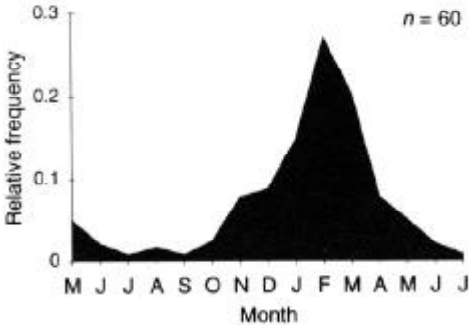


Figure 70. Flowering times for E. rodwayi.

COMMENTS: Putative occurrences of *E. rodwayi* that are not adequately verified were removed from the map to emphasise the need for further study. For example, in the far north-west, an unverified outlier near Montagu Swamp (cell 3245) would greatly extend the western range of *E. rodwayi* and may represent a remnant stand that has been cleared. However, it could equally be a misidentification of a form which intergrades with *E. ovata* or *E. brookeriana.* Similarly, intergrading forms of *E. rodwayi* are known from localised populations near Guildford (M.I.H. Brooker, pers. comm. 1996) and may be reflected in the unverified outliers in this region (cells 3839, 4041). Other putative occurrences to the south of the Lyell Highway also require further investigation (cells 3832, 3932, 4429). There are also numerous unverified occurrences for *E. rodwayi* in the central highlands (cells 4138, 4233, 4238, 4334, 4532, 4734, 5031), the north-eastern highlands (cells 5440, 5441, 5442, 5443, 5542, 5640, 5739), the Midlands (cells 5336, 5431) and on the east coast (cell 6036). Many of these unverified records are derived from the endemics atlas (Brown *et al.* 1983) and may be rediscovered in the course of future surveys. The ecological and morphological differences between forms of *E. rodwayi* in the central highlands and the Eastern Tiers also require study.

KEY REFERENCES: Baker and Smith (1912); Jackson (1973); Ladiges *et al.* (1984); Paton (1980).

Eucalyptus rubida

SUBGENUS: *Symphyomyrtus*
SERIES: *Viminales*

Common name:
candlebark

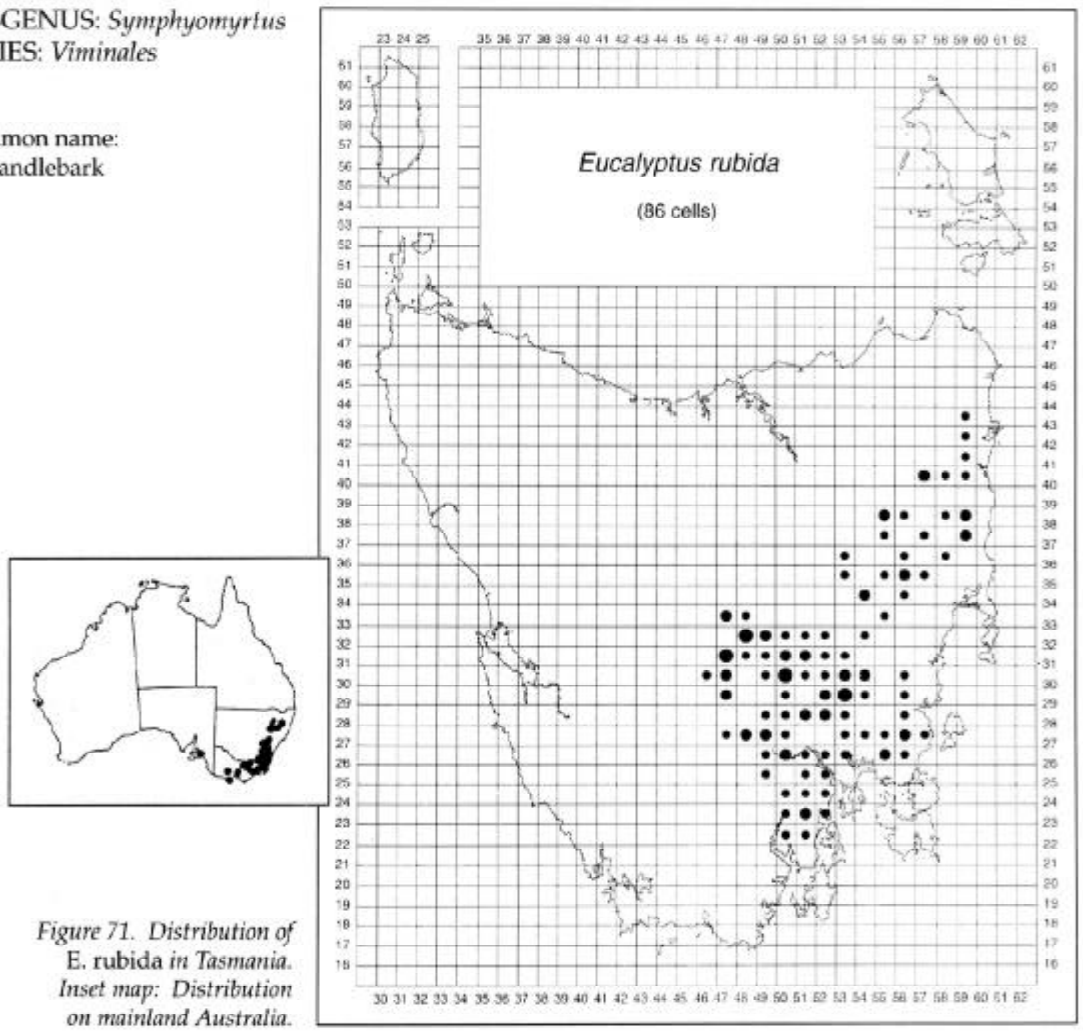


Figure 71. Distribution of E. rubida *in Tasmania. Inset map: Distribution on mainland Australia.*

Eucalyptus rubida has a sparse distribution throughout the cooler, inland regions of eastern and south-eastern Tasmania (Figure 71). It generally occurs on shallow, dry, relatively infertile soils derived from Triassic or Permian sediments of the southern Midlands and Derwent Valley, or on Jurassic dolerite where the mid slopes of hills and the lower surfaces of the Eastern Tiers support shallow, rocky or well-drained soils. These sites are not only dry but are seasonally prone to extended periods of frosts and cold-air drainage.

Eucalyptus rubida is a mid-altitude species, predominant in the range from 200 m to 600 m (Figure 72), but extends up to 880 m at Den Hill, east of Bothwell, and down to 90 m near Lynbrae in the Coal River Valley. The high altitude sites (> 600 m) are generally known from the southern Midlands in the vicinity of Bothwell, and among the southern foothills of Ben Lomond in the north-east. The low altitude sites (< 200 m) generally occur in subcoastal foothills and open valleys of the south-east, particularly the lower Huon, Derwent and Coal Rivers. The upper

and lower altitude occurrences may also reflect intergradation with *E. dalrympleana* and *E. viminalis* respectively. *Eucalyptus rubida* replaces *E. viminalis* on the inland sites subject to frost and cold-air drainage, and may intergrade with *E. dalrympleana* on wetter sites at higher altitudes. Few data are available on the flowering time of *E. rubida*, but existing observations record flowering mainly between November and January, peaking in December and January (Figure 73).

Eucalyptus rubida is typically a subdominant tree of dry sclerophyll communities. It occurs sporadically in heathy open forest and grassy woodlands with one of the peppermints, *E. amygdalina, E. pulchella, E. tenuiramis* and occasionally *E. coccifera*, or the ash species *E. pauciflora*, depending on substrate type, altitude and the severity of the cold, mountain winds. In the southern Midlands and Derwent Valley, the grassy woodlands in particular, and much of the heathy forest, are remnant stands (Fensham 1989; Fensham and Kirkpatrick 1989), which are subject to disturbance by selective logging, rough grazing or further clearing. Remnant trees of *E. rubida* in paddocks are obvious for their attractive appearance with pink or red patches on the bark and broadly spreading branches. The originally sparse population densities of this species appear to have exacerbated the extent of local extinctions across parts of its range.

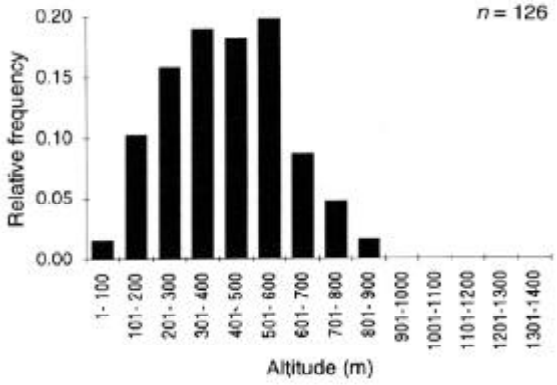


Figure 72. Altitude distribution of E. rubida.

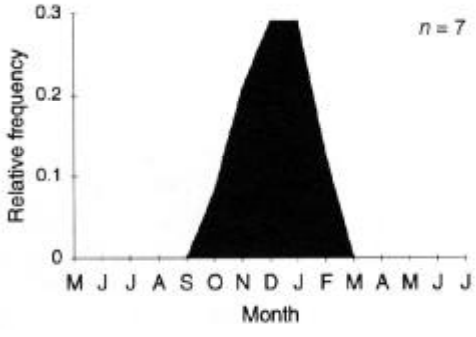


Figure 73. Flowering times for E. rubida.

COMMENTS: Several unverified outliers for *E. rubida* occur to the north (cell 4140) and west (cells 4232, 4333) of the main distribution. These are most likely to be misidentifications of *E. dalrympleana*, although future verifications of *E. rubida* should not be discounted. The unverified high-altitude outliers for *E. rubida* from the eastern Central Plateau (cells 4934, 5035) and Eastern Tiers (cell 5736) are also likely to represent misidentifications of *E. dalrympleana*. However, unverified outliers from Tasman Peninsula in the south-east (cells 5522, 5524) and in the east near Tooms Lake (cell 5732) may represent occurrences of *E. rubida* but require confirmation. The identity of remnant trees in paddocks, particularly the isolated individuals and stands (lacking regeneration and vulnerable to dieback), throughout the Midlands and the Derwent Valley may further contribute to the known range of *E. rubida* and provide important basic information for ecological studies (Photo 30, p. 134). There is currently a dearth of information relating to specific genetic or ecological aspects of this species in Tasmania.

KEY REFERENCES: Boland *et al.* (1984); Fensham (1989); Fensham and Kirkpatrick (1989); Kirkpatrick *et al.* (1988a); Parsons (1986); Pryor and Dadswell (1964).

Eucalyptus sieberi

SUBGENUS: *Monocalyptus*
SERIES: *Obliquae*

Common name:
ironbark

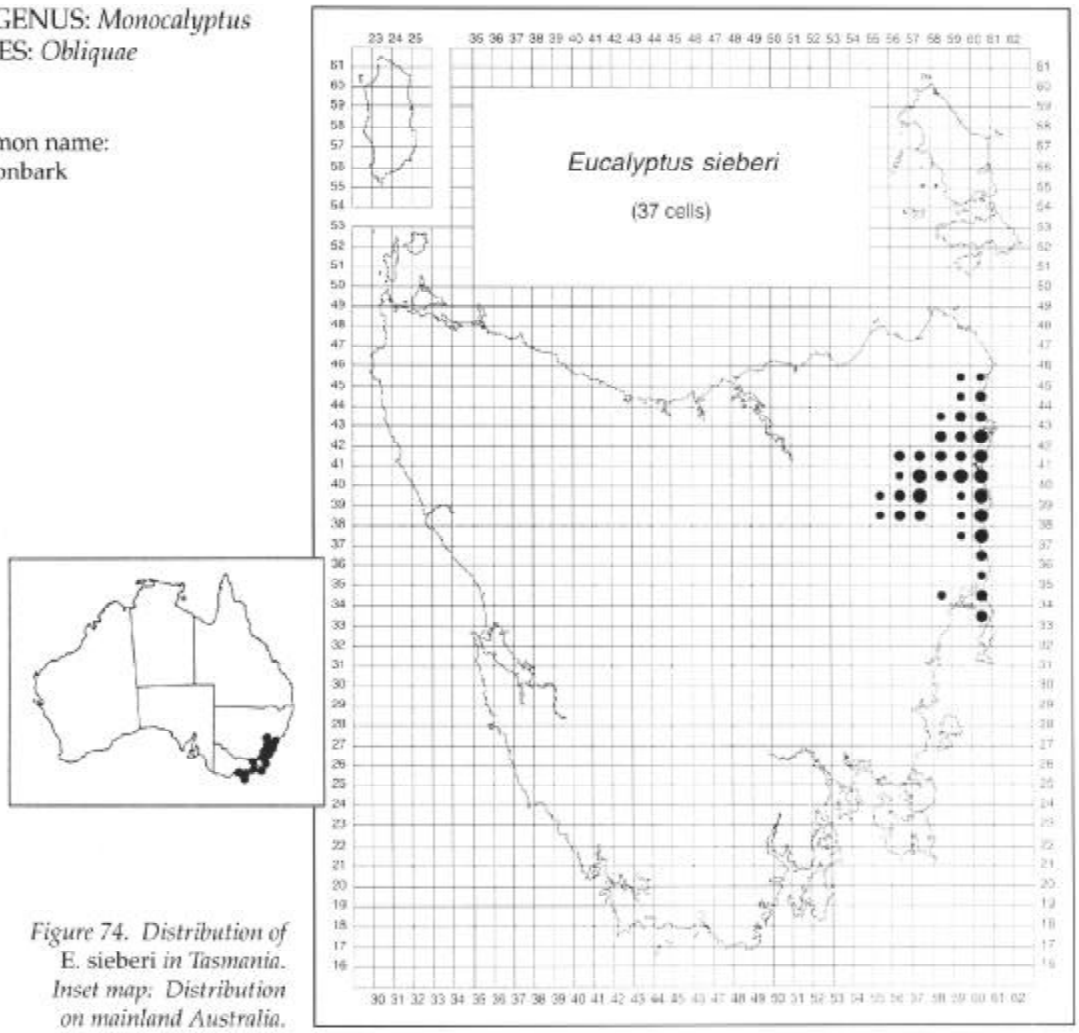


Figure 74. Distribution of E. sieberi *in Tasmania. Inset map: Distribution on mainland Australia.*

Eucalyptus sieberi is local and extensive in the north-east and along the east coast. It grows in scattered populations from Freycinet Peninsula to north of St Helens and inland along the mountains and hills that rim the northern side of the Fingal Valley (Figure 74). It occurs on undulating to steep terrain of the comparatively infertile, fine-grained Ordovician sediments (Mathinna beds) and dry, coastal hills of Devonian granite origin. It is also found, to a lesser extent, on Jurassic dolerite in the northern coastal hills of the Eastern Tiers.

Eucalyptus sieberi is predominantly a lowland species but broadly occupies suitable habitats of the mid and low altitudes below 650 m (Figure 75). Sites near sea-level (10 m) occur locally in coastal areas between Coles Bay and St Helens. The high altitude sites (> 600 m, up to 720 m) generally occur along the more inland margins of the distribution between Rossarden and Mathinna, among the southern and eastern foothills of Ben Lomond and Tower Hill. The flowering time of this species is poorly known but appears to occur mainly between September and

March, peaking in October and November (Figure 76).

Eucalyptus sieberi is a dominant species of dry sclerophyll forest supporting shrubby or heathy understoreys. However, bare gravels and simplified understoreys are more typical of *E. sieberi* forests as a result of frequent, low intensity fires in recent history (Neyland and Askey-Doran 1994). It typically forms uneven-aged, monospecific stands across much of its range on the driest sites of Mathinna substrates. *Eucalyptus viminalis* is present as a minor species or subdominant on the lower slopes and frequently dominates the gully habitats. *Eucalyptus globulus* is occasionally present as a minor species. *Eucalyptus sieberi* frequently co-exists ecotonally with *E. amygdalina* on granites and dolerite, and intermediates between these two species were previously described as the separate taxon, *E. taenifolia* (Baker and Smith 1912). These plants are now recognised as hybrids (Jackson 1958; Pryor and Johnson 1971; Curtis and Morris 1975). With increasing moisture, such as in drainage lines and on the cooler, sheltered aspects, *E. sieberi* is replaced by *E. obliqua* as the dominant species.

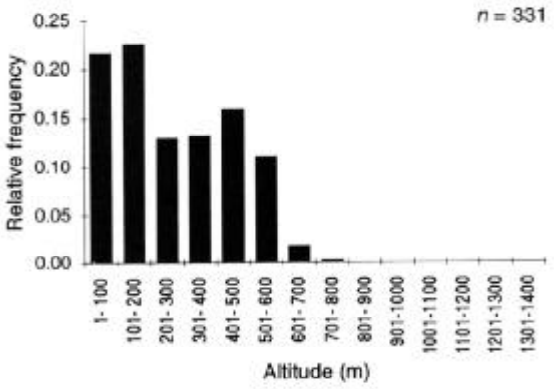


Figure 75. Altitude distribution of E. sieberi.

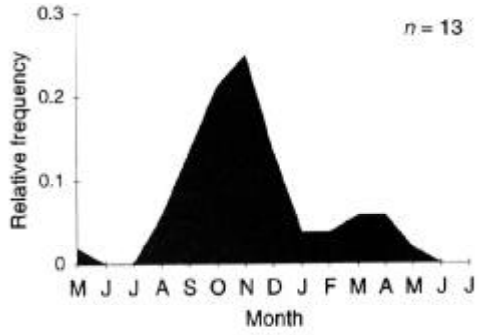


Figure 76. Flowering times for E. sieberi.

Eucalyptus sieberi has a characteristic straight-boled stem on many sites in Tasmania, with deeply furrowed bark extending onto the larger limbs, and smooth, white upper branches.

COMMENTS: The distribution of *E. sieberi* suggests a minor 'gap' in the central region of occurrences around the Fingal Valley and adjacent forest areas (cells 5838 and 5839). Locations around the upper South Esk River valley may not include suitable habitats, but the forested slopes of Mount Foster to the south of the Fingal Valley may contain unreported occurrences of *E. sieberi*. A recently verified record near Cranbrook (cell 5834) extends the southern limits of *E. sieberi* (S. Harris, pers. comm. 1992; M. Neyland, pers. comm. 1994). In the far north-east, an outlier from State forest south of Gladstone (cell 5845; D. Allen, unpublished data) cannot be verified by recent studies (M. Neyland, pers. comm. 1995). An old herbarium record with the location given as 'Scottsdale' (e.g. cell 5444; collected by J.M. Firth in 1931) is also unverified.

KEY REFERENCES: Austin *et al.* (1983); Bachelard (1986a, b); Baker and Smith (1912); Eldridge (1965); Gibson and Bachelard (1986a, b, 1987, 1988); Jackson (1958); Lambert and Turner (1983); Neyland and Askey-Doran (1994).

Eucalyptus subcrenulata

SUBGENUS: *Symphyomyrtus*
SERIES: *Viminales*

Common name:
alpine yellow gum

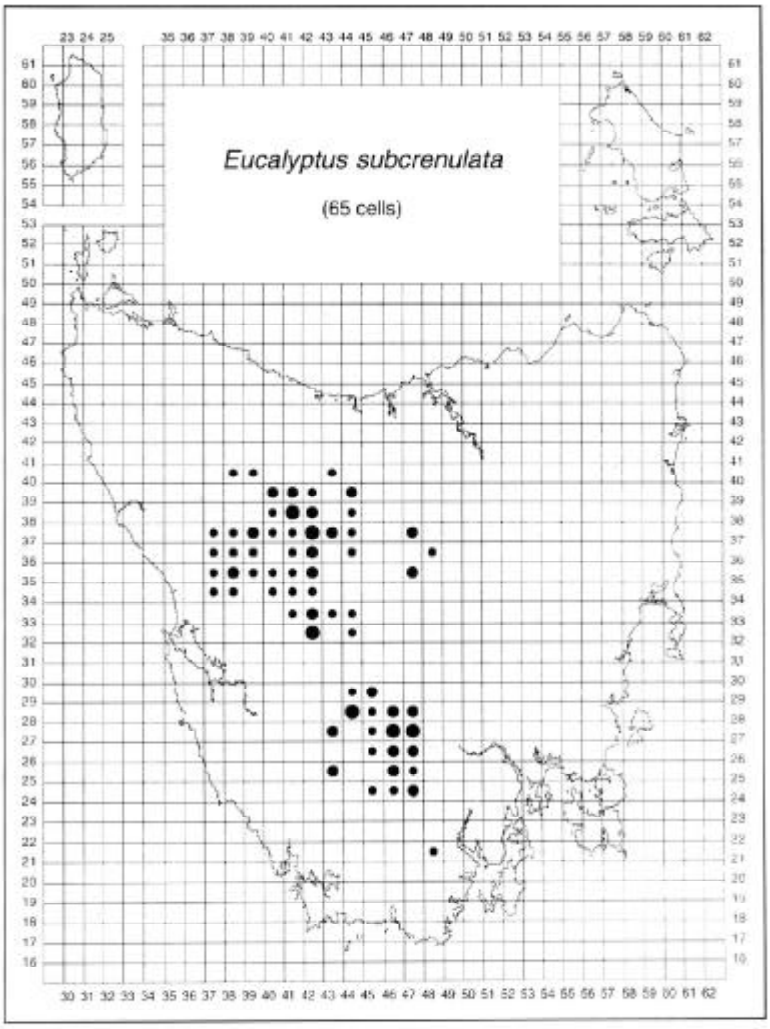


Figure 77. Distribution of E. subcrenulata *in Tasmania.*

Eucalyptus subcrenulata is an endemic, subalpine, yellow-gum species of the west and central mountain regions (Figure 77). It grows on well-drained, exposed, rocky ridges, gully slopes and stony plateaux where dolerite screes form over sandstone bedrock, or on the margins of poorly drained flats and soakages. It forms a geographic cline with *E. johnstonii* towards the south-east and is clinally replaced by *E. vernicosa* in the exposed, alpine situations on western and south-western mountains. Intermediates between *E. subcrenulata* and *E. vernicosa* have been informally classified as the cline-form *'parvula'* by Jackson (1960).

Eucalyptus subcrenulata occurs at altitudes between 550 m and 1180 m but is found mostly from 700 m to 1100 m (Figure 78). The lower altitude sites (< 700 m) are largely known from the south-western margins of the distribution. The higher altitude sites (> 1100 m) are from the Western Tiers, the eastern Central Plateau and Mount Field. The main flowering period is from January to April, peaking between January and March (Figure 79).

Eucalyptus subcrenulata occurs as a small tree emergent over subalpine rainforest, or as a sub-dominant or co-dominant with *E. delegatensis* in montane wet forest with rainforest or tall shrub understoreys. It also occurs with *E. coccifera* in the more exposed subalpine woodlands.

COMMENTS: Some inconsistencies exist between verifiable records for the distribution of *E. subcrenulata* and the mapped occurrences of Jackson (1965). In the latter, *E. subcrenulata* is shown to extend into the south-western mountain regions, which is consistent with clinal intergradation with *E. vernicosa*, but there are no data available to verify this trend apart from records from the Hartz Mountains (cell 4821). The altitudinal cline-form *'parvula'* (*sensu* Jackson 1960) may also confuse the disjunction between *E. subcrenulata* and *E. vernicosa* in other western and north-western mountain regions. Similarly, in the geographic zone of intergradation between *E. subcrenulata* and *E. johnstonii*, there is considerable confusion in distinguishing either taxon due to the intermediate cline-form informally termed *'columnaris'* by Jackson (1960). For the convenience of mapping, unverified occurrences centred in either region are allocated to the predominant species. At Snug Plains (cells 5122, 5123), for example, records for *E. subcrenulata* are considered to be misidentifications of *E. johnstonii* as the population is regenerating from the 1976 fire. Records from Quoin Mountain (cell 5229) and Mount Wellington (cell 5125) are treated as misidentifications of *E. johnstonii*.

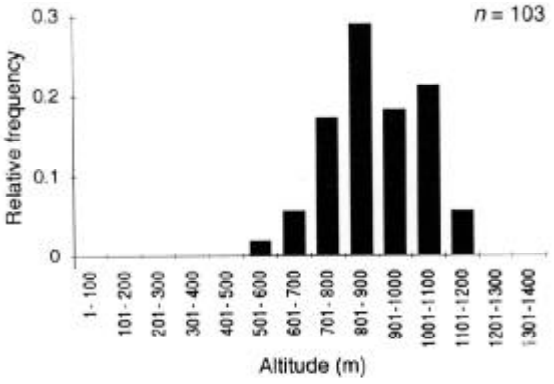


Figure 78. Altitude distribution of E. subcrenulata.

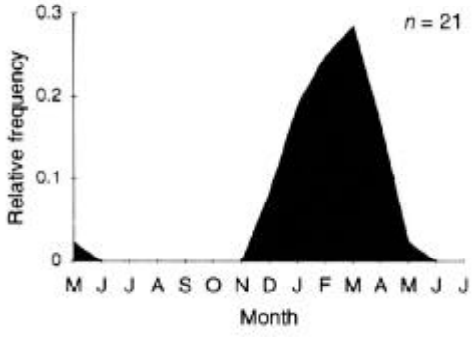


Figure 79. Flowering times for E. subcrenulata.

On the Central Plateau, most of the locations for *E. subcrenulata* occur west of Great Lake, although isolated populations are known from the east (e.g. cells 4735, 4737, 4836). Unverified outliers for *E. subcrenulata* are widespread in many locations throughout the eastern Central Plateau. Some of these may represent misidentifications of *E. archeri*, a species which occasionally exhibits yellow-green streaked bark (i.e. cells 4738, 4837, 4936, 5135). Other putative occurrences require further verification (i.e. cells 4533, 4634, 4635, 4734, 4832, 4833, 4935, 5034, 5035). There is a need to verify the extent of *E. subcrenulata* in the eastern Central Plateau as additional isolated populations almost certainly exist in this region.

Several other records on the northern or western margins of the distribution are also unverified (i.e. cells 4141, 4331, 4634). An outlier suggested for Gog Range (cell 4540) also needs verifying. Unverified outliers of *E. subcrenulata* in the north-east (cells 5442, 5540, 5741) are likely to be misidentifications of *E. archeri*. An unverified outlier in the Eastern Tiers, near Lucks Lookout (cell 5837) also needs checking but is likely to represent a misidentification of some other *Symphyomyrtus* species.

KEY REFERENCES: Jackson (1960); Li *et al.* (1996); Potts and Jackson (1986).

Eucalyptus tenuiramis

SUBGENUS: *Monocalyptus*
SERIES: *Piperitae*

Common name:
silver peppermint

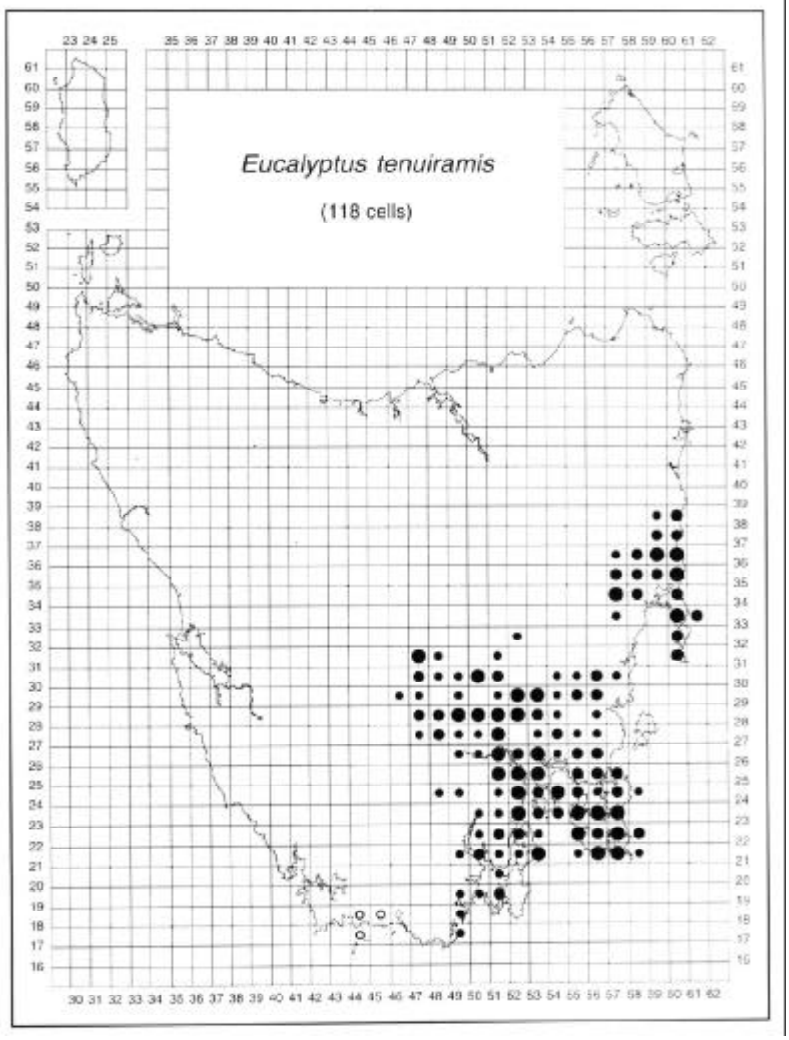


Figure 80. Distribution of E. tenuiramis (●) *and* E. *aff.* tenuriamis (○) *in Tasmania.*

Eucalyptus tenuiramis (Photo 24) is an endemic species, locally common in south-eastern and eastern Tasmania (Figure 80) on relatively sunny sites subject to moderate drought stress. It typically occurs on sedimentary substrates derived from mudstone, sandstone or quartzite gravels in the south-east and southern Midlands but shifts to substrates of igneous origin towards the east, occurring on Jurassic dolerite in the Eastern Tiers, or Devonian granites on the east coast near Freycinet Peninsula. *Eucalyptus tenuiramis* is a highly variable species, with populations on the east coast and in some coastal areas being quite different from the typical populations in the south-east. In the Hobart region, *E. tenuiramis* clinally intergrades with *E. risdonii* in the height of transition to adult foliage, flowering precocity and juvenile leaf shape (Wiltshire *et al.* 1991a, 1992; Wiltshire and Reid 1992).

Eucalyptus tenuiramis is predominantly a lowland species in the altitude range from near sea-level to 600 m, with rare occurrences up to 700 m (Figure 81). The altitude range of

the eastern and south-eastern populations of *E. tenuiramis* is very similar. The low-altitude records generally occur in coastal localities and the high-altitude records in more inland regions. For example, the highest altitude records (> 600 m) are known from Yarlington Tier in the southern Midlands, and on Tom Legges Tier in the Eastern Tiers. The main flowering period is from November to February, peaking from November to January (Figure 82).

Eucalyptus tenuiramis is a frequent dominant of dry sclerophyll forest across its range, usually in association with other eucalypts. Grassy *E. tenuiramis* forests and woodlands occur typically on free-draining mudstone sediments in coastal and hinterland areas of the south-east near Hobart and the D'Entrecasteaux Channel region. Heathy *E. tenuiramis* open forests are widespread on free-draining sandstone sediments associated with the drier, colder inland climates of the southern Midlands and Derwent Valley, or on eastern coastal granites near Freycinet Peninsula. Shrubby *E. tenuiramis* forests occur locally in eastern Tasmania from Tasman Peninsula to the central east coast. They are found on the seaward foothills of the Eastern Tiers and other upland shelves where Jurassic dolerite forms lower slopes and flats with a moderate rock cover and free to slightly impeded drainage. Populations of *E. tenuiramis* also occur on the better drained sites in wet heathland and sedgeland on Tasman Peninsula and in the south-east near Southport Lagoon.

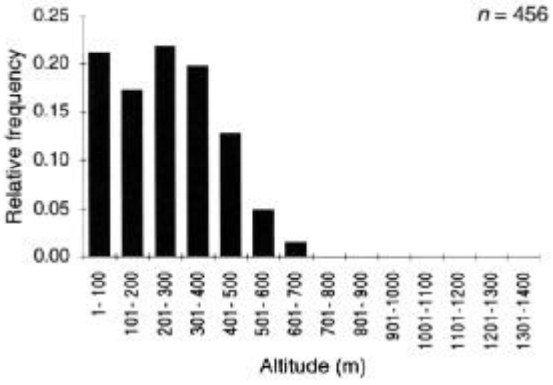


Figure 81. Altitude distribution of E. tenuiramis.

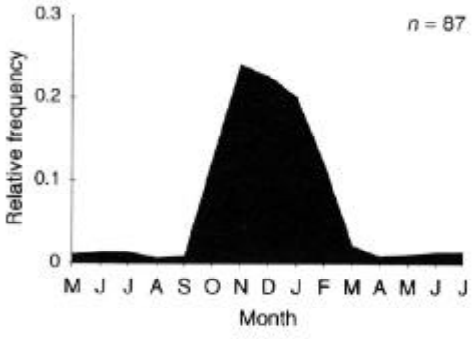


Figure 82. Flowering times for E. tenuiramis.

Eucalyptus tenuiramis forms sharp ecotonal transitions and narrow hybrid zones with the other lowland peppermints, *E. pulchella* or *E. amygdalina*, in the south-east across dolerite–mudstone or mudstone–sandstone substrate boundaries respectively. In the east on dolerite, the ecotonal transitions and hybrid zones between *E. tenuiramis* and these other peppermints are much broader, in parallel with the more subtle changes in substrate water relations. *Eucalyptus obliqua* may occur with *E. tenuiramis* on ecotonal sites as moisture availability increases, and it co-exists with *E. pauciflora* on dry inland sites subject to cold-air drainage. *Eucalyptus viminalis* is a frequent subdominant or minor species throughout the range of *E. tenuiramis*, *E. globulus* may be present on shaded slopes, or *E. rubida* on sites subject to the passage or pooling of cold air.

COMMENTS: There appears to be a major disjunction in the range of *E. tenuiramis* in the vicinity of the central east coast. However, this disjunction may partially reflect under-sampling in the intervening regions, and requires confirmation. Several unverified outliers occur in the vicinity of this disjunction around the Little Swanport River, Tooms Lake and the Macquarie River (e.g. cells 5533, 5633, 5732). Adjacent unverified low altitude outliers for *E. coccifera* (< 200 m) may actually represent *E. tenuiramis* (e.g. cells 5533, 5631). The two populations studied

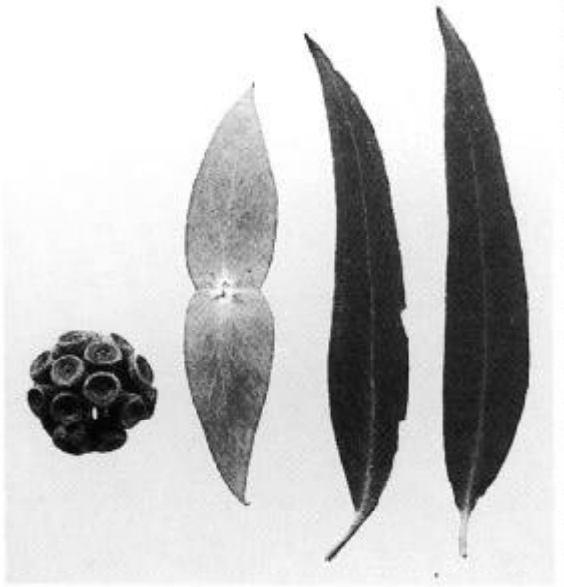


Photo 24. From left, capsules, juvenile leaves and adult leaves of E. tenuiramis.

from the northern distribution (cf. Bicheno and Friendly Beaches) differ markedly in juvenile morphology from the typical southern population (Wiltshire *et al.* 1991a). However, whether this difference is characteristic of the northern distribution or is a reflection of a substrate difference (granite versus mudstone / sandstone or dolerite) is unknown at present. Another unexpected gap in the distribution of *E. tenuiramis* is Maria Island, where there are large patches of both Jurassic dolerite and Permian sediments. No verified occurrences of *E. tenuiramis* are known from the low foothills and flats of the St Pauls or Esk River Valleys, or in the north-east (e.g. cells 5539, 5540, 5737, 5738, 5739, 5838).

In the southern Central Plateau, there are persistent unverified outliers for *E. tenuiramis* between Lake Echo and Arthurs Lake (cells 4634, 4734, 4733), suggesting the existence of a small, high-altitude population. A high-altitude population which is intermediate between *E. coccifera* and *E. tenuiramis* is known to occur on the nearby Alma Tier (cell 5033; Shaw *et al.* 1984; Wiltshire *et al.* 1991a, 1992) and this may be representative of the unverified location near Lake Sorell (cell 5133; Brown *et al.* 1983). However, records from the vicinity of Great Lake are likely to represent misidentifications of *E. coccifera* (cell 4737).

In the far south (Figure 80), a glaucous peppermint occurs near Louisa Bay and on the Red Point Hills (cells 4417, 4418, 4518). These populations occur at relatively low altitudes (40–120 m) in small forest and scrub copses surrounded by buttongrass moorland (K. Williams and J. Marsden-Smedley, unpublished data). They appear to have close affinities with *E. tenuiramis* which is known to occur in a similar buttongrass-plains habitat associated with peaty substrates or from the better drained knolls at Cape Pillar (cells 5721, 5821) and Southport Lagoon (cells 4918, 4919). However, this glaucous peppermint may also have affinities with *E. coccifera*. Further study is needed to verify the identity of these populations and other southern records for *E. tenuiramis* (i.e. cell 5118).

Putative occurrences of *E. tenuiramis* from the Broad River Valley (cell 4628) and the catchment of the Plenty River (cell 4825) are on the western margins of the distribution and require verification, although occurrences are known from the adjacent Repulse River catchment (cell 4629) and Lonnavale (cell 4824). Extensions to the Midlands distribution of *E. tenuiramis* are known from Monks Sugarloaf (cell 5131; F. Duncan, pers. comm. 1995) but are otherwise unverified from the western face of the Eastern Tiers, adjacent to the northern Midlands (e.g. cell 5635). Other reported occurrences of *E. tenuiramis* beyond these south-eastern and eastern range limits (i.e. cells 3647, 3742, 4043, 4138, 4432) are likely to be misidentifications of other peppermints or their intergrading forms.

Glaucous forms of a peppermint from Flinders Island and Cape Barren Island (i.e. cells 5853, 5856, 5857, 5952) ascribed either to glaucous forms of *E. nitida* (S. Harris, pers. comm. 1993; R. Gaffney, pers. comm. 1996) or *E. tenuiramis* (Whinray 1977) require investigation.

KEY REFERENCES: Ladiges *et al.* (1983); Shaw *et al.* (1984); Wiltshire (1991); Wiltshire *et al.* (1991a, 1992); Wiltshire and Reid (1992).

Eucalyptus urnigera

SUBGENUS: *Symphyomyrtus*
SERIES: *Viminales*

Common name:
urn gum

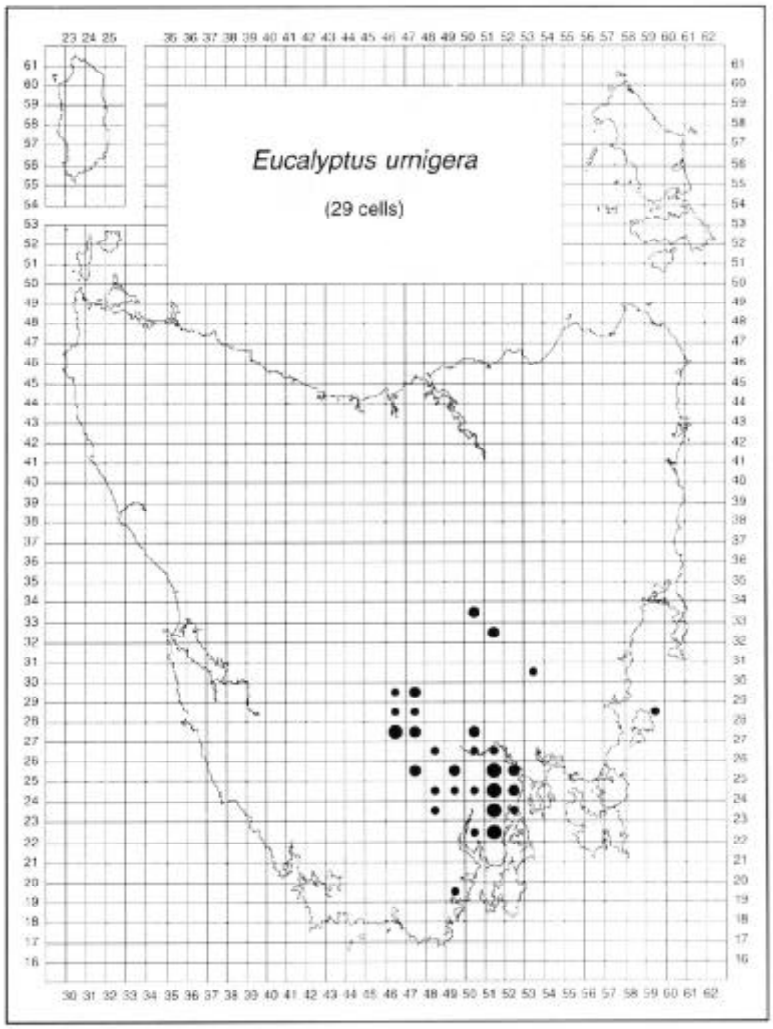


Figure 83. Distribution of E. urnigera *in Tasmania.*

Eucalyptus urnigera (Photos 25, 26) is an endemic species of mountains and plateaux of the south-east and the southern Central Plateau (Figure 83) where it occurs on well-drained, rocky dolerite soils. Isolated, disjunct populations also occur in the southern Midlands at Mount Seymour, on Maria Island, and in the south at Tylers Hill.

Eucalyptus urnigera is a subalpine species predominant in the altitude range from 600 m to 1000 m (Figure 84), but may extend up to 1160 m on Mount Wellington and down to 420 m at Tylers Hill. On Mount Wellington, a stepped, intraspecific cline in adult and juvenile leaf glaucousness occurs with increasing altitude (Barber and Jackson 1957). Juvenile leaves are uniformly glaucous near the tree-line, and green at the lower altitudinal range. Corresponding with this cline from green to glaucous leaves is a steep cline in flowering time (Savva *et al.* 1988). *Eucalyptus urnigera* has a broad flowering period from March to November, and is the only subalpine eucalypt flowering during winter, peaking from May to August (Figure 85). This broad

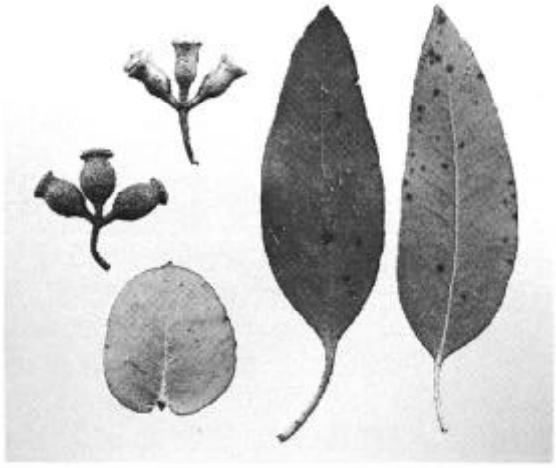


Photo 25. Leaves of E. urnigera, *and the urn-shaped fruit and buds, from which the species derives its scientific and common names.*

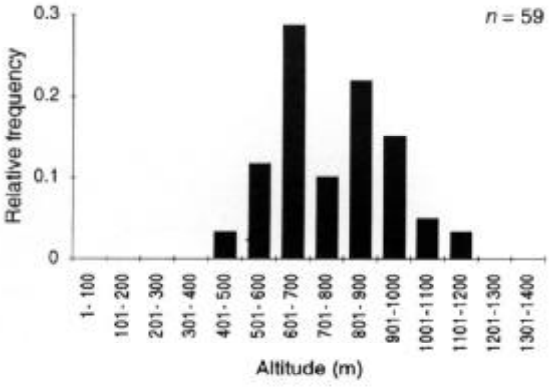


Figure 84. Altitude distribution of E. urnigera.

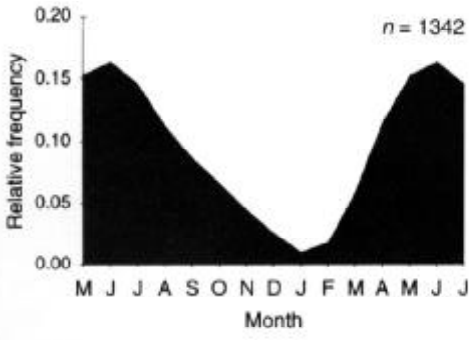


Figure 85. Flowering times for E. urnigera.

range in flowering time may, in part, be due to the lower temperatures slowing rates of flower development, coupled with clinal variation in flowering time (e.g. Potts and Reid 1985a). On Mount Wellington, for example, the peak flowering time of the low-altitude, green populations of *E. urnigera* is over three months earlier than the high-altitude, glaucous populations (Savva *et al.* 1988). This difference in flowering time would act as a barrier to pollen-mediated gene flow along the stepped cline in leaf glaucousness (see also Potts and Reid (1985a) for *E. gunnii–archeri*).

Eucalyptus urnigera occurs as a shrub, or small tree with numerous low branches, on exposed rocky slopes where it may be the principal species subdominant to *E. coccifera* in subalpine woodland (Photo 26). In wet sclerophyll forest, it attains a moderate size and straight form, growing as a subdominant tree with *E. delegatensis*. It may also co-exist ecotonally with *E. johnstonii* or *E. subcrenulata* on mountains of the south-east, as the substrate becomes dominated by sandstone. Potts and Reid (1985b) suggest that *E. urnigera* and southern populations of *E. gunnii* would have co-existed during the last glacial, but parapatric populations of the two species have remained discrete and are reproductively isolated by a shift in flowering time and a divergence in reproductive characters. *Eucalyptus urnigera* occurs in close proximity to or ecotonally with *E. gunnii* on the Alma Tier.

COMMENTS: The distribution and morphological types of *E. urnigera* are well known from the Hobart region and Derwent Valley, but persistent records from the south-eastern Central Plateau and the Eastern Tiers are less well studied. For example, the population from Alma Tier (cell 5033) is highly glaucous and differentiated from southern populations in both morphology and habit, having smaller capsules (Potts and Reid 1985a, b). A probable location at Lake Crescent (cell 5132) has also been included in the mapping, but requires further verification. There are persistent records for *E. urnigera* at other Central Plateau sites west of these locations

Photo 26. Eucalyptus urnigera *in subalpine forest.*

(cells 4733, 4734, 4833, 4931, 4933, 4934, 4935, 4936, 5035, 5036). Some of these may represent misclassification of a low altitude variant of *E. gunnii* (e.g. morphs resembling the *'E. divaricata'* type; Potts and Reid 1985a), with a tendency toward urn-shaped fruits. However, an unverified population of *E. urnigera* in the vicinity of Tunbridge Tier (cell 5233; Brown *et al.* 1983) may have affinities with the Alma Tier form. Voucher collections are needed to clarify this occurrence.

A population of *E. gunnii* from the vicinity of Snow Hill (cells 5635, 5636) and *E. cordata* from Brown Mountain (cell 5428) have some morphological affinities with *E. urnigera.* The isolated population of *E. urnigera* on the eastern side of Maria Island (cell 5928) is of the green phenotype (M.J. Brown, pers. comm. 1993), and an adjacent location (cell 5927) is also likely but is unverified. A recently reported occurrence of *E. urnigera* from Mount Seymour in the southern Midlands (cell 5330; F. Duncan, pers. comm. 1995) adds credence to a nearby unverified outlier (cell 5128; Brown *et al.* 1983). Other localised occurrences in the southern Midlands may also be discovered in the future.

Occurrences of *E. urnigera* have not been verified from the north-east (cells 5243, 5341, 5638), or from Tasman Peninsula in the south-east (cell 5622) which is probably a mistaken location from an old herbarium record for Mount Arthur on the Wellington Range (cell 5125). The most southerly known occurrence of *E. urnigera* is from Tylers Hill (cell 5019) where hybridisation with *E. globulus* and *E. johnstonii* occurs (W.D. Jackson, unpublished manuscript). The extensive occurrences of *E. urnigera* in the far south-east (e.g. Mount La Perouse, Hartz Mountain, Bruny Island, Tasman Peninsula) indicated by Jackson (1965) have not been verified.

KEY REFERENCES: Barber (1956, 1965); Barber and Jackson (1957); Paton (1980, 1981); Potts and Jackson (1986); Potts and Reid (1985a, b); Savva *et al.* (1988); Thomas and Barber (1974a, b).

Eucalyptus vernicosa

SUBGENUS: *Symphyomyrtus*
SERIES: *Viminales*

Common name:
varnished gum

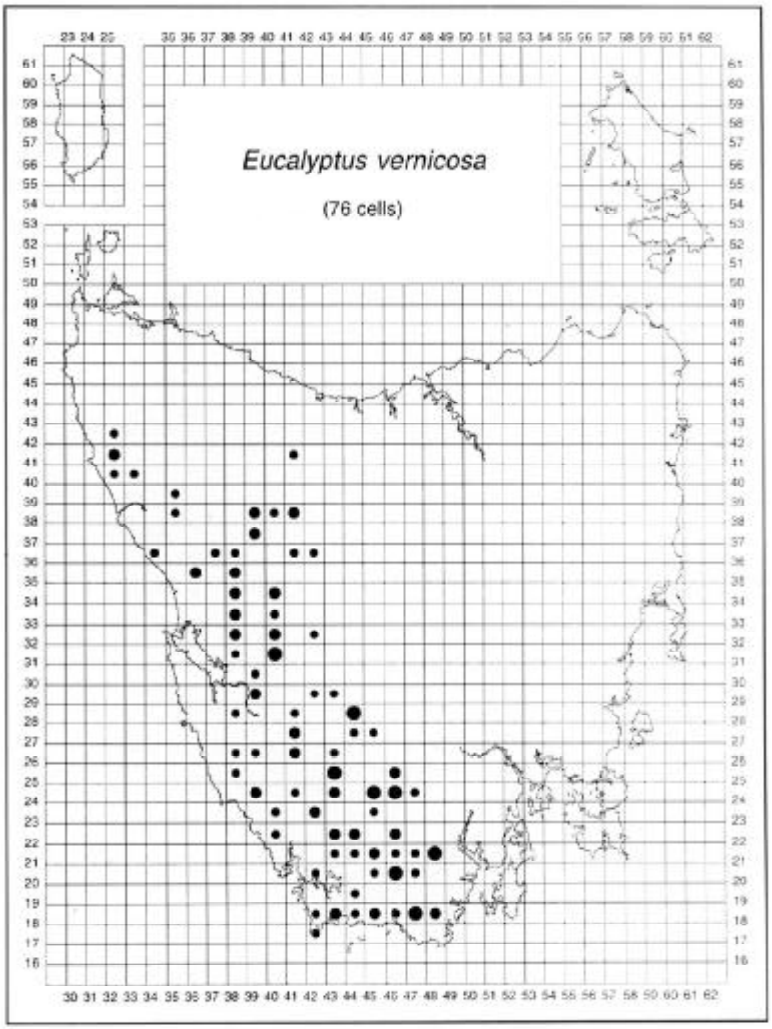


Figure 86. Distribution of E. vernicosa *in Tasmania.*

Eucalyptus vernicosa is a localised endemic species of the western and south-western mountain regions (Figure 86). It occurs as a small, stunted tree or, more typically, as a shrub on steep, exposed upper slopes or poorly drained alpine plateaux. It grows in peat soils, usually developed over quartzite, sandstone or granite bedrock. It is part of the altitudinal and geographic cline in the yellow gums, intergrading with *E. subcrenulata* on western subalpine mountains where intermediates have been informally referred to as the cline-form *'parvula'* (Jackson 1960).

Eucalyptus vernicosa usually grows at altitudes between 700 m and 1000 m (Figure 87), a range which is superficially similar to that of *E. subcrenulata* but is climatically more alpine due to the south-west to north-east trend in the altitude of the tree-line (e.g. Kirkpatrick 1982). For example, in the far south-west, *E. vernicosa* occurs in exposed alpine habitats at altitudes as low as 600 m but, around the eastern margins of its range, it normally occurs above 1000 m and up to 1250 m near Frenchmans Cap. Lower altitude occurrences (240–600 m) are known from the climatically

exposed knolls and ridges of subcoastal hills, such as in the Norfolk Range and Heemskirk River regions in the west, Mount Osmond in the south-west, and the Red Point Hills and the foothills of the Ironbound Range in the south. Its main flowering period is from December to April, peaking between January and February (Figure 88).

Eucalyptus vernicosa is the only eucalypt consistently found above the tree-line where it forms a low mallee shrub in alpine coniferous scrub and heathland communities (Photo 29, p. 126). It is found occasionally as a dwarf tree in the more protected rocky, leeward slopes. Phenetic variation in tree size of *E. vernicosa*, with increasing exposure to the alpine environment, is coupled with a decrease in leaf size and increase in lamina thickness, and the retention of juvenile or intermediate foliage at reproductive maturity (Jackson 1960; Potts and Jackson 1986). This is a common adaptive response to the alpine environment.

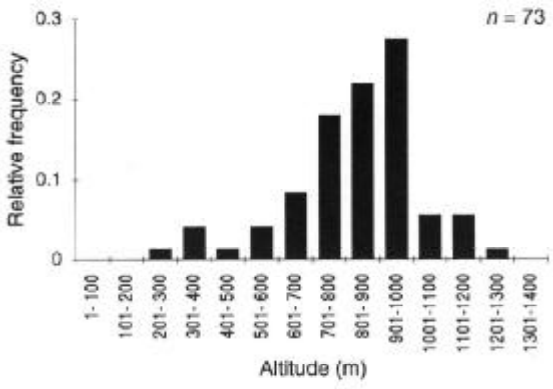


Figure 87. Altitude distribution of E. vernicosa.

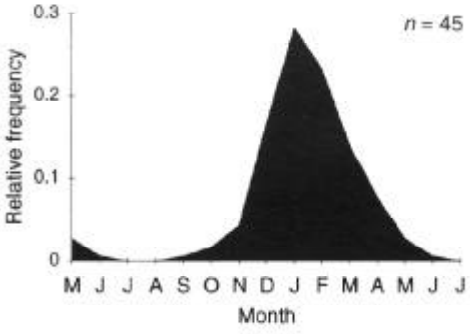


Figure 88. Flowering times for E. vernicosa.

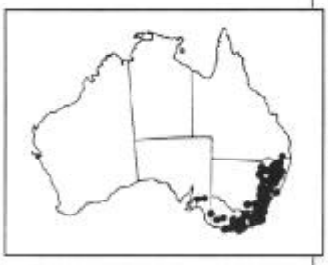
COMMENTS: Along the eastern boundary of the *E. vernicosa* distribution, such as in the vicinity of Black Bluff (cell 4141), and Mount Pelion East and Mount Pelion West (cells 4136, 4236), the identity of the yellow gum is uncertain due to clinal variation. However, it is considered to be *E. vernicosa* where sandstone outcrops occur in the alpine environment, and to be *E. subcrenulata* on dolerite colluvium, in accord with the known substrate preferences of these two species in this region and their position with respect to the altitudinal cline. *Eucalyptus vernicosa* has not been recorded on the Western Tiers, although W.D. Jackson (pers. comm. 1992) suspects that it may be there. In the far north-west, it is known from relatively low altitudes (300–600 m) near the Norfolk Ranges (cells 3241, 3242, 3340), presumably due to exposure to the prevailing westerly and south-westerly weather. Recent observations of *E. vernicosa* on low granite outcrops from the Heemskirk River locality (cell 3436, 470 m altitude, S. Mattingly, pers. comm. 1995) add credence to the other low altitude records from these western coastal hinterlands. Verified, low-altitude occurrences of *E. vernicosa* are also known from herbarium specimens collected near the summit of Mount Osmond (350 m; cell 3825) and from Red Point Hills (240 m; cell 4418). Some unverified outliers on the eastern margins of the *E. vernicosa* distribution are likely to represent misidentifications of *E. subcrenulata* (cell 4737 from the Western Tiers; cells 4727, 4627 from the Mount Field region) or *E. johnstonii* (cells 5124, 5125 from the Wellington Range). Other occurrences from western and south-western Tasmanian mountains are expected to extend the verified distribution of this species when detailed surveys are undertaken in the remoter regions (e.g. unverified cells 3837, 3927, 4039, 4123, 4219, 4222, 4224, 4240, 4420, 4429, 4725).

KEY REFERENCES: Jackson (1960); Potts and Jackson (1986).

Eucalyptus viminalis subsp. *viminalis*

SUBGENUS: *Symphyomyrtus*
SERIES: *Viminales*

Common names:
white gum
manna gum



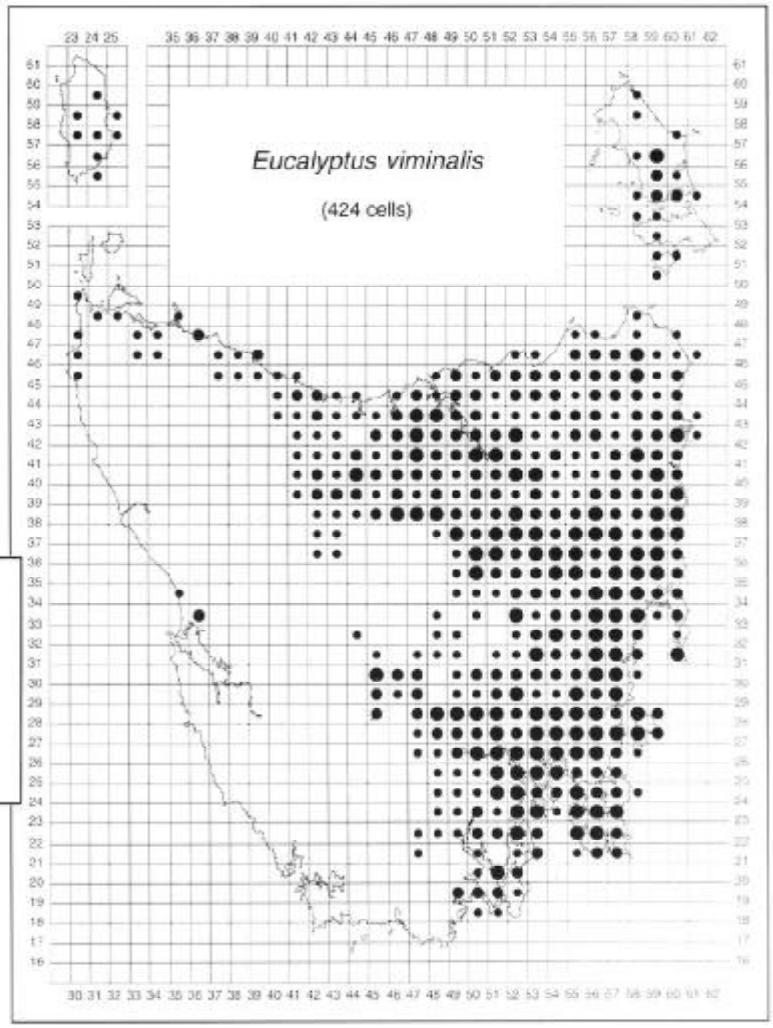


Figure 89. Distribution of E. viminalis *in Tasmania. Inset map: Distribution on mainland Australia.*

Eucalyptus viminalis is widespread throughout lowland coastal and inland environments of northern, eastern and southern regions and the Bass Strait islands (Figure 89). It grows on relatively fertile, rocky, occasionally drought-prone or well-drained sites and riverine corridors. It is largely absent from the oligotrophic environments of the west and south-west, and intergrades with *E. dalrympleana* in the upland areas of the Central Plateau, Eastern Tiers and north-eastern highlands. Observations in Tasmania suggest that continuously varying, clinal intermediates are the most common form of *E. viminalis*, with typical *E. viminalis* and *E. dalrympleana* occurring only at the end points of the cline (Phillips and Reid 1980). In inland regions of the east and south-east, *E. viminalis* also intergrades with *E. rubida* on dry, infertile sites subject to frost and cold-air drainage.

Eucalyptus viminalis is predominant at altitudes below 600 m to near sea-level (Figure 90), but may extend up to 940 m in the highlands of the north-east. Other high altitude occurrences (> 600 m) are more typically