

Motu Road and Matawai field trip follow-up mistletoe surveys

Paul Cashmore

This story is a follow-up note to the Toatoa Scenic Reserve article (Butcher & Cashmore 2020) and another on Matawai Conservation Area (Butcher, this issue, p. 5). Both these recent articles describe new mistletoe discoveries made on those respective trips.

On the Toatoa Scenic Reserve trip in November 2019, on Motu Road I found a single red mistletoe (*Peraxilla tetrapetala*) (At Risk – Declining) (de Lange *et al.* 2018) high in a tawheowheo (*Quintinia serrata*) tree (Butcher & Cashmore 2020, pp 16-17). This was located on the ridge on the top side of the road at NZTM 1994866 5769022 about 70 m down the road from the Papamoa Hill shelter.

This was a very significant find for the Motu. Despite the size of the forest tract running through the Waioeka and into the Raukumara Ranges, there has been an absence of any recent records of either of the *Peraxilla* mistletoe species. The nearest recent records would be those from the mainland island at Otamatuna in the Tauranga River catchment further to the west. *Peraxilla tetrapetala* would always be restricted in this country to higher altitude areas, above approximately 500-600m, because it hosts exclusively on tawheowheo and beech – mainly red and silver beech, rather than hard beech which is present in the area (Butcher 2020).

Along the same lines another field trip to Matawai Conservation Area in October 2021 resulted in the rediscovery of a single plant each of *Peraxilla colensoi* (At Risk – Declining) (de Lange *et.al* 2018) on silver beech and *Peraxilla tetrapetala* on red beech (a new find for the reserve). Both were close to the track into the hut, the first time any mistletoe had been seen in the reserve since 1997 (Butcher *in press*).

Both these discoveries presented a challenge – to find more mistletoe plants! This led to a plan for a follow-up resurvey to be undertaken during flowering time in January, to maximise success when plants can be easier to locate with their showy red flowers. January 2022 arrived, and determined not to miss flowering time again, I mounted what wasn't planned as, but ended up being, a one-man mission to resurvey at least part of these blocks over a busy weekend on 14-16 January 2022.

I started out driving south along Motu Road in perfect weather to relocate the original *Peraxilla tetrapetala* plant found in Nov 2019. I soon relocated this with the help of binoculars and my GPS. For future reference I recorded details on Mistletoe

Monitoring Sheet and assessed plant health as per standard Mistletoe Foliar Browse (FBI) Method. For each separate plant subsequently found, the host tree was marked with a purple triangle and aluminium tree tag number which was visible from the road but located back from potential damage by roadside vegetation maintenance.

Surveying for mistletoe plants involved slowly driving along the road until mature tawheowheo were spotted. Once safely pulled off the road, the tree(s) would be surveyed on foot from road or vantage point with binoculars and by walking along road looking for dropped red petals under host trees. If *Peraxilla tetrapetala* plants were spotted, then trees were marked, and plants assessed as described above. Using this method, the entire length of Motu Road from Meremere Hill to Motu township was surveyed over the two days. In reality, while this sounds like a lot of survey, tawheowheo was, unsurprisingly, only sparsely present along higher altitude areas of the road, generally around 700m asl. Hence as Figure 2 shows, plants were generally found in only two broad sections of the road where sufficient altitude and hence habitat was present as follows:

1. Papamoa Hill Summit (Toatoa Scenic Reserve)

A more extensive field survey was undertaken around the Papamoa Hill area, including a ridge accessible to the east of the summit, but many of the ridges appear to be dominated by a mix of hard beech or tawari and toatoa and *Dracophyllum latifolium*. Tawheowheo appeared to be more common in discontinuous bands on faces just below main ridges as canopy trees, but is more abundant as saplings. A total of five red mistletoe plants were found along the road edge on both sides of Papamoa Hill summit, including at least one plant which is visible from sitting in the shelter at Papamoa Hill where the November 2019 Botsoc party had lunch (see Figure 1).

2. Adjacent Whitikau Scenic Reserve (southern end of Motu Road)

This long section of road largely follows on and off the ridgeline with sparsely scattered trees of tawheowheo in places off the main ridge. A total of 20 red mistletoe plants on 16 individual hosts were located adjacent to the road over a stretch of approx. 2.3km of road.

Therefore a total of 25 red mistletoe plants were located on 21 tawheowheo hosts along Motu Road.

In general, most plants were flowering during the survey and many were located from petals dropped onto the road below. Health of plants would generally be described as moderate with foliage covers ranging from 35-65% cover. Possum

browse was not noted but would not have been expected at this time of year on mistletoe. A better indicator at this time of year is dieback scores which generally recognise the past season's browse. These were generally in the 1-2 out of 4 range. Only 2 /25 plants (8%) showed no evidence of dieback. This shows that plants are under regular browsing pressure to some extent.



Figure 1: Tawheowheo tree with red mistletoes as viewed from Papamoa Hill Shelter on Motu Road. Photo: Paul Cashmore.

I estimate maybe 30% of tawheowheo trees that I surveyed had red mistletoe present. So we can probably assume that further red mistletoe is present in this type of habitat throughout the higher areas of Urutawa-Motu forest area, but mainly where there is some level of trapping occurring sporadically, as is case along Motu Road (P. Livingstone *pers. comm.*)

These discoveries show that high ridges with pockets of tawheowheo or beech on them are still potential habitat for mistletoes to be found. Further survey throughout

the Waioeka-Motu in suitable habitat has a good chance of finding further plants which shows that the species is certainly not extinct in this area just because there is a total lack of recent records.

Inspired by the success of the Motu Road survey, I then went to Matawai Conservation Area, optimistic of locating further plants here. Again, I relatively quickly relocated the *P. colensoi* and *P. tetrapetala* plants I had previously found in October 2021 and assessed these as described above. I did note that petals fallen from both plants were discoloured, suggesting flowering had finished a week or two prior to the site visit, in contrast to the fresh red petals found along Motu Road.

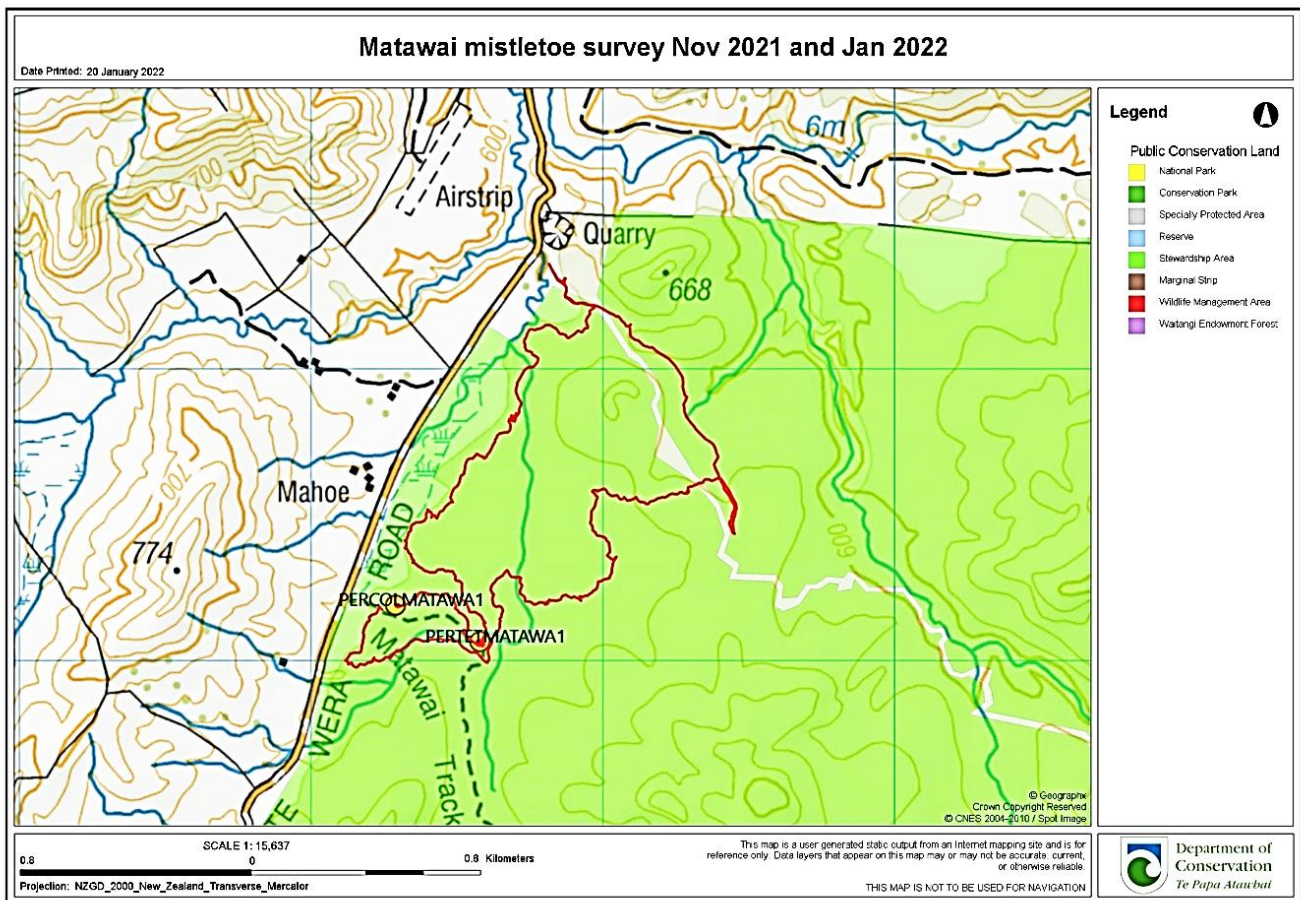
This didn't stop me spending at least four more hours surveying a large loop along the western forest edge and then looping around to the SE and back towards the track and to the south of the relocated trees (Figure 3). This habitat is mostly all red-silver beech so there is plenty to survey but many of the areas are younger beech trees rather than the large older trees more likely to host large mistletoes, as there has been much beech logging in this area in the past. Despite the extensive search, no further mistletoe plants were located, a disappointing endpoint for an otherwise very successful weekend of mistletoe survey.

For both locations there is plenty of suitable habitat yet to be searched so there is plenty of scope for future work. Surveys need to be targeted by trained observers with experience spotting mistletoes and focused on flowering time (January) to maximize success when plants can be easier to locate with their showy red flowers. These targeted surveys are showing that mistletoes are often still hanging on in small pockets in areas where we have assumed that they are long gone. Like so many things in nature, you don't know for sure until you look!

References

- Butcher, M. 2020 Toatoa Scenic Reserve. *Rotorua Botanical Society Newsletter* 74:14-17.
- Butcher, M. 2022. Matawai Conservation Area field trip. *Rotorua Botanical Society Newsletter* 78: 5-7.
- de Lange P.J., Rolfe J.R., Barkla J.W., Courtney S.P., Champion P.D., Perrie L.R., Beadel S.M., Ford K.A., Breitwiser I., Schönberger I., Hindmarsh-Walls R., Heenan P.B., and Ladley K. 2018: Conservation status of New Zealand indigenous vascular plants, 2017. *New Zealand Threat Classification Series* 22. Department of Conservation, Wellington. 82 p.

Figure 3: Matawai Conservation Area location of mistletoes and GPS survey track from 16 January 2022.



Okareka mistletoe restoration project Weed control/plant releasing work day for 2022

Come and join Rotorua Botanical Society to control weeds threatening mistletoe sites and plant new host trees. Activities will involve hand-pulling, cutting, sawing of vines, climbers and small trees.

When: Sat 15 October – Weed control/plant releasing

Meet: Corner Summit and Loop Roads (lake end) @ 8:45 am

Grade: medium-hard – activities suitable for all ages and abilities will be provided

**Please contact the organiser Paul Cashmore
027 650 7264 (mob) or 07 349 7432 (work) to RSVP.
Equipment to bring will be advised.**