Xanthocyparis vietnamensis

It is ten years since the first introductions of this conifer were made to cultivation. **TOM CHRISTIAN** assesses its performance in the United Kingdom and Ireland in this time.

The Vietnamese yellow cypress caused a small sensation when it was first described to science in 2002. True, it didn't have the same extraordinary PR machine and marketing behind it as the Wollemi pine, but never the less it has been a source of great interest and intrigue to all who know of it.

The discovery of this new conifer is well documented, for example by Farjon (2008) and the ensuing nomenclatural disputes are, for the brave, outlined in Grimshaw & Bayton (2009).

However this short article is concerned neither with the issue of *Xanthocyparis* vs. *Cupressus* vs. *Callitropsis* nor of lengthy botanical descriptions, but of what the last ten years have taught us about growing this enigmatic new conifer.

The Royal Botanic Garden Edinburgh's International Conifer Conservation Programme (ICCP) first introduced this species to cultivation in the UK through cuttings. These cuttings were excess from experiments conducted in Vietnam as part of the 'Northern Vietnam First Darwin Expedition'–an international collaboration–and were brought to Edinburgh under full permission and permits in November 2002. More cutting material followed in 2003, and RBGE horticulturists began to bulk up the collections through vegetative propagation.

Like so many other members of the Cupressaceae, *X. vietnamensis* was found to come relatively easily from cuttings. Semi-ripe heel cuttings of the adult foliage, taken in the autumn and dusted with a medium-strength rooting hormone powder will usually root within three months when placed in a 50:50 mix of coir and perlite in a fogging unit or on a mist bench with gentle bottom heat.

Once rooted, growth is steady and relatively fast. The species prefers a light, open, freely draining mix such as a 50:50 mix of propagation grade chipped bark and John Innes no. 2 or similar. The Royal Botanic Garden Edinburgh now grows the overwhelming majority of its hardy conifers using air-pots and these have proved highly successful with *X. vietnamensis*, with rooted cuttings being potted into 1-litre air-pots during their first spring, and being grown on up to a 12-litre pot-size before planting. Careful selection of cutting material has meant it has not been necessary to stake rooted cuttings.

The ICCP distributes its ex-situ conservation collections around a 'safe-site' network of over 200 sites in the UK and Ireland, which between them now contain over 12,000 living plants. Certain key sites have received plants of *X. vietnamensis* since 2003.

When *New Trees* was published in 2009, there was insufficient experience

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One of the best plants of *Xanthocyparis vietnamensis* in cultivation at Kilmacurragh Botanic Garden in County Wicklow (Ireland).

of this new conifer to allow the authors to muse too much over its merit in cultivation, saying as they did "When seen in the greenhouses in Edinburgh in 2005…they have grown well, but it is not yet known whether this species will be hardy in our area" (Grimshaw & Bayton 2009).

One of the first sites in the ICCP network to receive material was Bedgebury National Pinetum, Kent. Bedgebury took an experimental approach with their plants, planting them in different areas of the collection to 'test the water' though always in relatively sheltered situations. The cold winters that Bedgebury experiences provided one of the first tangible indications of the hardiness of *X .vietnamensis*, especially the extraordinary winters of 2008-2009 and 2009-2010 when temperatures in the pinetum were recorded as low as -14 °C. All of the young plants came through unscathed.

In the same winter, a plant much further north at Cluny House Gardens, Perthshire, was growing in moist but well drained, humus rich soils on relatively flat ground. Temperatures remained below 0 °C for over two weeks here, and it was on the coldest of these days when the temperature fell to -18 °C

A healthy plant of *Xanthocyparis vietnamensis* in the woodland garden at RBG Edinburgh.

A plant of *Xanthocyparis vietnamensis* scorched by exposure to cold winds at RBG Edinburgh.

that the Cluny plant of *X. vietnamensis* finally gave up, turning crisp and brown almost overnight.

Other victims of the same winter included a plant at Dundonnell, Wester Ross, surely up to that point the most northerly in the UK and Ireland. The plant at Dundonnell had been planted in a relatively damp position, which was very likely a contributing factor in its demise as temperatures dipped 'only' as low as -15 °C.

Two plants at the Royal Botanic Garden Edinburgh survived the winters. One came through relatively unscathed, enjoying the conditions of the upper woodland garden, where a canopy of mature trees and the proximity of large shrubs provided shelter. The plant on the other side of the garden was not so fortunate, planted a little to the north of the John Hope Gateway on the western edge of the garden it was exposed to strong westerly winter winds which took a severe toll on the plant. Although it survived it never really recovered and eventually had to be removed.

Other survivors include plants at Logan Botanic Garden which enjoys the full benefits of the Gulf Stream on Scotland's south-westernmost tip.

A plant at Murthly Castle, Perthshire, planted in spring 2011 in moist but well drained, riparian soils in mixed woodland has put on a steady 15 cm of growth in height per year so far, having come through two relatively mild winters.

Perhaps unsurprisingly for a species from northern Vietnam, the very best growth rates the ICCP has so far observed have been on plants

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Above, the mature female cones and foliage (*left*) and adult and juvenile foliage (*right)* on young plants of *Xanthocyparis vietnamensis* in the nursery at RBG Edinburgh.

in Ireland. Kilmacurragh Botanic Garden in County Wicklow received one of the original plants in 2010, to our knowledge the first ever to be planted on the island of Ireland, and this has since reached 1.33 m in height by March 2013. Another Irish plant at Glenstal Abbey, County Limerick, also planted in 2010 is thriving and has reached a similar 1.25 m.

These early observations might rightly be described as anecdotal, it is after all only just over ten years since *X. vietnamensis* was first introduced to the UK, and all of the ICCP plantings since this time have been in the ground for only a few years, however from these early observations we are able to extrapolate some general ideas:

- The species is broadly tolerant of soil type
- Well drained soils are preferred/essential
- (New) RHS hardiness rating likely H5 (to -15 °C)
- The species performs best in the milder parts of the UK and Ireland
- Performance throughout the rest of the UK and Ireland will rely on careful site selection and microclimate

What we hope is that these initial observations might help us build a picture of what we can expect from this species in the future. The ICCP will continue its experimental approach of distributing this species widely through its network of safe sites in order to build an ever more accurate picture. This was done to great effect with introductions of *Taiwania cryptomerioides* in the early 1990s, with ICCP plantings in Kent, Cornwall, SW Wales and Argyll now rivalling in size original plants from the 1920s after just 20 years of growth, presumably a result of better provenance.

Taiwania is one of ICCP's great success stories – a good indicator of this

success is a look at Alan Mitchell's list of notable specimens (Mitchell, 1975) and consideration of how different such a list would now look following the extensive distribution of *Taiwania* in the last 20 years by ICCP and others, as touched on by Grimshaw (2011).

What such a list for *X. vietnamensis* would look like in 20, 50 or 100 years time remains to be seen. Besides the aforementioned sites to which the ICCP distributed plants early on, additional material has since been distributed to the National Botanic Gardens at Glasnevin in Dublin, the University of Durham Botanic Garden, the Eden Project, Batsford Arboretum, RHS Wisley and Wakehurst Place.

The realities of modern plant collecting and introduction, most particularly the CBD, would suggest that *X. vietnamensis* is likely to remain quite a rarity for some time to come–(legally) available only through affiliation with institutions who have obtained the legal permission to collect and export material from its natural range.

Most recently, an introduction was made by a team from the Forestry Commission's Westonbirt Arboretum working in conjunction with Vietnamese partners. The seed was sent to Forest Research at Alice Holt where it was x-rayed. Although only a small proportion of seed was found to be healthy, these were sent to Bedgebury Pinetum and sown in April 2011. To everyone's great delight, the first germination took place in October 2011, and Bedgebury are now bringing on several young seedlings.

These seedlings are a significant step in the story of the cultivation of *X. vietnamensis*. It is the first time the species has been grown from seed, and it raises the possibility that further seed collections will be successful in the future. If so, this will greatly increase the genetic diversity of plants in cultivation, helping to bolster the value of conservation collections held in UK and Irish gardens.

The size and stature that individuals in the UK and Ireland might take on in the future is, at the moment, anybody's guess. In the wild plants are relatively small, just a few metres tall and often contorted due to their habitat atop limestone carst mountains, exposed to the elements.

Perhaps *X. vietnamensis* will make a handsome, small-medium sized tree in cultivation, similar in size and stature to *Thuja koraiensis*? This of course is pure conjecture, only time will tell, and waiting to see will be half the fun!

References

Farjon, A. (2008) *A Natural History of Conifers*. Timber Press, USA.

Grimshaw, J & Bayton, R. (2009) *New Trees – Recent Introductions to Cultivation*. Royal Botanic Gardens, Kew, UK.

Grimshaw, J. (2011) *Tree of the Year:* Taiwania Cryptomerioides, *IDS Yearbook* 2010, pp. 25-57.

Mitchell, A. F. (1975) *Conifers in the British Isles* [second impression]. Her Majesty's Stationary Office, London.