TREES FOR BEES CORNER

STAR PERFORMERS PART 4: LACEBARKS FOR AUTUMN POLLEN AND NECTAR

Dr Linda Newstrom-Lloyd (Trees for Bees Botanist) and Angus McPherson (Trees for Bees Farm Planting Adviser)

Trees for Bees has produced a series of fact sheets showcasing the 'best of the best' bee plants that will maximise nutrition benefits for your bees. In this issue of the journal, the team explains why lacebark is a 'star performer'. For more information, see www.treesforbeesnz.org.

Bees need a good nectar and pollen supply in autumn to produce robust bees that will survive the winter months, but there are few flowering species available at this time. Several lacebark *(Hoheria* spp.) species are outstanding star performers because they flower profusely in autumn and are some of the few large flowered native species readily available in the nursery trade.

Of the seven native species of *Hoheria* (lacebarks, houhere, ribbonwood), three are star performers because they flower in autumn during this stark shortage of other flowers. A fourth species is worthy of consideration as it flowers through summer into autumn. The autumn-flowering species are *Hoheria populnea, H. sexstylosa* and *H. glabrata;* these are exceptional trees/shrubs with a profusion of showy white scented flowers that contribute abundant pollen and nectar. The fourth species is *Hoheria lyallii,* which is similar to *H. glabrata* and flowers from November to March.

Although the natural distribution of *H. populnea* is in the upper North Island only, it has spread and naturalised throughout New Zealand from cultivated garden escapes, so some consider it a 'native weed'.

Hoheria sexstylosa naturally occurs from the middle of the North Island down to the Wellington coast and the Wairarapa. In the South Island there are localised endemic populations in northwest Nelson, Marlborough and Banks Peninsula. However, since it hybridises with *H. angustifolia* in the South Island, there is concern in some areas such as Canterbury to protect natural populations of *H. angustifolia* from genetic swamping.

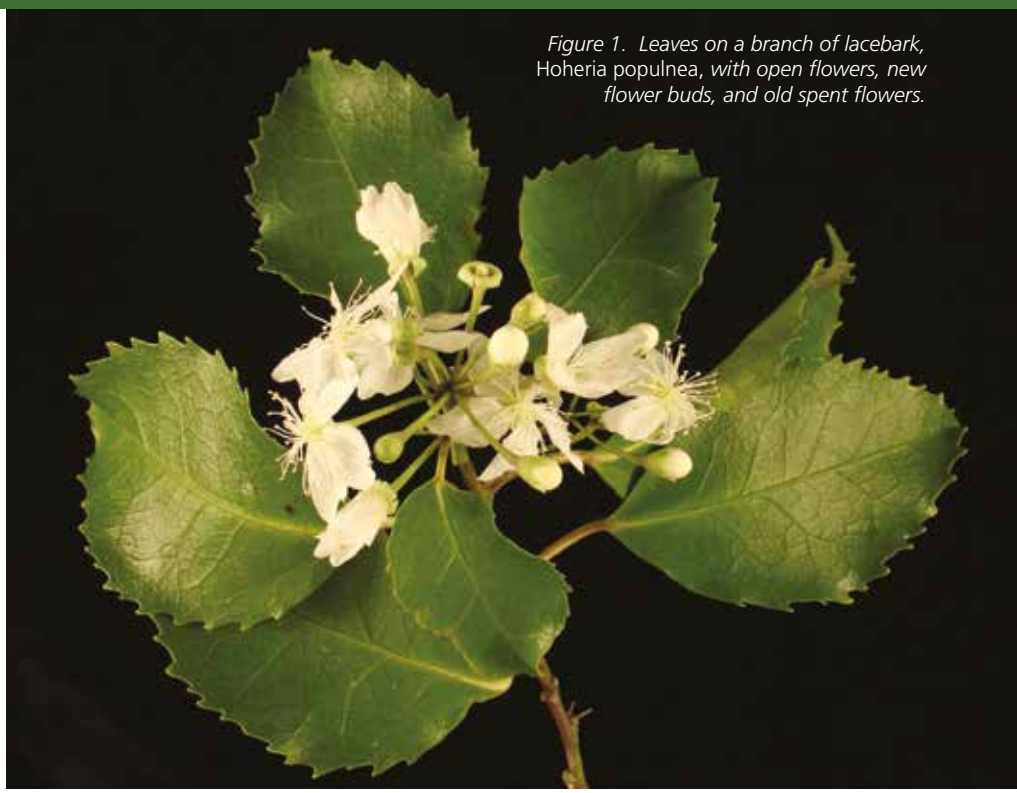

Figure 1. Leaves on a branch of lacebark, Hoheria populnea, *with open flowers, new flower buds, and old spent flowers.*

Species	Distribution	Flowering
Hoheria populnea Houhere, lacebark	Northland to Waikato and Coromandel	January to March
Hoheria sexstylosa Houhere, long-leaved lacebark	Waikato/Coromandel to Wellington/Wairarapa Nelson, Marlborough, Banks Peninsula	February to May
Hoheria glabrata Mountain lacebark, ribbonwood	West South Island and Mt Taranaki	February to March
Hoheria lyallii Mountain lacebark, ribbonwood	Drier east side Southern Alps	November to March

Table 1: Hoheria distribution and flowering.

continued...

Hoheria glabrata occurs on the wetter western side of the Southern Alps in the South Island and Mount Taranaki in the North Island, but extends eastward into Central Otago, where it hybridises with *H. lyallii*. *Hoheria lyalli's* natural range is the drier eastern side of the Southern Alps. Nevertheless, with careful siting these species are of tremendous value to bees in autumn.

Pollen

Hoheria flowers are a perfect example of 'open dish' flowers, with exposed nectar and pollen giving ready access for bees. Each star-shaped flower has many stamens (from 25 to 30 or more) in a whorl around the centre of the flower (Figure 2). The numerous stamens, large-sized flowers, and high density of flowers per plant add up to provide abundant pollen on each tree or shrub. Our results for protein content in pollen ranged from 18% to 22%.

Figure 2. Lacebark (Hoheria populnea) *flower with 25 to 30 stamens arranged in whorls around the centre of the flower.*

Figure 3. Lacebark (H. populnea) *flower dissected to show the nectary at the base of the flower. To expose the nectary area, the petals are pulled off the flower in one unit because they are fused at the base of the flower. There is a yellowish tinge to the nectary area in the mature flower.*

Nectar

Lacebark species produce plentiful nectar for bees in autumn. Figure 3 shows a flower dissected to show the nectary area. The petals have been pulled off the flower in one unit (they are fused at the base of the petals) and the stamens are attached to the petals, not the ovary or receptacle, so they come off with the petals. At the base of the flower is a central yellow-tinged ring of the nectaries where nectar is produced. Walsh (1967) has reported that *H. populnea* yields abundant nectar in May. In Auckland, the bees even obtain a surplus of nectar from this source in May.

Planting advice

Hoheria species are ideally suited to a wide range of bee feed designs. They can be included in riparian plantings, mixed native species shelterbelts, and group plantings of native species. As small trees, they should be spaced 5–6m apart, but can be interplanted with smaller shrub species. Care should be taken to use species that are endemic to your region, as there is increasing hybridisation of *Hoheria* species and this is becoming an issue in some areas. Clustering many trees or shrubs together in hedges or rows close to the apiary will make autumn foraging more efficient for the bees.

Species	Habitat	Siting
Hoheria populnea Houhere, Lacebark Height 11m	Successional forest from coastal to montane habitats	Tolerant of a wide range of sites and conditions. Fast-growing and suitable for shelterbelts, but can be short-lived due to Hoheria die-back.
Hoheria sexstylosa Houhere, long-leaved lacebark Height 8m	Coastal lowland to montane riparian forest	Prefers sheltered and damp sites until established.
Hoheria glabrata Mountain lacebark/ ribbonwood Height 10m	Open and disturbed habitats from montane to subalpine regions, including forest margins and stream sides	Prefers young, deep, moist, well-drained and often stony soils. Does best in cooler climates. Strongly deciduous with attractive autumn colours.
Hoheria lyallii Mountain lacebark/ ribbonwood Height 6–8m	Upper forest margins in montane and sub-alpine habitats, river and stream terraces	Prefers a damp soil in a sunny site, and does best in cooler climates. Dislikes humidity and will not flower in warmer climates.

Table 2: Hoheria species habitat and siting.

Figure 5. Lacebark (H. populnea) *has densely clustered large showy flowers on each flowering branch.* H. sexstylosa *is similar. All photos © David Glenny, Trees for Bees.*

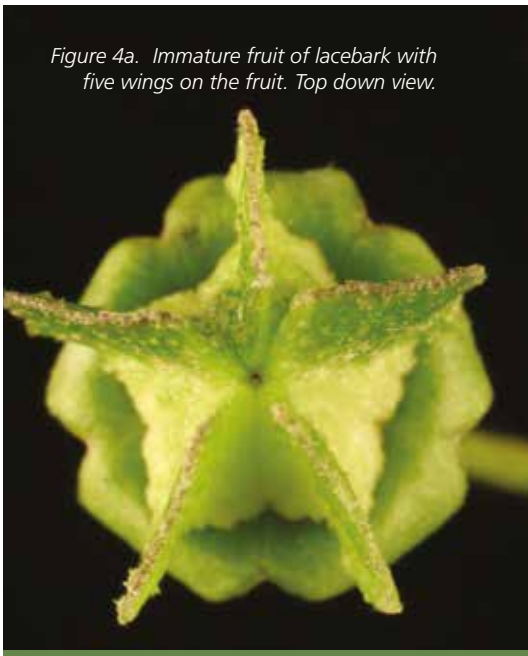

Figure 4a. Immature fruit of lacebark with five wings on the fruit. Top down view.

Here is a hint on how to distinguish *H. sexstylosa* from *H. populnea.* Look at the mature ovary, or better still, look at the maturing fruit. You will see wings on the fruit. *H. populnea* has only five wings (Figures 4a and 4b), but *H. sexstylosa* has six, seven or more wings on the ovary/fruit. (Dawson & Lucas, 2011).

H. sexstylosa has longer, thinner adult leaves than *H. populnea,* hence the common name long-leaved lacebark for *H. sexstylosa.* Both species have similar densely clustered groups of large showy flowers (Figure 5).

Figure 4b. Immature fruit of lacebark with five wings on the fruit. Side view.

References

Dawson, J, & Lucas R. (2011). New Zealand's native trees. Nelson: Potton & Burton.

New Zealand Plant Conservation Network. *Hoheria sexstylosa.* Retrieved from http://www.nzpcn.org.nz/flora_details.aspx?ID=825

Salmon, J. T. (1986). *The Reed field guide to New Zealand native trees.* Auckland: Reed Books.

Walsh, R. S. (1967). *Nectar and pollen sources of New Zealand.* Wellington: National Beekeepers Association of New Zealand. (See also Revised edition 1978, Walton, T., Williams, D. Eds.)