

**BEFORE THE ENVIRONMENT COURT  
CHRISTCHURCH REGISTRY**

ENV-2016-CHC-47

**IN THE MATTER** of an appeal under Section 120  
Resource Management Act 1991

**BETWEEN** **BLUESKIN ENERGY LIMITED**  
**Appellant**

**AND** **DUNEDIN CITY COUNCIL**  
**Respondent**

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**REBUTTAL BRIEF OF EVIDENCE OF JOHN LAURENCE CRAIG**

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LAWYERS  
DUNEDIN**

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## 1. INTRODUCTION

2. My name is John Laurence Craig. I have a BSc (1<sup>st</sup> Class Honours) in ecology from Otago University and a PhD in ecology from Massey University. I have 46 years' experience working in New Zealand environments, both as a researcher and as an expert witness relating to terrestrial ecology, especially birds.
3. Given the subject of some of this rebuttal evidence, I note in addition that I have considerable experience in designing the collection of data relevant to potential effects of windfarms on birds. I also have considerable experience in implementing and managing predator control and measuring the relative importance of predation in the life history of native birds. I also have direct experience with a number of the birds where Mr Onley suggests there is a lack of information.
4. In relation to bird surveys for windfarms, I have helped design the bird collection data at 4 consented and 2 other windfarms. This included participating in data collection and a direct or sole involvement in data analysis. The majority of the field work was undertaken by employees of Wildlands, Boffa Miskell, Golders and Kessels and Associates. I am an author on two peer reviewed papers on windfarms and their effects on birds. I have also attended an international conference on the effects of windfarms on wildlife.
5. In regard to predator effects and control, I am a Trustee and member of the advisory committee of Kiwi Coast which is a coalition of 87 landcare groups that undertake pest control over 125,000+ hectares and record associated numbers of indicator bird species. In addition, I directly organise and supervise predator control over 850 ha for the local landcare group.
6. In relation to individual bird species I have considerable experience with three of the birds mentioned by Mr Onley. I have studied tui and have supervised an MSc and a PhD on tui behaviour and movements. I am co-author on two publications on tui. I was the supervisor on a PhD on kereru and am co-author on 2 publications on this bird. I led a

three year study on breeding of pied oystercatchers and am aware of the extensive literature on this and related species.

7. I also live on a 300ha coastal property, which has been under active habitat restoration for thirteen years. On it I see resident waders such as Variable Oystercatcher, New Zealand Dotterel and Pied Stilt in most weeks and all weathers, unlike the short intense periods associated with research. Moreover, our property has both beach and estuary frontage so I am in a position to see movements of shore birds between these.
8. I refer the Court to the statement of my qualifications and experience in my evidence in chief. I reaffirm my commitment to comply with the code of conduct for expert witnesses in the Environment Court.
9. The purpose of this brief of evidence is to respond to the evidence of Derek Onley who addresses the issues of possible effects of the proposed turbine on birds.

### **Evidence of Mr Onley**

10. Mr Onley asserts that “the peer reviewed literature is far from unanimous on the degree of interactions between birds and windfarms or the methodology for assessing it.” Unfortunately he does not reference literature to support this nor does he evaluate the methodology and assessment of the majority of New Zealand windfarms. With few exceptions both internationally and in New Zealand the key approach is to assess the numerical likelihood of bird deaths and evaluate this against the conservation status of the species and the likely effect of such a death rate at a population level. There is minor debate on details.
11. The majority of Mr Onley’s evidence looks at birds in the wider area, especially the species seen at the coast and then suggests that these birds “could” fly over or near Porteous Hill. In paragraphs 9.3.6 and 9.3.7 he suggests that “claims that migration rarely or does not take place over land are unsubstantiated” He then goes on to quote data

from HMR where birds do fly inland from the coast. This was also found at Taharoa C. What he fails to mention is the low topography of the land and that this is the most direct route between the known main migration route up the west coast and two of the largest feeding areas for the waders, namely the Manukau Harbour and the Firth of Thames. Unfortunately for Mr Onley's argument, a path over Porteous Hill is not similarly low country and is not a direct route to another known major shorebird feeding areas.

12. Throughout point 9, Mr Onley gives examples of possible bird movements that "could" place birds near Porteous Hill. Despite pointing to his involvement in local bird counting, he makes no mention of the Beyond Orakanui studies which had count sites near Porteous Hill and on land immediately adjacent to Blueskin Bay. These sites are illustrated in the evidence of Dr McLennan at the Council Hearing and the results are listed in her Table 4.<sup>1</sup> Unfortunately for the argument developed by Mr Onley, these counts provide no support for the majority of his potential bird movements.

13. Despite there being no evidence that shorebirds may traverse the site of the proposed turbine, I have used the modelling from other windfarms to show that even if you make the assumption that all of the birds seen in Blueskin Bay fly through the proposed wind farm, the number of resulting deaths is minimal and would have no effect on either the local or national populations.

14. Using modelling from HMR is likely to overestimate death rates as that site is relatively flat. In contrast, Porteous Hill is elevated above its surrounding land and even if birds did fly over it, they would likely be close to the ground. The following figure from the Puketoi windfarm (Fig 1) shows that the majority of bird movements over ridges and hills are close to the ground and hence below rotor swept height (RSH).

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<sup>1</sup> A copy of the relevant sections of Dr McLennan's Council evidence are attached at Appendix A.

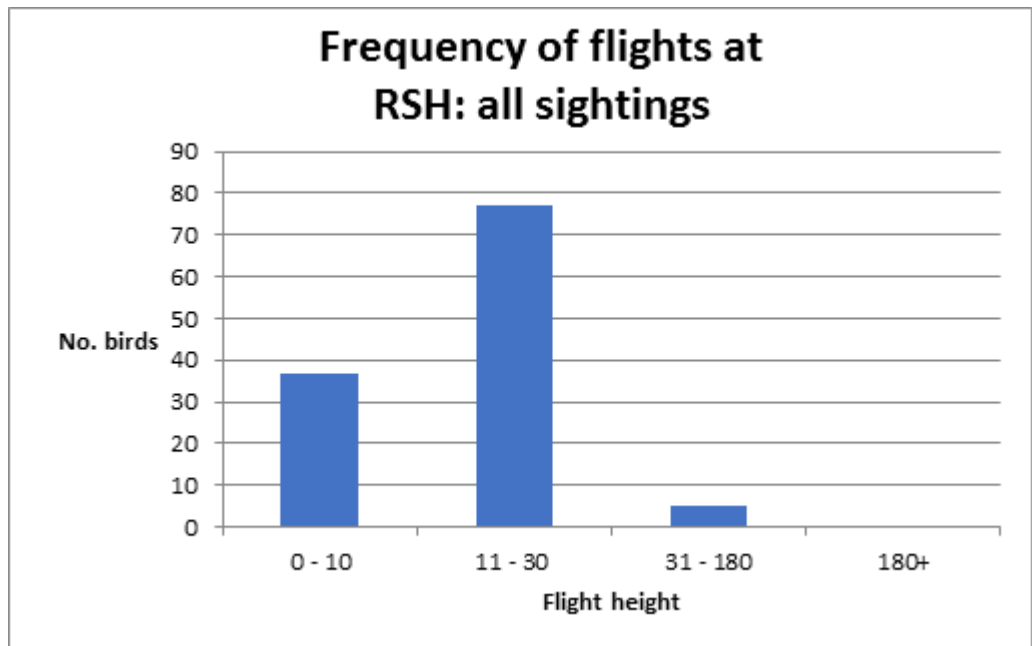


Fig. 1 Plot of flying height of all birds observed at Puketoi windfarm (from evidence of J Craig to Environment Court hearing on Puketoi Windfarm).

15. Another example of the behaviour of birds influencing the outcome can be seen from the recently consented Waverley windfarm. This is a 48 turbine site on the coast in Taranaki. 45 banded dotterel are resident on the adjacent coast and while they flew across the site, only 1.5% of flights were at RSH. The authors note that even if all 45 birds were killed, this would have no effect at a regional or national population level. They estimate that there would need to be in excess of 1.05 million banded dotterel flights through the windfarm annually to have a population level effect. Even with 48 turbines immediately adjacent to the coast and not elevated, they estimate annual kills of 2.4 pied oystercatchers and 0.9 pied stilts. Suggesting, as Mr Onley does, that a single turbine 2+ kms from the coast and elevated could have a significant effect stretches credibility.

16. In conclusion for Mr Onley's point 9, there is little evidence that the birds he lists from Blueskin Bay do even approach Porteous Hill. However, as I have shown in my evidence in chief, even if all the birds did fly over the hill with just a single turbine the probability of death is low and none would approach a level that was significant at a local or national population level. Demanding precise information would result in a trivial exercise.

17. In point 11, Mr Onley addresses post-construction monitoring. His example of a single turbine in the grounds of a bird research and advocacy society is not representative. With low bird densities and just a single turbine there is unlikely to be carcasses at the majority of visits and the ability to extrapolate to population effects will be minimal. It would simply be a waste of money.
18. Mitigation is addressed in point 12. Quoting an occasional paper that points to the complexities of predator associations does not detract from the overwhelming evidence (see my evidence in chief) that predation is the largest single negative factor in the life history of most New Zealand birds. Even my work on pied oystercatcher and wrybill breeding showed that markedly reducing predation is the most positive thing that can be done for those species. At my own place, maintaining predator control has seen the number of species increase and the density of forest birds such as kereru and tui increase markedly. We have recently had a release of kiwi which would not have been possible without a history of predator control. It remains the best mitigation option.

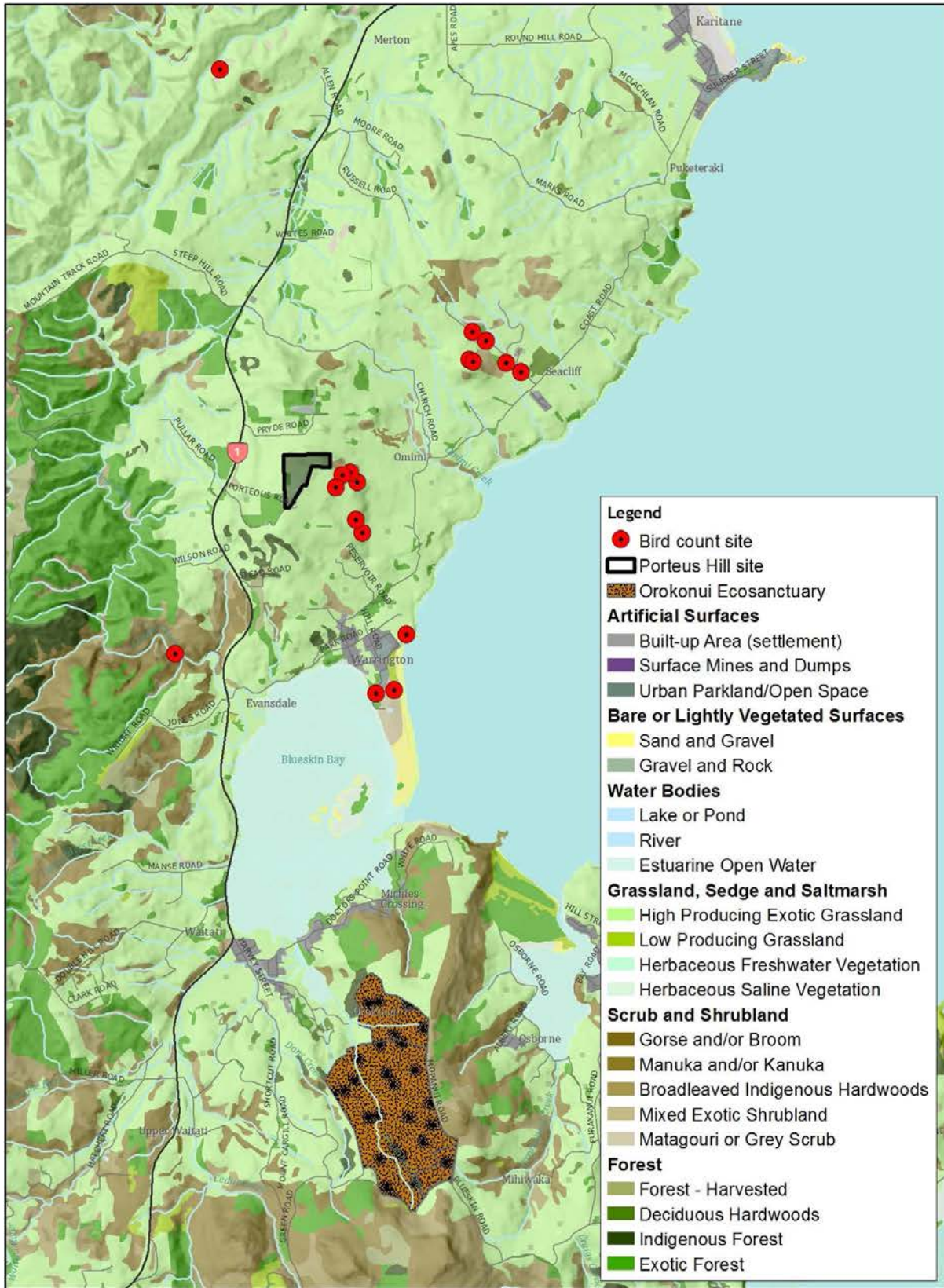
**John L Craig**

**12 June 2017**

**Appendix A From Evidence of Dr Rachel Katherine McClean to Council Hearing for Blueskin Bay windfarm, May 2016**

Table 4: Mean bird counts in the Orokonui Sanctuary and within 3 km of Porteous Hill, November-December 2014.

Species	Threat Classification	Mean five-minute bird count	
		Orokonui (33 stations)	Within 3 km of Porteous Hill (17 stations)
Bellbird	Not Threatened	3.18	2.29
Brown creeper	Not Threatened	1.45	0.18
South Island fantail	Not Threatened	0.03	0.12
Grey warbler	Not Threatened	0.42	0.94
Swamp harrier	Not Threatened	0	0.06
Kereru	Not Threatened	0.09	0.29
Paradise shelduck	Not Threatened	0	0.12
Shining cuckoo	Not Threatened	0.12	0
Silvereye	Not Threatened	0.33	2.76
South Island rifleman	Not Threatened	0.15	0
South Island kaka	Threatened-Nationally Vulnerable	0.18	0
South Island robin	Not Threatened	0.30	0
South Island tomtit	Not Threatened	0.79	0.06
Tui	Not Threatened	0.09	0.06
Welcome swallow	Not Threatened	0	0.06
Blackbird	Introduced	0.58	1.12
Chaffinch	Introduced	0.82	1.76
Dunnock	Introduced	0.33	0.53
Greenfinch	Introduced	0.09	0.53
Australian magpie	Introduced	0	0.12
Redpoll	Introduced	0.06	2.06
Rosella	Introduced	0.30	0.35
Song thrush	Introduced	0.09	0.71
Starling	Introduced	0.09	0.06
Yellowhammer	Introduced	0	0.65
Goldfinch	Introduced	0.12	0.13
Skylark	Introduced	0	0.22
House sparrow	Introduced	0	0.04
Rooster	Introduced	0	0.09



**Data Acknowledgment**  
 Map contains data sourced from LINZ  
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Report: 2991  
 Client: -  
 Ref: 05 0238  
 Path: E:\gis\PorteusHill\WF\mxd  
 File: Birdcounts.mxd

**Location of bird count sites and  
 proposed Porteus Hill wind farm site**

0                      1,750                      3,500  
 m

**Wildlands**  
 www.wildlands.co.nz, 0508 WILDNZ

Scale: 1:70,000  
 Date: 10/05/2016  
 Cartographer: FM  
 Format: A4