

**IN THE ENVIRONMENT COURT
AT CHRISTCHURCH**

IN THE MATTER OF the Resource Management Act 1991

And

IN THE MATTER OF appeals under clause 14 of the first schedule to the Act

BETWEEN

FEDERATED FARMERS OF NEW ZEALAND
(INCORPORATED) MACKENZIE BRANCH
ENV-CHC-2009-000193

MOUNT GERALD STATION LIMITED
ENV-CHC-2009-000181

MACKENZIE PROPERTIES LIMITED
ENV-CHC-2009-000-183

MERIDIAN ENERGY LIMITED & GENESIS LIMITED
ENV-CHC-2009-000184

THE WOLDS STATION LIMITED
ENV-CHC-2009-000187

FOUNTAIN BLUE LIMITED & OTHERS
ENV-CHC-2009-000190

R, R AND S PRESTON & RHOBOROUGH DOWNS
LIMITED
ENV-CHC-2009-000191

HALDON STATION
ENV-CHC-2009-000192

Appellants

AND

MACKENZIE DISTRICT COUNCIL
Respondent

**STATEMENT OF EVIDENCE OF KEITH WILLIAM BRIDEN
On behalf of DIRECTOR-GENERAL OF CONSERVATION
DATED 9 September 2016**

Department of Conservation
Private Bag 4715, Christchurch 8011

Solicitor: Susan Newell
Tel: 03 371 3783;
email: snewell@doc.govt.nz

INTRODUCTION

1. My full name is **Keith William Briden**.
2. I am a Technical Advisor at the National Office of the Department of Conservation (DOC), based in Christchurch.
3. I have a Bachelor of Forestry Science (Canterbury, 1981). I am a full member of the New Zealand Biosecurity Institute and the New Zealand Ecological Society.
4. I am a committee member on the New Zealand Wilding Conifer Management Group.
5. I have been DOC's key contact person for issues related to invasive environmental weeds for 17 years. My work has included:
 - a) Providing advice on wilding tree management;
 - b) Provision of technical advice into the "New Zealand Wilding Conifer Management Strategy 2015-2030";
 - c) Provision of technical advice to support a bid for new funding for wilding conifer control in budget 2016. That bid was successful, and resulted in \$16m of new funding being allocated for wilding conifer control over a 4-year period.
 - d) I am the DOC representative on the Ministry of Primary Industries' Operations Group that will advise on where new funds will be allocated;
 - e) I was a peer reviewer of the recent "Mackenzie Wilding Conifer Management Strategy" prepared by Te Manahuna Consulting in 2016.
6. I am therefore familiar with wilding tree management throughout New Zealand and in the Mackenzie Basin.
7. In preparing this evidence I have read the Mackenzie District Plan - plan change 13 section, 293 package. Of particular relevance to my evidence are following provisions:

- a) Policy 3B14 – Wilding Trees, which states:

To manage wilding trees and their spread by prohibiting the planting of wilding prone trees and, where possible, by requiring their removal:

- (a) At the time of subdivision;*
- (b) When consent is required for housing or development;*
- (c) When new zones are proposed, and*

- b) Rule 3.5.1 Amenity Tree Planting, which states

It is a Prohibited Activity for which no resource consent will be granted to plant the following species within a farm base area:

- *Pinus contorta (Lodgepole pine)*
- *Pinus nigra ((Corsican pine)*
- *Pinus muricata (Bishops pine)*
- *Pinus sylvestrus (Scots pine)*
- *Pseudotsuga menziesii (Douglas fir)*

8. My evidence relates to the Director General's submission regarding the above provisions. In addition, I propose several other tree species ought to be added to the list of prohibited species in rule 3.5.1
9. I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.
10. In my evidence I:
- a) Describe DOC's role in wilding conifer management;
 - b) Outline the Wilding Conifer Problem from a national perspective
 - c) Describe DOC's wilding conifer management programmes;
 - d) Outline the wilding conifer problem in the Mackenzie Basin;

DOC's ROLE IN WILDING CONIFER MANAGEMENT

11. DOC is the leading central government agency responsible for the conservation of New Zealand's natural and historic heritage. The control of wilding conifers and other tree weeds is necessary if the Department is to discharge its functions in accordance with its statutory requirements (under the Conservation Act 1987, National Parks Act 1980 and the Reserves Act 1977).
12. DOC may also control wilding conifers on land neighbouring public conservation land if necessary as part of a DOC programme of wilding conifer control.
13. DOC must also meet requirements for weed control under the Biosecurity Act 1993. I am aware that, under that legislation, Canterbury Regional Council (ECan) intends to propose a Regional Pest Management Plan (RPMP), which may include provisions aimed at the control of a wilding conifer species.
14. Recent amendments to the Biosecurity Act 1993 (Biosecurity Law Reform Act 2012) empower ECan to prepare a Regional Pest Management Plan which obliges Crown agencies to undertake wilding conifer control along boundaries with private landowners. This is known as the "good neighbour" principle.

THE WILDING CONIFER PROBLEM FROM A NATIONAL PERSPECTIVE

15. New Zealand has a serious and expanding problem with wilding conifers colonizing public and private land. Since the 1930's the area affected by wilding conifers has increased by 6% per year. Wilding conifers now affect 6% of the New Zealand land area and occupy 1.8 million hectares.
16. In 2016 the Government made additional funding available in the budget for the control of wilding tree species. Prior to that additional funding being allocated, it was predicted that 20% of the New Zealand land area would be affected by wilding trees within 20 years. The new

budget funding is sufficient to slow the spread of wilding conifers, but more funding will be required to reverse it.

17. The economic impacts of wilding trees (on pastoral production, international nature-based tourism, indigenous biodiversity and loss of water availability for irrigation) have been estimated recently as affecting the New Zealand economy by \$1.2b over 20 years.
18. In budget 2016 the seriousness of wilding conifer spread and its impacts on economic and cultural values was recognized: additional funding of \$16m over four years was allocated for treating large areas of lightly infested land to prevent those areas becoming medium and densely infested areas.
19. Treating wilding conifers early, in lightly infested areas, can cost around \$1 per hectare. Treating dense stands can typically cost \$2,000/ha for herbicide treatment and \$10,000/ha for chainsaw felling. The new funding announced in Budget 2016 is the first stage of what will need to be much larger funding programme.

DOC'S WILDING CONIFER MANAGEMENT PROGRAMMES

20. DOC manages around 8.5 million hectares of land - which is almost one third of New Zealand's land area. Accordingly, a wide range of ecosystems and native species affected by environmental weeds are managed by DOC. Wilding conifers are the most serious weed problem and approximately one third of DOC's weed budget is spent controlling them. DOC's current expenditure on wilding conifer control is approximately \$3.5m per year.
21. DOC's primary reason for controlling wilding conifers in the Mackenzie Basin is to protect conservation values. However, DOC's wilding tree control work also contributes to protecting landscape values, cultural and historic values, recreational activities and farmland; and it helps maintain water quantity and water quality.

THE WILDING CONIFER PROBLEM IN THE MACKENZIE BASIN

22. DOC's Twizel office currently spends \$840,000 on environmental weed control. Of this, \$311,000 is spent controlling wilding conifers. Wilding tree spread is considered to be the most significant long term threat to biodiversity and landscape values in the Mackenzie Basin.
23. The Mackenzie region is particularly prone to wilding conifer invasion. Part of the response has been the Mackenzie Wilding Conifer Management Strategy (MWCMS) which was completed recently.
24. The MWCMS applies over an area of 535,000 hectares in the Mackenzie Basin, of which 130,000 hectares are currently affected by wilding conifers: that equates to 24% of the land area.
25. Much of the affected area is lightly infested but there are also significant areas of medium and dense stands of wilding trees. Dense stands are increasingly becoming a seed source for further wilding tree spread, as seeds from these stands can spread over 20 km in windy conditions; if light infestations are not controlled, they will progress to become medium and dense infestations.
26. Removal of seed sources is a desirable management action, but large seed sources can be difficult and expensive to remove. Amenity and shelter trees are much easier and cheaper to remove.
27. Prohibiting the planting of problematic tree species will help prevent wilding tree spread, and will help prevent it from re-occurring once existing wilding trees have been brought under control.
28. The MWCMS estimates the current annual expenditure on wilding conifer control in the Mackenzie Basin is \$2.2 million per year. That level of funding is insufficient to prevent wilding conifer spread. In order to address the issue, more than double the current amount of funding will be required over a 15-year period. Some of the funding from Budget 2016 will be spent in the Mackenzie Basin where it will be used to treat areas of light infestation, but it will not extend to removal of the large seed sources.

29. As wilding conifer spread has become more obvious, and awareness of it has increased, so too has support for control of wilding conifers and other tree weeds increased. The development of the Mackenzie Wilding Conifer Management Strategy had the support of 98% of landowners and agencies who were consulted during its development.
30. Another recent initiative is the establishment of the Mackenzie Wilding Tree Trust. The chair of the new trust is Andrew Simpson (Balmoral Station). Trust members are; Ross Ivey (Glentanner Station), Simon Cameron (Ben Ohau Station), and George Ormond (Pukaki Downs). Its purpose is to progress control of wilding conifers and other tree weeds. The Trust has recognized that apart from wilding conifers there is an increasing number of other tree species that are becoming invasive weeds in the high country. Increasingly, trees such as sycamore, silver birch, willows, rowan, and holly are being recognized as pest weeds.
31. Wilding conifer spread, if uncontrolled, will eventually result in large parts of the Mackenzie Basin becoming exotic forest. With increasing seed rain from seed sources it becomes more expensive and difficult to control unaffected sites. Impacts will include; loss of farmland, loss of biodiversity, impacts on cultural values, impacts on water yield, loss of recreation and tourism opportunities and, relevantly to plan change 13, impacts on iconic landscapes through a change from tussock grasslands to exotic forest.
32. Apart from on-site effects, wilding conifer spread in the Mackenzie Basin will have wider consequences. Replacement of tussock grassland with pine species has an effect on water yield. In a study at Glendu forest in Otago, a tussock catchment that was replaced with *Pinus radiata* progressively recorded water yield reductions as the trees grew older. Loss of water yield was predicted to reduce by 40-45% if the entire catchment had been replaced by pine forest.
33. There are two studies that predict the effects of water yield reduction should the Mackenzie Basin's 535,000ha become dominated by wilding conifers. An earlier NIWA study indicated a reduction of 53.5 cumecs' water yield in the Waitaki catchment (S.M. Thompson NIWA

Freshwater). More recently a study by Landcare Research has estimated the reduction at 50.8 cumics (Mason 2016). The Landcare Research figure is probably lower because in that study the researchers constrained the invaded area by temperature and also calculated current water yield based on the present vegetation cover, rather than assuming a transition from grass to conifers throughout. A loss of water yield on that scale from the Waitaki river would have significant effects on downstream power generation and irrigation use.

34. As I have noted above, two important actions in controlling wilding conifer spread are to remove existing trees that are seed sources and to prohibit the planting of trees that will result in wilding tree spread. Amenity and shelter trees are problematic because they produce long branches with large amounts of cones/seed. In strong winds their cones/seed are fully exposed to the wind and a proportion of seeds are widely dispersed. This is known as long distance seed dispersal. Seeds from contorta pine can spread 20km and seed from Douglas fir has been observed to spread 40km from the nearest seed trees. Shelter and amenity plantings are scattered throughout the Mackenzie Basin landscape and therefore provide numerous sources of seed that result in wilding tree spread and increasing areas of wilding forests. If the wilding tree problem in the Mackenzie Basin is to be resolved, a necessary step is to implement policies aimed at removing existing wilding trees and preventing the introduction of new seed sources.
35. Since Plan Change 13 was initiated in 2007, an increasing number of tree species have been found to be invasive tree weeds in the Mackenzie Basin. In the Director General's submission, dated 1 July 2016, it was proposed the list of prohibited species in rule 3.5.1 be increased to include the following tree species:

- *Pinus mugo/uncinata* (mountain pine)
- *Pinus muricata* (Bishops pine)
- *Pinus pinaster* (Maritime pine)
- *Pinus ponderosa* (Ponderosa pine)

- *Larix decidua* (European larch)
- *Betula pendula* (Silver Birch)
- *Ilex aquifolium* (Holly)
- *Acer pseudoplatanus* (Sycamore)

36. Several additional species could also be considered for addition to the list:

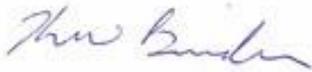
- *Sorbus aucuparia* (Rowan)
- *Prunus avium* (sweet cherry)
- All species of the Genus *Larix* and all hybrids (Commercial and ornamental species of Larch)
- *Pinus banksiana* (Jack pine)

37. Rowan and sweet cherry are already recognized as tree weeds in the Mackenzie Basin. All species of larch and hybrids have a high spread risk. Jacks pine is now well established around Tekapo and its abundance has likely been under reported as trees that are not coning are similar in appearance to contorta pine.

38. In particular, I support the inclusion of Douglas fir in proposed rule 3.5.1. It has a high spread potential and in a recent analysis conducted by Wildlands Consultants Limited it was ranked the second most invasive species after contorta. Contorta is regarded as the worst wilding conifer species in New Zealand. Douglas fir is now regarded as New Zealand's most significant emerging wilding conifer problem. Queenstown Lakes District Council has proposed prohibiting the planting of Douglas fir in its recently proposed plan.

CONCLUSION

39. Wilding Conifers and other invasive tree species are an increasing and intractable problem in the Mackenzie Basin. Left unchecked, they have the potential to significantly alter the landscape, which would eventually be transformed from tussock grasslands to exotic forest.
40. Significant effort and expense is being incurred to control wilding tree species. Those efforts are more likely to be successful if the planting of wilding tree species is prevented.



Keith William Briden

1 September 2016