

## Dodonaea viscosa Sticky Hop-bush

### TAXONOMY

Division	Angiosperm
Subclass	Dicotyledonae
Family	SAPINDACEAE

### Previous Taxonomic Names

Linnaeus identified it as *Ptelea viscosa* in 1753 (CHAH, 2006). It was named *Dodonaea viscosa* by Phillip Miller in 1754 (Closs & West, 1993). *Dodonaea* was revised in 1984 by J. G. West.

**Taxonomic Identification Number** 18354 (ANH et al 2005)

### Taxonomic Status

Long lived woody perennial.

### Common Names

Sticky Hop-bush, Giant Hop-bush, Broad leaf Hopbush, Candlewood, Narrow leaf Hopbush, Native Hop, Native Hop Bush, Soapwood, Switchsorrel, Wedge leaf Hopbush (ANBG n.d.)

### MORPHOLOGY

#### *Dodonaea viscosa*

Spreading or erect shrub or tree up to about 5 m. Branchlets angled to flattened, usually slightly ribbed, smooth to covered with minute soft hairs. Leaves simple, stalkless or petiolate, linear to spoon-shaped, rarely wedged shaped, 1-15.5 cm long, 1-25 mm wide. Flowers in terminal panicles, 3-4 sepals, lanceolate to ovate. Capsule 3-4 winged and oval (Walsh & Entwisle 1996).

There are four subspecies of *Dodonaea viscosa* in Victoria which intergrade where populations overlap (Walsh & Entwisle 1996).

### SUBSPECIES

- *Dodonaea viscosa* ssp. *angustifolia* – occurs in East Gippsland, NSW and Queensland. Does not occur naturally in the Corangamite region.
- *Dodonaea viscosa* ssp. *angustissima* (Slender Hop-bush)  
Erect shrub to 4 m. Leaves stalkless, linear to narrowly oblong, sometimes oblanceolate, 3 - 9.5 cm long, 1-6 mm wide, irregularly wavy to irregularly and minutely toothed. Lateral venation conspicuous.  
Intergrades with ssp. *angustissima* and *spatulata*. Mostly northern Victoria, NSW, QLD, ACT, NT, WA and SA. Does not occur in the Corangamite region.
- *Dodonaea viscosa* ssp. *cuneata* (Wedge-leaf Hop-bush)  
Compact spreading shrub to 3 m. Leaves stalkless or shortly petiolate, wedge-shaped to angular-obovate to narrowly obovate, 0.8—3.8 cm long, 4-9 (but less than 12) mm wide, truncate or obtuse, usually pointed, sometimes irregularly 2-3 toothed, lateral venation obscure, petiole, when present about 1 mm long.  
Intergrades with ssp. *spatulata*. Mostly north-west Victoria, SA, QLD and NSW but also occurs naturally in the Corangamite region.
- *Dodonaea viscosa* ssp. *spatulata* (Sticky Hop-bush)  
Erect to spreading shrub to 4 m.  
Leaves stalkless or petiolate, usually obovate, sometimes spatulate, rarely elliptic,



2.3-7.5 (but less than 9) cm long and 6-10 (but less than 18) mm wide. Leaves broadly acute to obtuse, sometimes rounded, shortly pointy, entire or irregularly wavy or irregularly and minutely dentate. Lateral venation usually conspicuous on lower surface, petiole when present 1-10 mm long. The most variable of the species, especially in leaf morphology. Populations in the Grampians and surrounding ranges, and at Warrandyte, have been identified as known variants within this subspecies. Intergrades with ssp. *cuneata* and *angustissima* (Walsh & Entwistle 1996). Flora Information System records it around coastal Geelong.

#### HYBRIDS

Known to hybridise with *D. boroniifolia* in regions of overlapping distribution. *D. viscosa* ssp. *cuneata* known to hybridise with *D. procumbens* in the Grampians region. (Walsh & Entwistle 1996)

#### SIMILAR SPECIES

*D. boroniifolia* is a similar shrub but has feathery leaves (GAV n.d.).

A nursery cultivar of *D. viscosa* 'Purpurea' from New Zealand is a known garden escape. It is distinguished by its large leaves (to 12 cm long and 2.5 cm wide) and purple under-surface (Walsh & Entwistle 1996).

#### GEOGRAPHIC RANGE

Occurs in all regions of Victoria and across all mainland Australian states, the Pacific Islands, Asia, Africa and the Americas.

In Victoria the various subspecies occur in a variety of habitats.

- *D. viscosa* ssp. *angustifolia* – occurs in East Gippsland, NSW and Queensland. Does not occur naturally in the Corangamite region..
- *D. viscosa* ssp. *angustissima* – common in the north-west of the state, but also found across northern Victoria to East Gippsland. Also found in NSW, QLD, ACT, NT, WA and SA. Does not occur in the Corangamite region.
- *D. viscosa* ssp. *cuneata* – occurs mainly in the north-west of Victoria in open woodland and mallee scrub, but also in central highland open forests in high rainfall areas.
- *D. viscosa* ssp. *spatulata* – occurs mainly in southern Victoria in high rainfall areas. (Walsh & Entwistle 1996).

#### BIOREGIONS

*Dodonaea viscosa* ssp. *cuneata* occurs in the Central Victorian Uplands and Victorian Volcanic Plains in the northern and eastern parts of the Corangamite region.

#### PLANT COMMUNITIES

*D. viscosa* ssp. *cuneata* is typically found in dry forest communities, grasslands and grassy woodlands and some riparian ecosystems. Examples can still be found in the upper parts of the Moorabool, Leigh and Woody systems of the Corangamite region.

#### FRAGMENTATION

Unknown

#### POPULATION DENSITY

Unknown

#### RELEVANT HISTORY & RESEARCH

There has been trials into establishment and germination (see Semple and Koen, 1996).

#### BREEDING SYSTEMS

##### FLOWERING

Inconspicuous, red, unisexual flowers in clusters during spring and summer (Gray & Knight 2001; Walsh & Entwistle 1996). Fertile flowers can be hermaphrodite (and functionally male or female or both) or unisexual (MacFarlane et al, 2000). The flowers usually have a short flowering period (Closs & West, 1993).

##### POLLEN

Pollen is dispersed by wind.

##### POLLINATION

Outcrossing via wind but the flower structure also suggests it is self-compatible.

## **POLLINATORS**

Insects (Earl et al 2001).

The flowers have no attractant for pollinators. and the absence of petals allows the pollen to be dispersed unhindered by the wind. No nectar is produced, which in other plants is an attraction to pollinators (Closs & West, 1993).

## **SEED**

### **SEED DESCRIPTION**

Seed is enclosed in a three or four winged capsule that turns from red to tan-brown and becomes brittle as seed ripens. Each capsule contains 2-3 seeds that are black, 2-3 mm in length, and firm when ripe (Bonney 2003; Ralph 1994; Walsh & Entwisle 1996).

Information relating to seed weight and viability is somewhat conflicting:

170 seeds/gram (GAV n.d.)

Approximately 212 viable seeds/gram (Earl et al 2001).

79-132 germinants/gram (GAV n.d.).

*Dodonaea viscosa* ssp. *angustissima* – 56 germinants/gram after hot water treatment at 20-30°C with 12 hours of light. Data from a study which used only one batch of seed which had been bought three years prior to the study (Semple 1996).

### **SEED CROP**

Collect seed from October to January. Monitor closely as seed is released immediately or within 3-14 days of maturity (Ralph 1994). Large quantities of seed can be easily collected (Earl et al 2001).

### **SEED DISPERSAL**

Birds (Bonney 2003)

### **EXTRACTION & STORAGE**

Dry after collection. Some capsules may need to be rubbed against wire screens to extract all seed (Bonney 2003; Ralph 1994). Seed retains viability for many years (Ralph 2003).

### **TREATMENT OPTIONS**

To help shorten germination time, seeds can be dunked in very hot water for 30 seconds then cooled down rapidly. Untreated seeds will germinate well (Bonney 2003; Ralph 1994).

Nicking the seed coat will also hasten germination (Ralph 2003).

Ralph (2003) reported that *D. subglandulifera* achieved very good germination results if seed is stored dry for six weeks after treatment, then sown and noted that other *Dodonaea* species may also respond to this treatment.

*Dodonaea viscosa* ssp. *angustissima* – Three germination treatments were trialled by Semple & Koen (1996). This included a) no treatment, b) hot water treatment, and c) no treatment with no exposure to light. The hot water treatment proved by far the most successful.

### **PROPAGATION**

Propagate from seed or cuttings (Earl et al 2001). Sow in late winter or spring (Bonney 2003).

### **GERMINATION TIME**

Usually 2-4 weeks (Ralph 2003; Semple & Koen 1996).

### **FIELD ESTABLISHMENT**

Well suited to direct seeding (Bonney 2003; Ralph 1994).

Will germinate readily if sown through a tyne to near 4 mm depth in lightly tilled soils (Bonney 2003).

Natural regeneration from seed, stem and coppice, particularly after fire (Earl et al 2001).

*Dodonaea viscosa* ssp. *angustissima* – Semple and Koen (1996) found that direct drilling seed into a scalped seedbed consistently produced the highest number of emergents and seedlings at 12 months. Very few emergents resulted from surface sown seed, and it is hypothesized that burial is required to break seed dormancy.

## SEED COLLECTION RANGE - *Dodonaea viscosa ssp cuneata* *Dodonaea viscosa ssp spatulata*

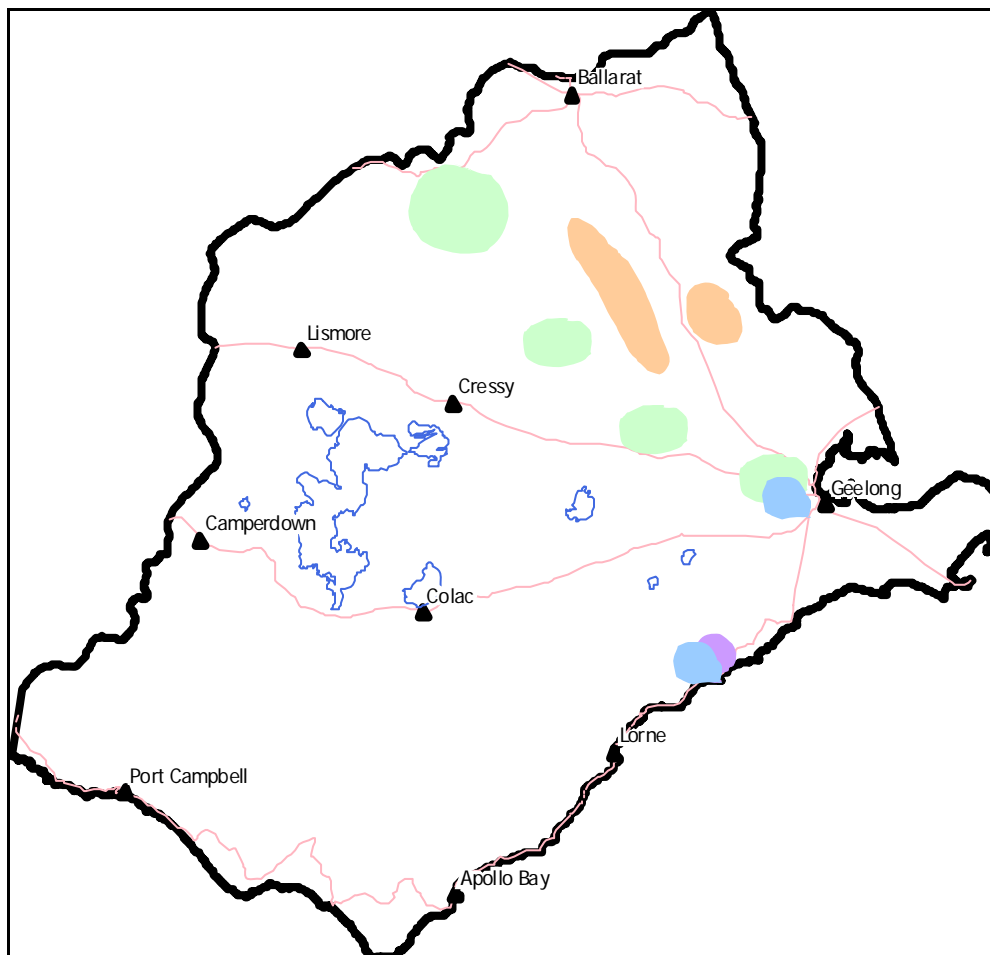
### Narrow collection range—within which, seed should be collected from remnant stands that are close to the revegetation project

There are two subspecies of *Dodonaea viscosa* that have been identified in the region. There are also records of *Dodonaea viscosa* that have not been clearly defined. Added to this, the nursery cultivar *D. viscosa* Purpurea is known near the coast but may also occur in other areas. It should not be used for seed collection for indigenous revegetation projects.

The distribution of *Dodonaea viscosa ssp cuneata* and *Dodonaea ssp spatulata* indicate a narrow collection range for each subspecies.

Consideration should be given to:

- Correct identification of subspecies and the introduced nursery cultivar
- Collect each subspecies separately and do not mix seed together
- Collect seed from healthy, large populations of an individual subspecies
- Separate individual populations. As seed can be stored for many years, small collections can be made over a number of years to build up stores of genetic material. Collect from as many plants as possible in a given population.



#### MAP: *Dodonaea viscosa* distribution

DATA SOURCE: DSE Flora Information System May 2005, accessed May 2006

- *Dodonaea viscosa ssp cuneata*
- *Dodonaea viscosa* 'Purpurea' - non indigenous cultivar—DO NOT COLLECT
- *Dodonaea viscosa ssp spatulata*
- *Dodonaea viscosa* (undefined records)

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