

The case for removing Taiwan cherry (*Prunus campanulata*) from Nelson

Peter A. Williams

Nelson

(Williams2@clear.net.nz)

September 2014

Recommendation

All Taiwan cherry plants beyond the dense infestation adjacent to the parent tree in Dodson Valley should be removed as soon as possible to prevent them fruiting in the 2014-2015 summer. Simultaneously, investigations as to how, and when, all other trees in the area are to be killed should be undertaken. This will include adding Taiwan cherry to the next RPMS.

Introduction

Some years ago a landowner in Dodson Valley suggested I prepare a submission on Taiwan cherry to the TDC prior to the promulgation of the 2007-2012 RPMS because it was invading their property. I said I thought it was not that much of a problem.

I was greatly mistaken.

Here is the evidence, with photographs after the script.

The plant

Taiwan cherry (*Prunus campanulata*) (TC hereafter) is a deciduous, small, spreading tree, 3-8 m high when mature, narrow in outline, with more or less erect branches when young (Webb et al. 1988). The flowers are deep pink to magenta and the glossy scarlet fruit are oval fruit, and up to 12 x 10 mm.

The first naturalised record for NZ was only 1988. It is now widely naturalised in northern New Zealand but was not recorded in the South Island by Webb et al. (1988). Even now, there are no herbarium records of TC from South Island. In this respect, the Nelson infestation is unique.

Flowers are visited by tuis and bell birds. The fruit size suggests blackbirds will be the main distributors of seeds but some of the smaller fruit will also be available to wax eyes. Starlings may also be involved. Native pigeons are also likely to spread it but this has not been observed in Nelson. Possums may too, but this would be very minor.

There is probably no long term seed bank, in part because seeds are eaten by rats (pers. obs.)

Other Jurisdictions

Because TC is so highly invasive in northern New Zealand it is listed in the RPMS of Northland, Auckland, and Waikato Regional Councils because of its impact on conservation values. (Appendix 1)

In at least one jurisdiction, the onus is on the occupier to control TC plants.

Nelson City distribution

I have been aware of the TC infestation in Dodson Valley for about 15 years, maybe longer. I was also made aware early on that this resulted from one specimen tree (A, Fig 1) in a private garden. In those days, the obvious spread was only onto the adjacent patch of scrub dominated by shrub weeds gorse and some mahoe (*Melicytus ramiflorus*) (Fig 1.). However, as mentioned, it had begun to invade private bush remnants to the north east (C, Fig 1). (The dots here are even more approximate than the others on the map because I have not seen these.) There is another large tree on the edge of Oldham Creek (B, Fig 1) just outside the Titoki Reserve (E, Fig 1). I have cut and pulled many seedlings and saplings from the Titoki Reserve over the last couple of years. Recently, i.e., August 2014, I have noticed there are trees appearing to the north east of the reserve on the hillsides above Cloverlea Tce and across the valley in the council plantings in the Frenchy Drive reserve and on the adjacent hill sides near the new subdivision at the head of Dodson Valley. It is also scattered through private gardens in the area, and that these are not planted, is often suggested by their location, e.g., between the shed and the fence at the back of the house. The TDC has also been approached by a local land owner who has observed seedlings (R. Van Zoelen, TDC, pers.com., August 2014).

Outside of this Dodson Valley area it appears to be only infrequently planted in Nelson city although there are trees scattered through the region. It seeds freely into a garden in the Motueka valley and significantly more so than other cherries (S. McCarthy, pers.com. August 2014).

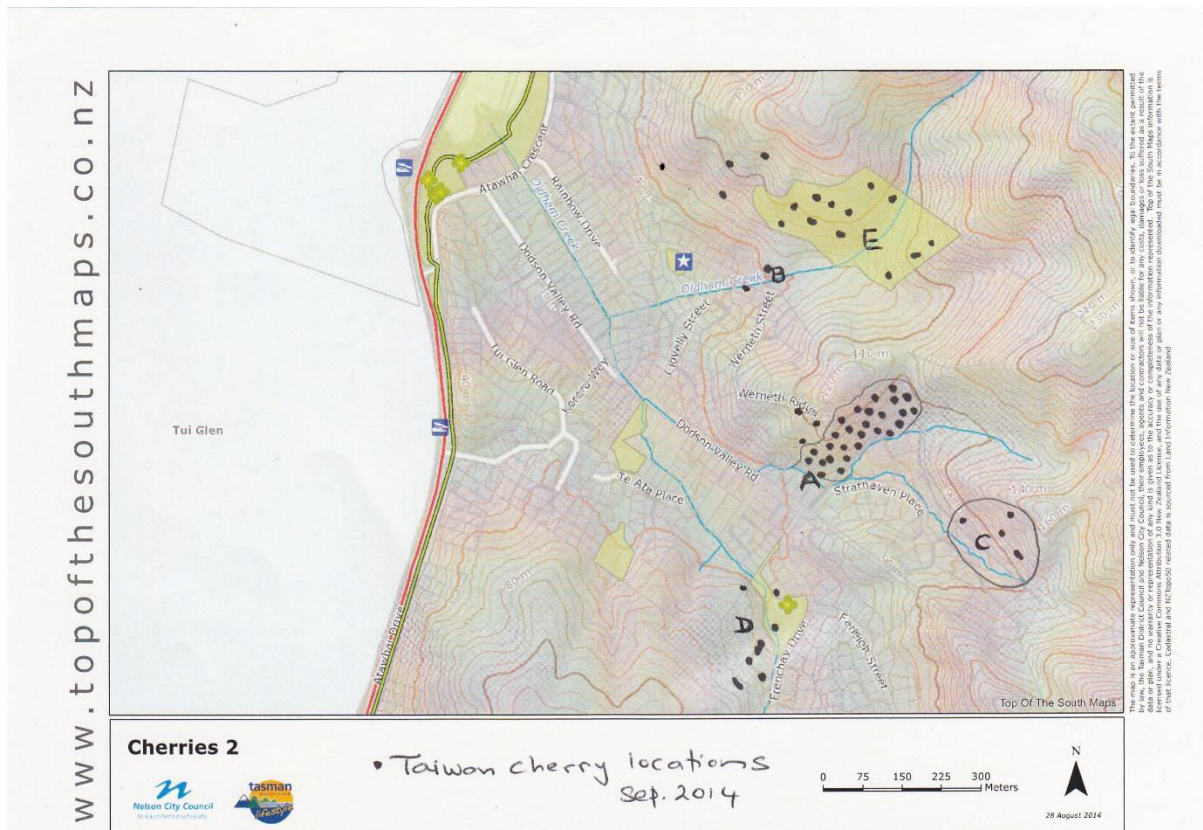


Fig. 1. The approximate location of Taiwan cherry at Atawhai, showing the source tree (A), the dense adjacent infestation (dense dots), a large outlying tree (B) and outlying infestations (C,D,E).

Impacts

TC seedlings are very shade tolerant and with its characteristic single leader growth form, it is able to push up through over-head cover. Unlike all other woody weeds in the Nelson area except perhaps Douglas fir, TC is able to invade not only exotic scrub mixtures, but also to over-top native mahoe trees that may also be emerging through this scrub. Although TC probably has a shorter life span than mahoe and other native trees, and certainly does not grow as tall as many of them, it can be now seen that it persists for well over 15 years once it becomes established. Vegetation succession is thus stalled at the bright pink phase!!

Expansion

Clearly, TC is beginning to spread rapidly, the expansion phase of the infestation curve. It is heading towards Mary Bank to the northwest and the Atawhai suburbs south of Dodson valley. Large swathes of the regenerating shrublands on Nelson foothills are vulnerable to this weed, as are the Council plantings around the city, and private gardens. I have already seen a truckload it cut and carted off from at least one garden near the source infestation. How fast the expansion will proceed can only be speculated, but there is a similar precedent.

A similar case

This whole TC phenomenon has a strong sense of Déjà vu for me.

There was (we cut it down) one very large (c 80 + years old) hawthorn tree at the foot of Porters Pass in Canterbury. In the 1980s the then Noxious Plants Officer (as they were known back then) for North Canterbury approached DSIR concerning what he believed was the developing spread of this population resulting from this one tree. It was being dispersed by birds into the surrounding scrub. Our study confirmed his concerns and we predicted there would be rapid spread from the emerging young trees in the next 30 years or so (Williams and Buxton 1986). But it was out of control even by then, and even the original source tree was left until our later study. Yet we didn't know exactly when this spread had started, so much later, when GPS were available, we cut down dozens of trees, aged them, and plotted their spread and population growth for the whole area (Williams et al. 2010).

The figures below shows this spread and the increasing numbers of hawthorn trees in the area since the first tree established.

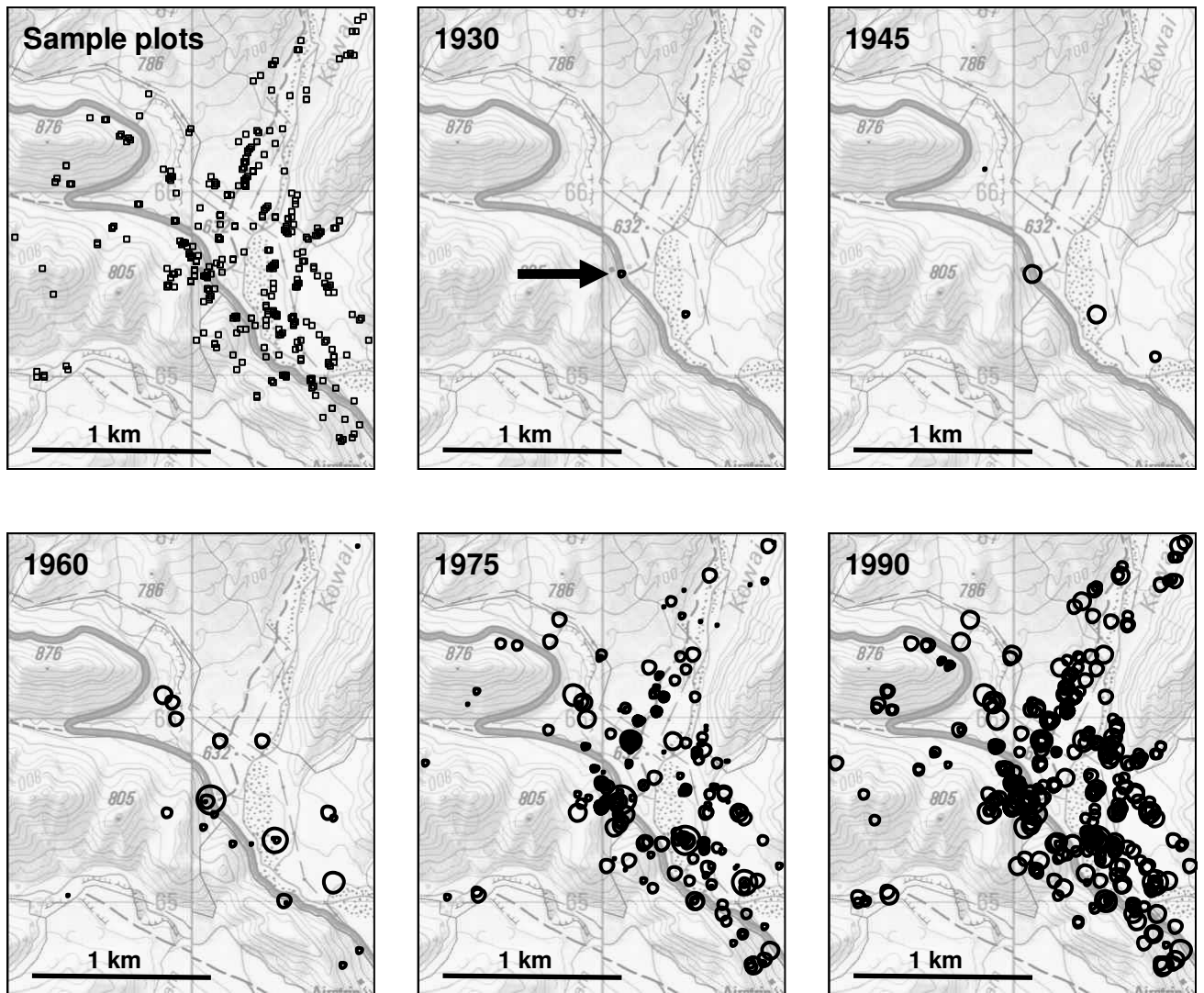


Fig 2. Locations of the 2002 random sample plots (plot size not to scale), and the reconstructed spread of hawthorn at Porter's Pass. Maps shown at 15-year intervals, with size of circles being proportional to plant age but exaggerated in size relative to the underlying map. The original tree is indicated by an arrow in the 1930 map. (Williams et al. 2010)

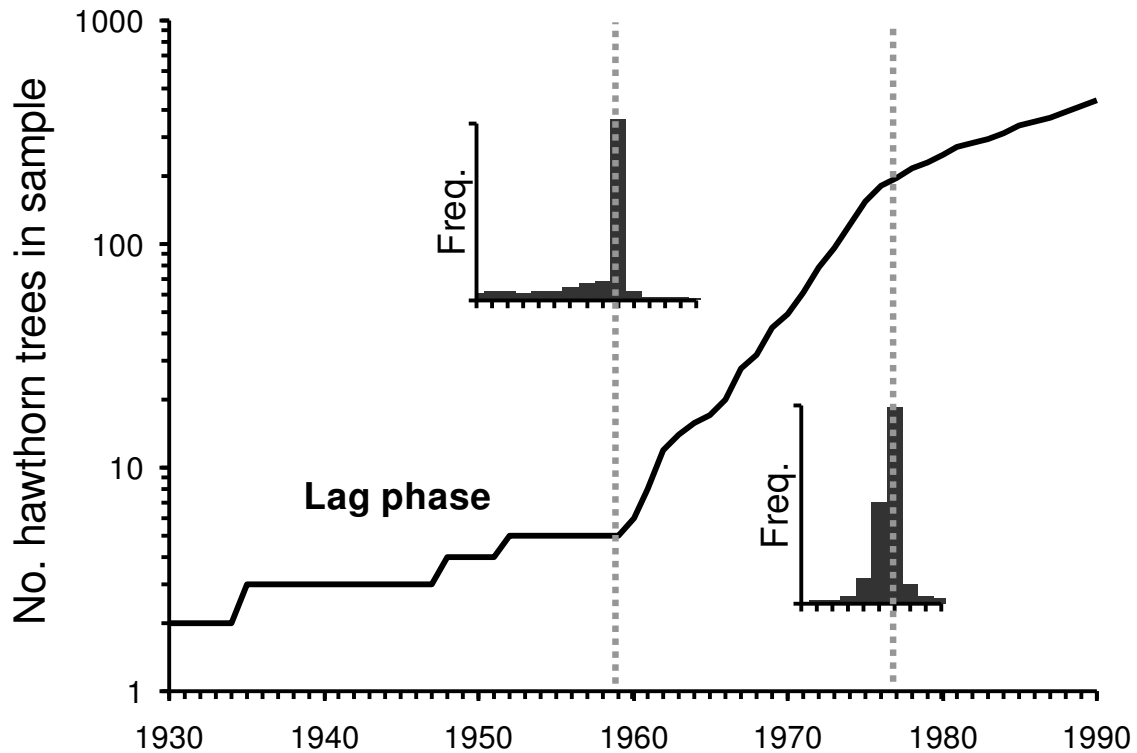


Fig. 3. The increasing total number of flowering hawthorn trees at Porters Pass through time. Note the vertical axis is a log scale. (Ignore the small graphs). (Williams et al. 2010).

It might have been possible to eliminate this hawthorn spread if action had been taken prior to 1960, about 30 years after the original tree established, for at this point, there were only hundreds of adult trees present, not thousands there were by the 1990s.

The parallels between this hawthorn infestation and the TC at Atawhai are striking, especially as the original tree is known in both cases. Both are spread primarily by blackbirds and the pattern of spread reflects their behaviour which in turn is governed by the vegetative cover of the surrounds (Williams 2006). The result is a random pattern of outlying trees, interspaced over a patchy landscape with both suitable and unsuitable sites for establishment. There is no equivalent dense patch of hawthorn right next to the founding tree, as there is for TC, because hawthorn was adjacent to grazing land. Much of the hawthorn spread came from outliers. Similarly, I suspect the tree B (Fig. 1) may contribute substantially to the invasion of Titoki Reserve which is only about 100m away.

Hawthorn has been present in Nelson probably since the first colonists and was widely planted as hedges. It is scattered over the whole province now but it is not invading native scrub with anything approaching the vigour of TC. In terms of a model for TC, the spread of hawthorn is an understatement of the speed with which TC is now invading. My impression is that the TC invasion is at about the “1960” point compared with the hawthorn.

Control

Unless TC is controlled now it will be extremely difficult to eradicate. There would eventually be swathes of pink throughout the city, in the same way as the hills at Porters Pass turned white.

Adult plants are readily distinguishable from a distance to the untrained eye only for a relatively short period. That is, when they are flowering (July–August) and for a short time afterwards when the young leaves are a yellowish colour (August–September). They are also conspicuous in autumn as their leaves yellow. However, unless it is done now, many trees will produce fruit this autumn (2015) which will be spread further afield and the total control area will increase accordingly.

All trees apart from the dense patch will be easy to remove because they are still relatively few; 100s, not 1000s, though there may well be 1000s of seedlings which would require to be searched for too. A survey of property owners in the Dodson Valley area could be undertaken to assist in locating trees, but there will obviously have to be a campaign to inform people that this lovely pink tree is not wanted.

TC would need to be added to the next RPMS as either a Total Control Plant or a Progressive Control Plant, depending on how much control is undertaken in the meantime.

Recommendation

All Taiwan cherry plants beyond the dense infestation adjacent to the parent tree in Dodson Valley should be removed as soon as possible to prevent them fruiting in the 2014-2015 summer. As this would be only a holding operation, simultaneously, investigations as to how and when all other trees are to be killed should be undertaken. This will include adding Taiwan cherry to the next RPMS.

References

Webb, C.J., Sykes, W.R., Garnock-Jones P.J. 1988. Flora of New Zealand Vol IV. Botany Division, DSIR, Christchurch.

Williams, P.A. 2006. The role of blackbirds (*Turdus merula*) in weed invasions in New Zealand. 30: 285-291.

Williams, P.A., Buxton, R.P. 1986. [Hawthorn \(*Crataegus monogyna*\) Populations in Mid-Canterbury. New Zealand Journal of Ecology 9: 11-17.](#)

Williams, P.A., Kean, J. M., Buxton, R.P. 2010. Multiple factors determine the rate of increase of a non-native tree in New Zealand. Biological Invasions 12: 1377-1388.

Appendix 1.

Cut and pasted from the following website:

[http://www.issg.org/database/species/management_info.asp?si=1666&fr=1&sts=&lang=EN
&ver=print&prtflag=false](http://www.issg.org/database/species/management_info.asp?si=1666&fr=1&sts=&lang=EN&ver=print&prtflag=false)

Management Information

Management techniques generally recommended for control of *P. campanulata* include physical and chemical methods. Mature trees should be removed

by felling, while seedlings can be dug out. Stumps should then be treated with herbicide. Follow up measures are important, to target any subsequent sprouting or seedlings. (ARC 2007; Harris & Skilton 2007).

Location Specific Management Information

Auckland Region (North Island)

P. campanulata has been included in the Auckland Regional Pest Strategy (2007-2012). While not considered a pest, *P. campanulata* is included in Part V of this document, i.e. as a species requiring further research to determine any possible negative effects on biodiversity in the future (ARPS 2007-2012). *P. campanulata* is also listed by the Waitakere City Council as an environmental weed with potential to pose a risk to conservation land (WCC 2010); it is therefore recommended that its spread should be limited and any weedy specimens should be eradicated (WCC 2010).

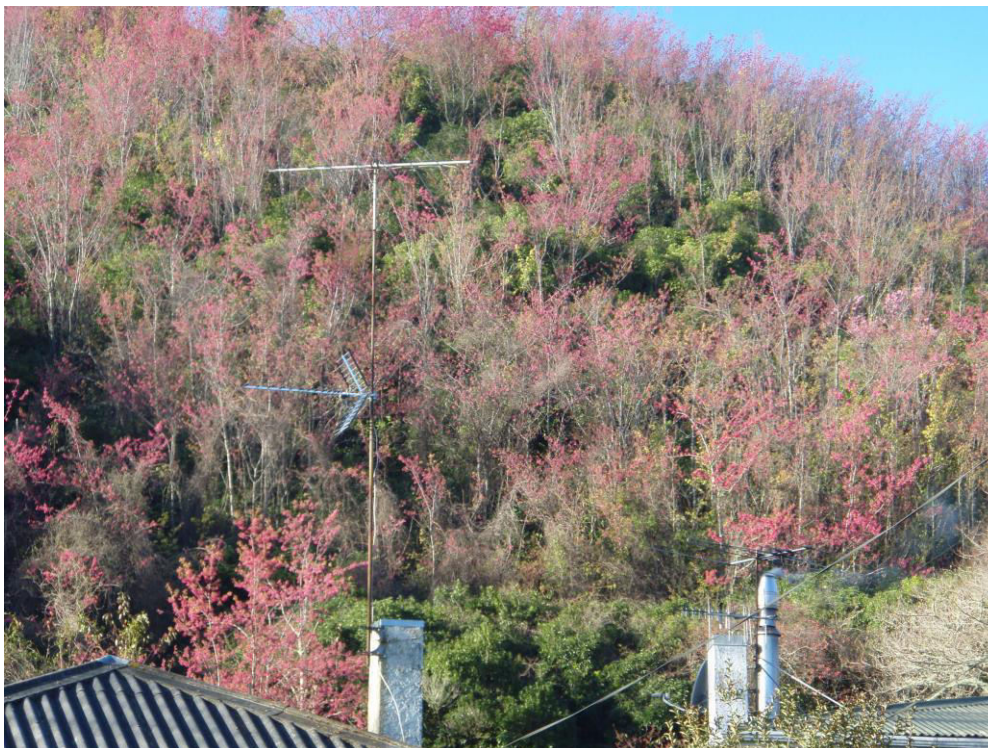
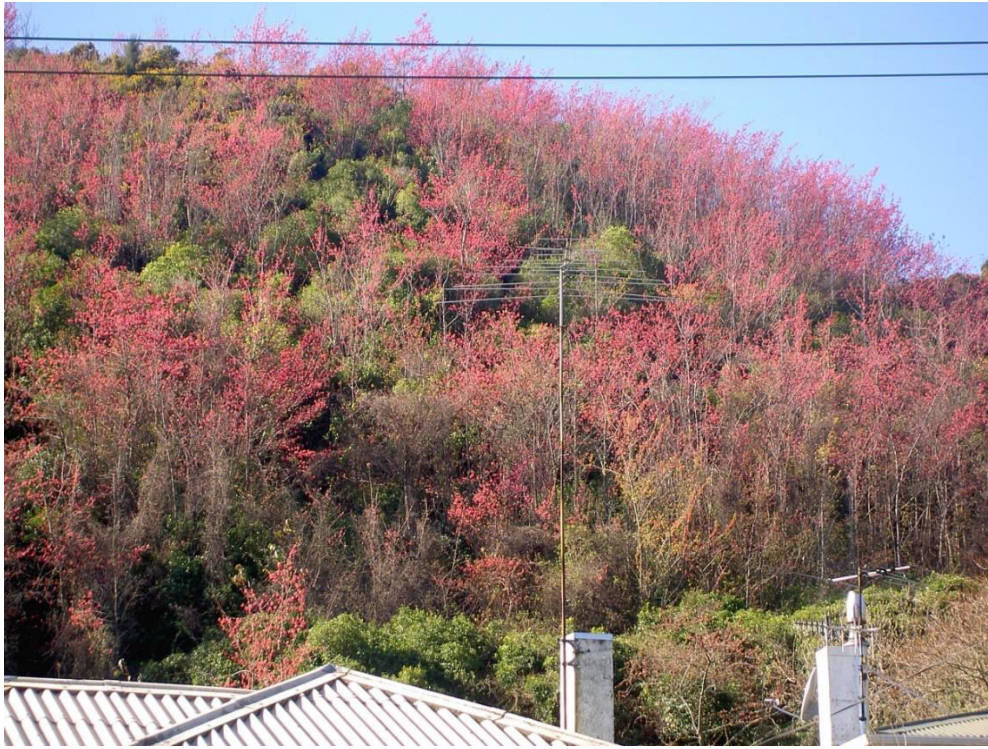
Northland Region (North Island)

Distribution and sale of *P. campanulata* is banned in the region (NRC 2010). The Northland Regional Council classifies *P. campanulata* as a 'Community Pest Control Area pest plant' (NRC 2010). It is required by the Northland Regional Council to control *P. campanulata* in a 'Community Pest Control Area' if it is deemed to be a threat to the conservation value of that area. The level of threat is determined in consultation with biosecurity officers (NRC undated).

From 2006-08 the Department of Conservation and the Kerikeri Basin Weedbusters held an annual control day to remove *P. campanulata* from the Kerikeri basin in spring, while the trees were flowering (DOC 2007, 2008). Control methods utilised during the Kerikeri control days included physical control - the removal of seedlings and felling of trees - followed up by the use of herbicide (Harris & Skilton 2007).

Waikato Region (North Island)

P. campanulata is listed in the Waikato Regional Pest Management Strategy and is classified as a 'containment (occupier control) pest plant' in the Waikato region. The Waikato Regional Council aims to have a zero-density population of *P. campanulata* in the Taupo district by 2017, and to prevent its establishment in other areas. Residents are required to eradicate any *P. campanulata* trees on personal property, and those who do not comply will be liable, as trees can act as a source for wild seedlings. The Waikato Regional Council will destroy wild populations where practicable; and those occupying quarries and transport corridors are also required to be removed (Environment Waikato 2010).



Taiwan cherry in of Dodson Valley Rd August 2004 (top) and August 2014 (bottom). This site is behind the source tree marked on the map. Mahoe has so far showed no sign of being able to overtop the cherry.



This the north-eastern segment of the stands in the figures above, i.e., as seen looking north-west from the private driveways off Strathaven Place.



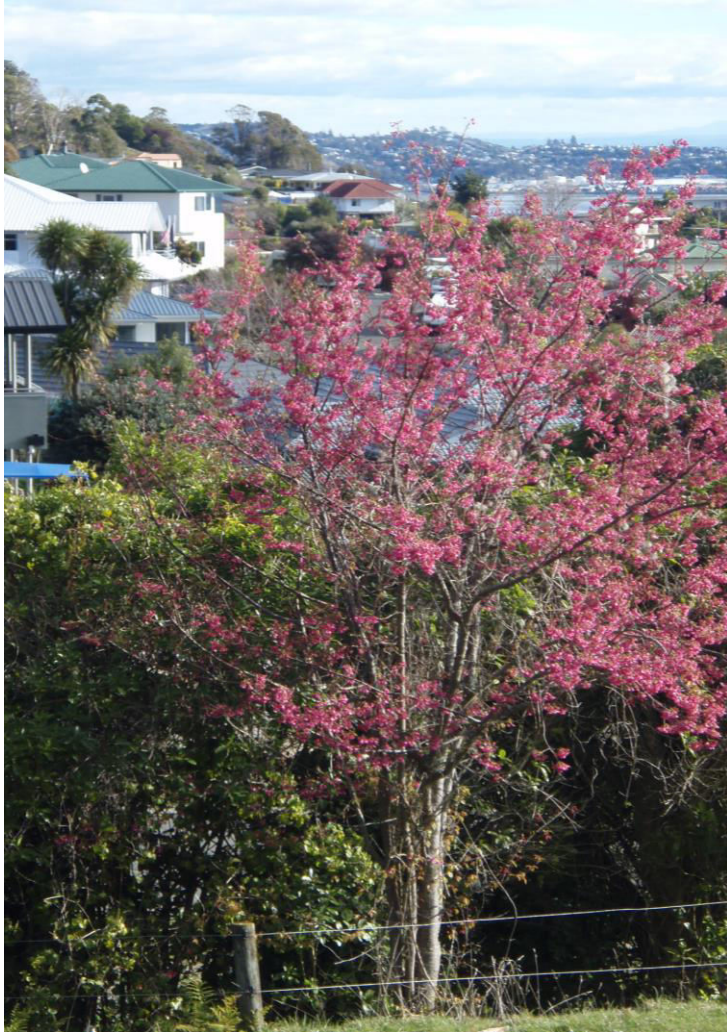
The north-west edge of the main infestation clearly showing the ability of Taiwan cherry to overtop mahoe.



Taiwan cherry seedlings (centre) are very shade tolerant.



Taiwan cherry seedlings (centre, yellowish green) pushing through native kawakawa (*Macropiper excelsum*) in Titoki Reserve. There would be many conspicuous trees in this reserve if they had not been cut out as saplings.



An “old” Taiwan cherry tree in Oldham Creek, an outlier from the main infestation.



Recent Taiwan cherry trees invading scrub and landscape plantings behind Frenchay Drive.



Young Taiwan cherry plants in exotic and native scrub near Frenchay Drive. This is similar to the appearance and height of the “main infestation” beyond the founder tree 15 years ago when I first noticed it. (Apart from the kanuka in the centre).