

Flowering of cool climate bamboos

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The flowering and subsequent life cycles, if any, of the bamboos are not well studied in New Zealand, possibly because bamboos don't flower here very often, and when they do they mostly die.

To get a handle on how seldom bamboos flower in gardens, consider the fact that in most of the species the main morphological characters by which these plants are classified are not based on the flowers and fruits, as is usual, but on vegetative characters: stems, leaf-sheaths, leaf-blades, and so on.



Fig. 1 *Chusquea culeou*. Photo: Clive Higgie, Paloma Gardens.

In the case of a South American forest bamboo, *Chusquea culeou* (Fig. 1), one of the few frost-hardy Southern Hemisphere bamboos, there has never been an alternative means of identification here. It has been cultivated in Britain and New Zealand since the 19th century, but I've been unable to find any record of its having flowered in either country during its 150-plus years in cultivation there. However, there is a record of its having flowered decoratively and seeded in cultivation in the United States (in a bamboo collection at North Plains, Oregon) in 2013. Seed from this flowering was subsequently

offered for sale by a seed company in Thailand. The germination rate was listed as 70 per cent. Obviously it flowers in its native Chile also, because the plant in my garden was raised from seed collected (not by me) in southern Chile.



Fig. 2 *Himalayacalamus falconeri*. Photo: Clive Higgie, Paloma Gardens.

The elegant Himalayan bamboo, *Himalayacalamus falconeri* (Fig. 2), flowers in cultivation every 19 to 25 years, then dies after shedding seed. If some of the seeds germinate and survive the first winter, the species carries on. If not, it's bye, bye, bamboo. In 1998, this species flowered and died in gardens throughout Canterbury, including my own. My specimen was 22 years old. Seedlings popped up like mustard and cress all around the dead plant in the following spring, but by the end of the 1999 winter none were left in my garden other than a few seedlings I had potted up and sheltered in a cold frame. All these died in their second or third winter when they had grown too tall to be kept in the frame and had to live outside. This is clearly one of those plants that slowly gathers hardiness as it ages. It is occasionally available from garden centres, usually under the superseded name *Thamnocalamus falconeri* but

occasionally as *Bambusa gracilis*, which seems to be a portmanteau name used in some nurseries for several different bamboos. According to The Plant List (www.theplantlist.org), which is maintained by the Royal Botanic Gardens, Kew, and Missouri Botanical Garden, the real *Bambusa gracilis* does not exist. The name is a synonym for an attractive small, somewhat frost tender bamboo correctly known as *Drepanostachyum falcatum*.

Ten or more *Phyllostachys*, another bamboo genus with several winter-hardy species, have been cultivated for many decades in New Zealand gardens, and as shelter belts for farms, orchards, or market gardens in the north, some of them probably since the 19th century. One of them is *Phyllostachys edulis* (Fig. 3A–B), the so-called edible bamboo whose fat growth buds are harvested in spring as bamboo shoots. This has been listed in New Zealand as *P. heterocycla*. A few of the other cultivated species are recorded as naturalised in New Zealand, probably in most cases as a result of material discarded from gardens and shelter belts. Fully naturalised *Phyllostachys* include *P. aurea* (the fishpole bamboo), *P. bambusoides* (the giant timber bamboo), and *P. nigra* var. *nigra* (black bamboo; Fig. 4).

Until about 1998 the Allan Herbarium at Landcare Research, Lincoln, had no flowering specimens of *P. nigra* var. *henonis* (Fig. 5) collected in this country. I caused some consternation by presenting the staff with a four-metre flowering stem from my plant. The same variety flowered at the same time in another garden 30 kilometres away, but *P. nigra* var. *nigra* itself, also growing in both gardens, did not, and still has not flowered.

Late in the 1998 autumn, after the seed of *P. nigra* var. *henonis* had shed and the spent stems had browned off, I cut them down and grubbed out as much of the stumps as I could.

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Fig. 3 *Phyllostachys edulis*. **A**, grove showing the spectacular tall growth habit. **B**, close-up of stout canes which are technically called culms. Photos: Clive Higgie, Paloma Gardens.



Fig. 4 *Phyllostachys nigra* var. *nigra*. Photo: Clive Higgie, Paloma Gardens.

Fig. 5 *Phyllostachys nigra* var. *henonis*. Photo: Clive Higgie, Paloma Gardens.

Two down, two to go. I planted flowering shrubs and a smaller *Phyllostachys* species to fill the gap. What were the odds against the replacement bamboo also flowering and dying, within nine months and on the same site? Astronomical? But that's exactly what happened.

While all this was going on, a third *Phyllostachys* species, growing in an extra-large planter bag while I pondered a final site for it, also ran up to flower, and died. That solved the problem of where to put it. None of the three had produced viable seed.

Within 18 months, then, four bamboo species had flowered in my garden. This is more than most gardeners can expect to see in a lifetime.

I'd like to be able to say that I learned a lot from this rare event, but all it really did was remind me of what I knew all along: that although the bamboos have woody stems and you have to look among the shrubs for them in garden centres, they are really just giant grasses, most monocarpic (i.e., plants that flower, set seed and then die) but some not. Their life cycle makes them a sort of horticultural equivalent of a salmon.

I'd like, also, to be able to say that the flowers were exciting, but there wasn't much to the few I have seen. If I hadn't known what to look for I might not have noticed them at all. They were inconspicuous; a bit like most other grass flowers, really. They might

have excited taxonomists, but to a horticulturist they were almost a non-event.

An interesting and, as it happened, inconvenient, side effect occurred in the following summer. The grubbed-out *Phyllostachys nigra* var. *henonis* made the greatest comeback since Lazarus. Somewhere beneath the mass of dead crown and root stubs, dormant buds sprouted fresh, green shoots.

Clearly this is one of the minority of bamboos that do not die after flowering. These were vegetative, not flowering, stems. Their regrowth subsequently smothered the things I had planted in its presumed gap.