

IN THE MATTER

of the Resource Management Act 1991 and the
Local Government (Auckland Transitional
Provisions) Act 2010

AND

IN THE MATTER

of the Proposed Auckland Unitary Plan ("Unitary
Plan")

**STATEMENT OF EVIDENCE OF DR DANIEL BLANCHON FOR
THE -----
IN RELATION TO TOPIC 023**

13 JULY 2015

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1. INTRODUCTION

1.1 My name is Daniel Blanchon.

1.2 I am a botanist and lichenologist with more than 20 years of experience, and I am currently employed as an Associate Professor at Unitec Institute of Technology in Auckland. I hold an MSc (hons) and PhD in botany from the University of Auckland. A full Curriculum Vitae, including a full list of publications is included as Appendix Two.

1.3 I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing this evidence and I agree to comply with it while giving oral evidence before the Hearings Panel. Except where I state that I am relying on the evidence of another person, this written evidence is 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 in this evidence.

2. SCOPE OF EVIDENCE

2.1 In my brief of evidence I will:

- (a) outline the survey that I undertook at 96 Allum Street ("site") and on the surrounding site which has been identified as a Significant Ecological Area ("SEA") in the Proposed Auckland Unitary Plan;
- (b) identify my findings at the site;
- (c) summarise my conclusions regarding the vegetation on the site.

3. SURVEY

- 3.1 On Monday 13th of April 2015, I undertook a brief survey (c. 3 hours) in the SEA bounded by Allum Street, Kohimarama Road, William Fraser Crescent and Pamela Place in Kohimarama, with the permission of the landowners.
- 3.2 The site is a forest remnant largely made up of impressive old, large mahoe (*Melicytus ramiflorus*), kanuka (*Kunzea robusta*), ngaio (*Myoporum laetum*), totara (*Podocarpus totara*), large ponga (*Cyathea dealbata*), hangehange (*Geniostoma ligustrifolium*), kawakawa (*Piper excelsum*) and cabbage trees (*Cordyline australis*), as well as a range of invasive species, with tree privet (*Ligustrum lucidum*), jasmine (*Jasminum polyanthum*) and ginger (*Hedychium gardnerianum*) the most prominent. Lichens, mosses, liverworts (e.g. *Frullania fugax* and *Porella* aff. *elegantula*), fungi, ferns and fern allies such as *Tmesipteris* sp. are common in the forest remnant. Some of the mahoe, cabbage trees, ponga and one large totara at 96 and 98 Allum Street are not technically within the proposed current boundaries of the SEA, but as they are part of the same forest remnant, I also investigated these areas.

4. FINDINGS

- 4.1 The lichen flora of the area totalled 32 distinct taxa. Twenty-eight were able to be identified to species level but importantly a further four were not able to be given species names, indicating possible new records for the New Zealand lichen flora. The 32 taxa are set out in Appendix One. Of the 32 taxa, twenty-eight of these (including three unnamed species) were collected from the proposed SEA. Seventeen species and three unnamed taxa were collected from the adjacent area of the same vegetation type within the boundaries of 96 and 98 Allum Street, but outside the SEA boundary. The lichen assemblages of both areas were largely the same. The lichens collected were all native species, and most are characteristic of native forest. Some of the species such as *Bacidia laurocerasi*, *Coenogonium implexum*, *Lepraria lobificans*, *Phlyctis sordida*, *Porina exocha* and

Pseudocyphellaria carpoloma are characteristic of relatively undisturbed native forest – i.e. they do not tend to colonise planted native trees or exotic vegetation.

- 4.2 The most important substrate tree species were old, large mahoe, kanuka, ngaio, totara, large ponga, kawakawa and cabbage trees. Gardner (1988) noted that cabbage trees were historically conspicuous on the heavy clay soils of the Kohimarama area¹ and persist at Dingle Dell and above “Purewa Creek”, and the remnant trees at both Dingle Dell² and the Allum Street SEA support significant lichen communities which may have persisted from earlier times.

Threatened species or uncommon species:

- 4.3 There was an unusual concentration (five) of ‘Data Deficient’ species at the site (Appendix 1). ‘Data Deficient’ species are those that were unable to be classified using the New Zealand Threat Classification Manual³ because they are so poorly known. They may be rare and/or endangered, or may just be under-collected. These five species were designated as ‘Data Deficient’ in 2012 by de Lange et al. (2012).⁴ One species at the site, *Pseudocyphellaria haywardiorum*, is listed ‘At Risk: Naturally Uncommon’, and was extremely rare at the site (we found it on cabbage tree trunks and on fallen dead branches (probably mahoe). This species has also been recorded at Dingle Dell (AK 213436) and Kepa Bush (UNITEC 7193), but otherwise seems to be rare in the area.

5. CONCLUSIONS

- 5.1 The total of 31 distinct lichens represents only 3 hours of investigation, and is likely to be an underestimate. I was not able to examine the

¹ Gardner, R.O. 1988: Significant forest remnants of Auckland. *Auckland Botanical Society Journal* 43: 19-21.

² Wilcox, M.; Cameron, E.; Braggins, J.; Beever, J.; Blanchon, D.; Kooperberg, R.; Shirley, C. 2013: Flora of Dingle Dell Reserve, St Heliers. *Auckland Botanical Society Journal* 68: 118-132.

³ Townsend A.J.; de Lange, P.J.; Norton, D.A.; Molloy, J.; Miskelly, C.; Duffy, C. 2008: The New Zealand Threat Classification System manual. Wellington, Department of Conservation. 35 p.

⁴ de Lange, P.J.; Galloway, D.J.; Blanchon, D.J.; Knight, A.; Rolfe, J.R.; Crowcroft, G.M.; Hitchmough, R. 2012: Conservation status of New Zealand lichens. *New Zealand Journal of Botany* 50: 303–363.

entire SEA as I did not have the permission of all of the landowners, particularly on the William Fraser Crescent side of the forest and a more thorough survey would be useful. Despite this, the number of species compares well with the count of 55 for Dingle Dell in St Heliers,⁵ a much larger area of habitat. Old aerial photographs show forest at the Allum Street site at least as far back as 1955, and the presence of characteristic old growth forest lichens, particularly the assemblages associated with mahoe and cabbage trees, means that this site is a useful reference ecosystem for lichen restoration in the surrounding areas. The presence of five 'Data Deficient' lichen species and one 'At Risk: Naturally Uncommon' lichen species (*Pseudocyphellaria haywardiorum*) is consistent with and supports the SEA designation of the site.

- 5.2 The mahoe, cabbage trees, ponga and one large totara at 96 and 98 Allum Street are not within the current proposed boundaries of the SEA but based on the similarities of the lichen assemblages on these tree species and those within the SEA, these areas logically should be included within any new SEA boundaries.

Dr Daniel Blanchon

⁵ Wilcox, M.; Cameron, E.; Braggins, J.; Beever, J.; Blanchon, D.; Kooperberg, R.; Shirley, C. 2013: Flora of Dingle Dell Reserve, St Heliers. *Auckland Botanical Society Journal* 68: 118-132.

Appendix One. Lichen species and indeterminate taxa at the site.

Lichen species	SEA area	96 and 98 Allum Street native vegetation adjacent to current SEA boundary	Threat Status†	Voucher (UNITEC)
<i>Arthonia polymorpha</i>	on mahoe		DD	7165
<i>Bacidia laurocerasi</i>	on mahoe	on mahoe	NT	7142
<i>Chrysothrix candelaris</i>	On ponga	on totara	NT	7129
<i>Coenogonium implexum</i>		on mahoe	NT	7141
<i>Crocodia aurata</i>	on mahoe and ngaio		NT	7156
<i>Dirinaria applanata</i>	on kanuka	on dead Pittosporum, mahoe and totara	NT	7126
<i>Fissurina inquinata</i>		on dead Pittosporum	DD	7173
<i>Graphis elegans</i>	On mahoe	on dead Pittosporum	DD	7170
<i>Lecanora dispersa</i>		totara	NT	7126
<i>Lepraria lobificans</i>	on ponga	on totara and mahoe	NT	7131
<i>Leptogium aucklandicum</i>	on mahoe	on cabbage tree	NT	7140
<i>Leptogium cyanescens</i>	on cabbage tree and mahoe	flame tree	NT	7127
<i>Opegrapha agelaeoides</i>	on mahoe		NT	7174
<i>Parmotrema perlatum</i>	on mahoe	on mahoe	NT	7145
<i>Parmotrema reticulatum</i>	on kanuka and ngaio	totara and dead pittosporum	NT	7133
<i>Pertusaria thiospoda</i>	on privet		DD	7200
<i>Phlyctis sordida</i>	on mahoe	on mahoe	NT	7143
<i>Physcia poncinsii</i>	on ngaio	on flame tree	NT	7134
<i>Porina exocha</i>	on mahoe		NT	7146
<i>Pseudocyphellaria carpoloma</i>	on cabbage tree		NT	7197
<i>Pseudocyphellaria chloroleuca</i>	cabbage tree and ngaio		NT	7155
<i>Pseudocyphellaria haywardiorum</i>	on cabbage tree and fallen dead branches		NU	7169
<i>Pseudocyphellaria multifida</i>	on cabbage tree		NT	7196
<i>Ramalina celastri</i>	on ngaio	on dead Pittosporum	NT	7135
<i>Ramalina peruviana</i>	on ngaio	on dead	NT	7137

		Pittosporum		
<i>Sticta fuliginosa</i>	cabbage tree		NT	7153
<i>Strigula phaea</i>	on kawakawa		DD	7198
<i>Usnea rubicunda</i>	On kanuka	on dead Pittosporum	NT	7138

Taxonomically indeterminate lichens

Name (if known)	SEA area	96 and 98 Allum Street native vegetation adjacent to current SEA boundary	Threat Status	Voucher
<i>Bacidina sp.</i> *	onmahoe and ponga	onmahoe and ponga	NA	7176
<i>Coenogonium luteum</i> **	<i>aff.</i> on ponga	on totara	NA	7130
<i>Micarea?</i> *	on mahoe and ponga	on mahoe and ponga	NA	7178
Silver crust		on totara	NA	7177

†Threat status are abbreviated as follows: DD = 'Data Deficient'; NU = 'At Risk: Naturally Uncommon'; NT = 'Not Threatened'.

*samples of these species have been sent for DNA analysis to determine their identity.

**an undescribed species of *Coenogonium*