

## Sophora — The Kowhais of New Zealand®

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### INTRODUCTION

A genus of over 50 species (The New Royal Horticultural Society Dictionary, 1992) found throughout the world of which I am only going to mention those which are associated with our New Zealand species. It is interesting to note, the kowhais (*Sophora* species) mentioned in this paper originated from a geographical area making a Pacific triangle formed by New Zealand, South America, and Hawaii. For many years only two species names were used but the new nomenclature changes of recent years does help to clarify the different groups found up and down the country (Heenan et al., 2001).

*Sophora microphylla* in the past has been all encompassing covering all the native forms and those which don't fit into the more defined categories of *S. tetraptera*. For the ease of botany, perhaps we have only one very diverse species that graduates from the large-flowered, coarse-leaved, nondivaricating types of the north to the fine-leaved, heavily divaricating (particularly in the juvenile phase) in the south. Forms from the north tend to have very little or no juvenile or divaricating stage, while from the eastern South Island, Marlborough to Otago, this phenomenon tends to intensify as one travels south. Within the South Island, this is more pronounced in the eastern forms, while the western forms from higher rainfall areas show minimal divarication. As they all hybridise freely, obviously mother nature considers them all the same. From a gardener's point of view, even minor differences are important and it is great to see our different forms of kowhai being recognised. Whenever we go from one major river system to the next major watershed the natural kowhai within it have subtle differences.

From a gardener's standpoint the most southern forms have a juvenile phase that lasts as long as 15 to 20 years, but before you rubbish them, just remember they have the greatest ability to stand severe cold. One also expects the southern forms to flower late, but this is not true. In Central Otago, there are kowhais that flower soon after the shortest day depending on the weather, and also in Canterbury, near Christchurch, there are some whose flowering occurs in July.

### CULTIVATION OF KOWHAI

With this diversity it is important to eco-source the seed when revegetation projects are being planned, however, do not expect to dump the surplus rubbish produced on gardeners. The criteria for a kowhai tree in suburbia are very different to a revegetation project. While some selection work has been done, I believe the potential for superior garden shrubs and trees has hardly started. Gardeners want more flowers for longer, without having to look at the dead seed pods. They also want them to be in flower when they are purchased and not outgrow their welcome.

While we have the most western form of kowhai coming from Lord Howe Island, the most eastern forms come from Chile. *Sophora cassioides* (formerly *S. microphylla* and known commercially as 'Goldilocks'), a Chilean selection, is one such tree, which has been widely distributed in New Zealand, and makes an excellent

specimen with very good flowering each year. There have also been distributions of seedlings from seed sourced in South America. These all have the advantage of minimal divarication when young, flowering at an early age, and able to withstand quite severe frosts. *Sophora chrysophylla* from Hawaii, is almost unknown in New Zealand, and would look quite at home in our countryside. From Easter Island, *S. toromio* was almost extinct in its homeland, however a replanting program has assured its continued existence. Great care should be taken not to use any of this material in revegetation projects.

*Sophora microphylla* 'Chevalier' is a selection by Tom Johnson of Totara Grove Nurseries, Auckland. This nice compact tree of 2.5 m height and spreading habit was noted for its balanced shape and free-flowering nature. From about the 1970s onwards seed was grown from this outstanding tree by both Totara Grove Nurseries and Dawn Rothay Nurseries of Auckland, and distributed mainly in the Henderson area of Auckland. From a propagator's point of view this mother tree growing at Point Chevalier had much to offer. The seedlings produced were very even and flowered as early as 3 years old, however this mother tree was recently destroyed.

A more recent introduction is *S. microphylla* 'Te Atatu Gold', a selected seedling of *S. microphylla* 'Chevalier'. It is an outstanding performer having all the attributes of *Sophora microphylla* 'Chevalier' but grown as a clone from cuttings.

*Sophora microphylla* 'Milligold' is a new release from Duncan and Davies and named for the new millennium. It forms a neat rounded tree of olive green foliage and nice weeping habit to 4 to 5 m. The freely produced flowers make a great display of gold in September to October.

*Sophora microphylla* 'Tortuosa,' (the wige wige bush) is an illegitimate name I have received and used to distinguish a form that came to me from the late Ron Gordon of Taihape. He told me it came from a Wanganui nursery in the early half of last century. It is a most distinctive small tree with its permanent, strongly divaricating branches and branchlets. The flowers are typical of kowhai, *S. microphylla*. As it breeds true from seed it is probably a true wild form and not a hybrid, in that it would have had a wild provenance but that has probably been lost in the development of its natural haunts for farming. I wonder how many of our natives have been completely lost with the rapid development of our forest bushland and grasslands to farming, and we still have the audacity to criticise other countries that are doing the same.

*Sophora microphylla* from Haulashore Island is an interesting compact small form that has the most unusual distinction of being very brittle. The consequences of any physical contact causing the appropriate branch to fall off.

*Sophora tetraptera* is arguably New Zealand's national flower. It is our tallest, boldest, largest-flowered, and largest-leaved native kowhai species. In general it is the most commonly planted of the *Sophora*, and quite rightly so too. However not all *S. tetraptera* offered are this species and a quick check recently revealed a high percentage were in fact hybrids of garden origin. The sources were wide and we should all be more careful as to the authenticity of our seed sources. What a mixed bag of foliage and form is offered, and one can only guess as to the variability of flowers that they produce.

*Sophora tetraptera* 'Grandiflora' is a name that has been used for a long time and the plants often supplied under this name, are in fact *S. tetraptera*. This was originally a Duncan and Davies name for a *S. microphylla* form from Lake Taupo.

At its best *S. tetraptera* is a medium-sized tree of upright habit, especially when young. With age the side branches can be pendulous. The leaves are long, 7 to 16 cm or more, and composed of 10 to 20 unequally paired tomentose leaflets. The large golden yellow flowers are held in 5- to 10-flowered racemes through mid October to November in our southern region. Its natural haunts are from the Ruahine Ranges to East Cape. When raised from seed it does not have a juvenile stage and can take as little as 5 years to reach flowering stage.

*Sophora longicarinata* (*S. microphylla* var. *longicarinata* as it was once known) was recognised as a species in 1942, reduced to a botanical variety of *S. microphylla* in 1961, and recognised as a species again in 2001. It was also known as *S. treadwelli* for some time. This grows naturally on marble and limestone in northwest Nelson (near Takaka) and western Marlborough. This species is an excellent small garden tree, 3 to 3.5 m tall, where its fine, dainty foliage and small weeping stature can form a most graceful focal effect. Some forms may be bushy or multi stemmed from underground suckers. The flowers on a mature specimen are produced in abundance during October and are a softer shade, perhaps a greenish yellow, also quite large and differ in that the standard is more erect than other native species. From a propagator's standpoint the seed set is not as prodigious, (making the tree a little tidier to look at), and fresh seed does not germinate as freely as other species. The juvenile phase of seedlings does not go through the wiry bush stage making them quite distinct from the start.

*Sophora fulvida* (formerly *S. microphylla* var. *fulvida*) is a species which grows in coastal scrub and forest west of Auckland. From a gardeners stand point this is one of our gems and it is quite perplexing to find it is virtually unknown in commerce. This species forms a small tree up to 5 to 6m high with an upright form and weeping branchlets. The foliage is small and dainty with a bronze cast from the light pubescence on the foliage and buds. The flowers are large and prodigious and begin at an early age, on average 4 to 8 years from seed. There is no juvenile stage. Flowering occurs in the south towards the end of October through November. Perhaps the only shortcoming of this species is that it is quite tender for inland and southern regions of the country and is quite intolerant of the extreme frosts of winter and out of season frosts when the tree is growing vigorously. There is one named cultivar, *S. fulvida* 'Whatipu', introduced by Peter and Pam Smale of Oaklands Nursery, Motueka. This is typical of the better forms of this species and has the added benefit of flowering the 1st year.

*Sophora chathamica* (formerly *S. microphylla* var. *chathamica*), is native to the western coastal areas of the north of the North Island. It also grows around Wellington, and on the Chatham Islands. It has been speculated that this species was distributed from its natural haunts, to Wellington and the Chatham Islands by Waikato and Taranaki Maori in the late 1700s and early 1800s. This has very fine growth and is said to have no juvenile stage, however, seedlings produced from seed from the Chatham Islands have minor juvenile characteristics evident for the first 20 cm of growth.

*Sophora godleyi* is a newly described species from the sandstone, mudstone, and siltstone of the South Eastern Taranaki, King Country, Rangeitiki, Taihape, Wanganui, and Manawatu.

It is named for Dr. Eric Godley, who for 22 years, was head of the former Department of Scientific and Industrial Research (DSIR) Botany Division, and worked on

*Sophora*. The division of *S. microphylla* places the selected form 'Goldies Mantle' into this species. *Sophora godleyi* 'Goldies Mantle' grows into a pendulous tree of about 5 m. The long grey green leaves accentuate the graceful form created, and the flowers are a bright golden yellow. This form was selected by the late John Goldie of the Levin Horticultural Research Centre from material received from DSIR Botany Division. The parent plant came from the Ohingaiti district near Taihape. *Sophora godleyi* 'Ohingaiti' is another form with a similar history to the previous cultivar but still has the pendulous branches.

*Sophora molloyi* is another newly described species native to the harsh, inhospitable sites on dry exposed headlands around Cook Strait, Kapiti Island, and several headlands along the southern Wellington coast, e.g., Cape Palliser and Turakirae Head, Stevens Island, Rangitoto Island, Chetwode Island, Titi Island, and Arapawa Island. It is named after Dr. Brian Molloy of Landcare Research, a scientist and researcher for more than 30 years. It is a very tough, hardy, spreading shrub in the wild, growing on inhospitable exposed sites where the flowers may be seen from early winter through to spring. When raised from seed the juvenile phase is absent.

*Sophora molloyi* 'Dragons Gold' was selected by Terry Hatch of Joy Plants, Pukekohe, who grew it from cuttings given to him by Mr. Veitch of the Wildlife Division, who grew the plant from seed brought back from Stevens Island in the 1950s. The original plant in Dick Veitch's garden eventually grew to about 6 m tall. The clonal name commemorates the high population of tuatara on Stevens Island as the Island of Dragons. The flowers are a deeper yellow colour than the softer lemon yellow of *S. molloyi* 'Early Gold'. *Sophora molloyi* 'Early Gold' is a selection made from a large number of seedlings raised from seed from Stevens Island by the late John Goldie. 'Early Gold' was introduced by the New Zealand Nurseryman's Association, now The Nursery and Garden Industry Association, who held the Plant Variety Rights to this cultivar, for some time. Flowering occurs from early June through winter to as late as October. Although *S. molloyi* in the wild, and as young plants in cultivation, is modest in size, remember with the better growing conditions of gardens, and extra time, a sizable shrub is eventually attained. In cultivation the forms of *S. molloyi* make some of the best container plants, having the benefits of dainty, bright green foliage throughout the year and flowers produced through the 6 months of the colder, less interesting part of the gardeners calendar. I have also seen some very good bonsai produced from this species.

*Sophora prostrata* as a species has always been recognised as a separate form of kowhai. It is fixed in its juvenile divaricating stage forming low prostrate, wiry bushes through to round-topped bushes to 2 m in height. The small dainty leaves are noticeably shorter and smaller than other species and are quite sparse on the plant. The flowers have a bright orange standard and wings, with the keel being a greenish yellow, giving a bright orange effect, deeper than other species, and are produced quite late in the season (October to November), and are dotted throughout the shrub. From a floral point of view, this form of kowhai is never spectacular but its colour and plant form make it a collector's item. Its divaricating habit appeals to bonsai enthusiasts and I have seen some nice specimens made from this *Sophora*. The plants I have obtained of *S. prostrata* 'Little Baby' have been variable and only fall within the scope of this species. However, this is a Duncan and Davies selection and they grow them from cuttings from a clone selected from the Lewis Pass

area. The species grows wild in open rocky grasslands of the northeastern parts of the South Island. One of the best places to observe this kowhai in its natural environment is along State Highway 1 around Kaikoura, along the roadside between Waiiau and Rotherham and at Marble Point.

*Sophora howinsula* 'Gnome' is a species represented widely in New Zealand gardens and is still known as *S. tetraptera* 'Gnome' by some. This cultivar has only recently been recognised as a native of Lord Howe Island and therefore is not a New Zealand native but an Australian imposter. This does not detract from the fact it is one of the best garden kowhais. It is dwarf growing (1 to 1.5 m) with the largest flowers held in impressive racemes. When grown from seed, flowering occurs at a young age. The habit is a multi-stemmed bush with new stems generated from the basal lignotuber, a feature that is unusual in kowhai. Hybrids occur in the wild wherever different species occur in close proximity creating problems with identifying one species from the next. The swarm of hybrids that inevitably occur in these circumstances confuse where one species ends and the next one begins. We all know our national flower, but do we know enough? It has been fun finding out a little more about one of our icon trees and realizing there is much more to learn and find out in the future.

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