

**REPORT ON NORTHERN RATA  
DIEBACK - MINGINUI FACES**

**Prepared for**

**Department of Conservation  
(BOP)**

**by**

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**5 February 1994**

ISSN 1171-9834

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Reference to material in this report should be cited thus:

Hosking, G., 1994.

Northern Rata dieback - *Minginui faces*.

*Conservation Advisory Science Notes No. 66*, Department of Conservation,  
Wellington. 10p.

Commissioned by: Bay of Plenty Conservancy

Location: NZMS

## **REPORT ON NORTHERN RATA DIEBACK - MINGINUI FACES**

### **SUMMARY**

Although aerial canopy inspection and ground assessment failed to reveal clear evidence of possum involvement in the decline of northern rata on the Minginui faces, detailed examination of canopy samples provided quite a different picture. Very high numbers of dead fine twigs showing terminal damage, and residual possum damaged foliage, on rata, kamaki, tawa and red beech are compelling evidence of recent, but not current, severe possum damage. Seasonality of activity in relation to the timing of control needs to be clarified, and baselining of current crown condition needs to be established.

### **INTRODUCTION**

At the request of CAS Willie Shaw and in the company of Dale Williams and Dave Paine an evaluation was made of severe northern rata dieback in an area adjacent to Minginui Village known as the Minginui Faces. The area is scheduled for a possum control operation and was inspected by Les Pracy, Dave Paine and John Sutton on 24-25 January when Mr Pracy concluded the severe damage was not possum related. The aerial inspection did not involve crown samples but did include litter and foliage samples collected from the ground. Insect damage, while not believed to be a primary cause of decline, was said to be much in evidence.

My involvement was as a forest health specialist with extensive experience of the impact of possums on pohutukawa, as well as broad general experience of insects and diseases affecting indigenous trees.

#### **Field Evaluation**

A field visit to the site was made on 2 February which included an aerial inspection and collection of canopy foliage from beech, tawa, rata and kamahi by Dave Paine. A ground inspection followed in the same area and samples of litter and broken crown material collected. Trees were examined for possum activity and the ground for droppings. All samples were bagged and returned to FRI for examination. Samples collected by the party of 24-25 January were also examined prior to this field visit.

The general consensus following the field evaluation was that there was little obvious evidence of possum activity in the severely degraded canopy. The canopy of rata, tawa and kamahi showed all stages of decline from reasonably healthy to very severely debilitated. The decline was typified by large accumulations of dead fine twigs retained on the crown and general top down crown contraction. Although not seriously affected some crown contraction was also evident in red beech. The ground inspection showed plenty of evidence of possum scratching and bark biting but it was generally not current activity. Droppings were mostly old and few damaged leaves were evident in the litter. Fresh green foliage, shed following attack by the native leaf-mining weevil *Neomycta rubida*, was common but not excessive.

### **Foliage Samples from January Inspection**

All foliage was dead and taken from wind broken branches. Only a few leaves showed clear evidence of possum browse and similarly insect damage was uncommon. A larger branch showing insect workings in the outer sapwood had clearly been dead for some time and the damage was almost certainly caused by a dead wood feeder. Cicada oviposition damage was evident and no doubt causes some breakage but is highly unlikely to be involved in canopy decline. The samples contained numerous dead fine twigs.

The samples provided little evidence of either possum or insect involvement in decline.

### **Litter Samples 2 February Visit**

Litter samples were sorted so that only rata foliage was classified as damaged or undamaged by possums. A sample of 651 leaved yielded only 15 possum damaged examples and 3 old possum droppings. Numerous partly eaten green tawa fruits were collected from the litter surface.

### **Foliage Samples 2 February Visit**

Samples were separated by tree species, rata, kamahi, tawa and red beech. Only one sample, that of flowering rata, was regarded as undamaged although one beech sample was also in good condition.

*Rata.* Samples supported much reduced foliage and very high numbers of dead fine twigs. All samples showed some recent flush, much of it represented by very small lateral shoots, all of which were undamaged. However, most samples showed extensive possum browse on up to 50% of old foliage. (Figs. 1, 2 and 3)

*Kamahi.* Samples showed a similar pattern to rata with numerous dead fines, possum damage to old foliage on all shoots and recent flush unaffected. Foliage was greatly reduced and flush often represented by small laterals. (Fig. 3)

*Tawa.* All terminals had suffered recent dieback leaving dead fine twigs. No new flush was present and very little old foliage. What old foliage was present showed light (5-10%) possum browse. (Fig. 4)

*Beech.* One large sample of red beech was in very poor condition with much reduced foliage and many dead fine twigs. One area of foliage clearly showed possum browse. (Fig. 5)

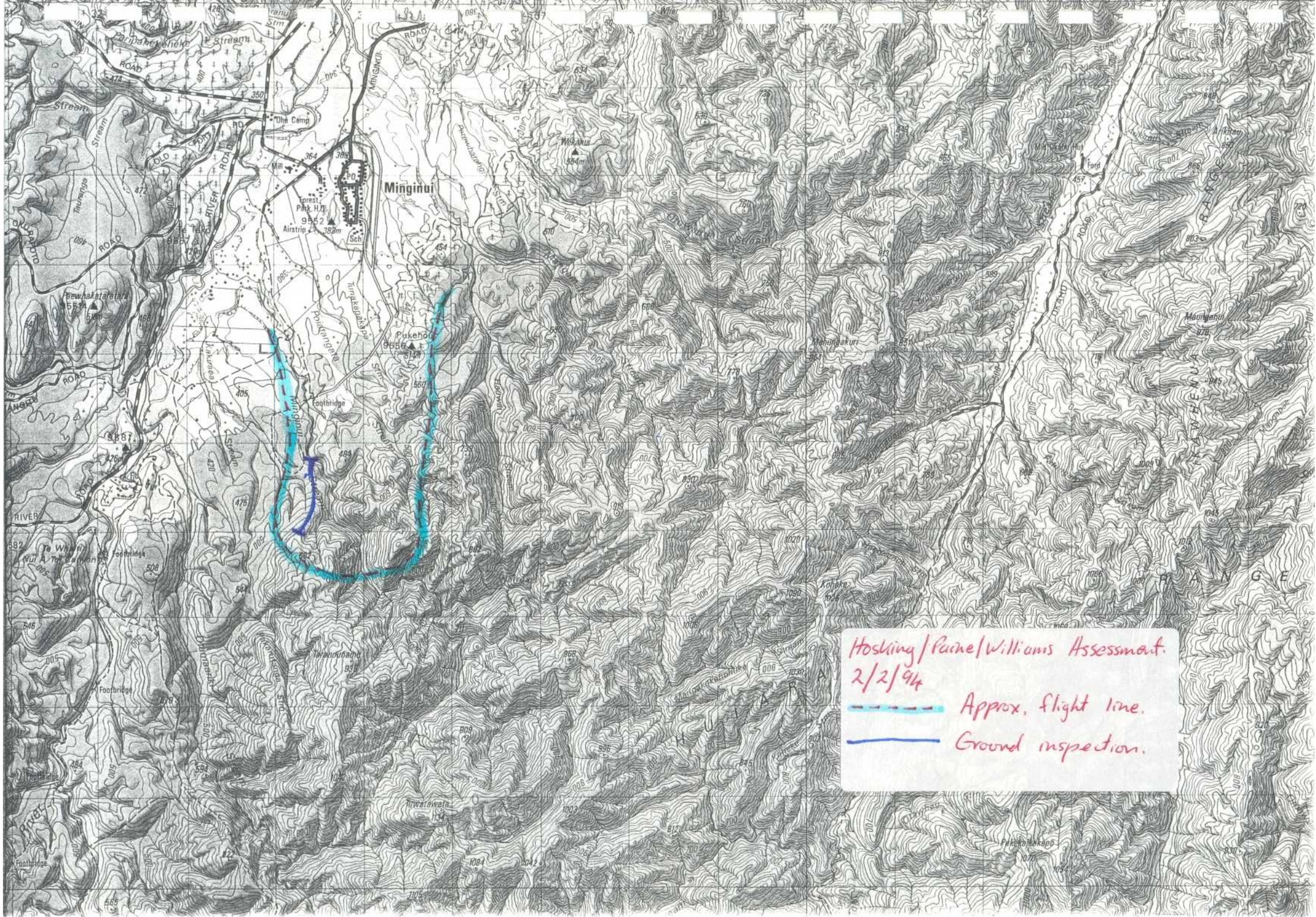
Examination of dead fines under the microscope revealed consistent terminal damage with part of the twig being bitten off and leaves below it stripped. Similar damage was found on a few still green but defoliated twigs. The damage was consistent across all tree species and in my opinion solely attributable to possum browse.

## CONCLUSIONS

1. The damage found on crown samples is consistent with severe possum browse.
2. Much of the damage appears to have occurred in late winter or early spring leading to the high incidence of dead fine twigs still present.
3. The feeding pattern appears to involve the complete removal of shoots or stripping of foliage. Such a pattern would account for the lack of individual damaged leaves both in the crown and in the litter.
4. There is no evidence to suggest insects or disease are involved in the decline of any of the species affected.

## RECOMMENDATIONS

1. That the seasonality of possum browse be investigated in relation to the timing of control operations. The use of litter traps could be employed to this end.
2. That canopy condition along specified lines be characterised using aerial photography or airborne video as a baseline against which to measure change.
3. That possum control be carried out in the area in an effort to reduce damage but that careful consideration be given to its timing in relation to summer feeding patterns.
4. Reassess the methodology needed to determine the impact and activity of possums in this forest type.



Minginui

Pukehoro

Hosking/Paine/Williams Assessment.  
2/2/94  
- - - - - Approx. flight line.  
————— Ground inspection.