BEFORE HEARINGS COMMISISONERS APPOINTED

BY THE FAR NORTH DISTRICT COUNCIL

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the hearing of submissions on the Proposed Far North District Plan
SUBMITTER	Green Inc Ltd
HEARING TOPIC:	Hearing 15B – Rezoning – New Special Purpose Zones

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STATEMENT OF ECOLOGICAL EVIDENCE OF JOHN LAURENCE CRAIG

18 August 2025

INTRODUCTION

1. My name is John Laurence Craig. I am a Director / Consultant Ecologist at Green Inc Ltd and am also an ecological adviser for Tahi Estates Ltd and Tupou Farms Ltd.

2. I have been leading Tahi Estate's submissions on the Proposed Far North District Plan (PDP).

3. I note that while the Environment Court Code of Conduct does not apply to a Council hearing, I am familiar with the principles of the code and have followed these in preparing this evidence.

QUALIFICATIONS AND EXPERIENCE

4. I have a BSc (1st Class Honours) in ecology from Otago University and a PhD in ecology from Massey University. I have 56 years' experience working in New Zealand environments, both as a researcher and as an expert witness relating to terrestrial ecology, especially birds. I was Professor of Environmental Management at the University of Auckland until my retirement in December 2009

5. My specialist areas of research and teaching within environmental management are biodiversity conservation, restoration ecology, animal behaviour, birds and sustainability. I taught and researched animal behaviour, especially bird behaviour for 20 years. I also have 15 years' research experience on rodent ecology, and have been involved in the assessment of conservation options in relation to pest control.

6. My specific research on avifauna includes work on the ecology, behaviour, and genetics of many species, especially wetland and forest species. I have also supervised more than 80 graduate student research projects for the University of Auckland, which were predominantly related ecology and conservation. I have published over 110 refereed scientific papers and edited two books on nature conservation. I am also familiar with the activities of, and priority setting by, Department of Conservation Recovery Groups. I have been a member of the Stitchbird Recovery Group, and have attended recovery meetings for Takahe and Kakapo. I am also a former member of the Auckland Conservation Board.

7. I have extensive experience in the planning and development of sites with the specific aim of enhancing both biodiversity values (especially birds) and integrating human activities. I was co-originator of the successful restoration of Tiritiri Matangi Island from a disused farm into an open sanctuary which has

developed international renown. I have also been involved in developing restoration plans for Motuora, Motutapu-Rangitoto, Pakatoa, Rotoroa and Motuihe Islands, and was the ecologist on the design team for the redevelopment of Waiatarua Reserve in Remuera, which received a range of design prizes. I have acted as a reviewer and adviser for other sanctuary developments, and am currently involved in the development of Tahi, a private coastal property as an ecotourism destination that involves a range of threatened species, including 23 bird species with some form of threat status.

8. My house is situated within this coastal property where Green Inc and Tahi Estate have planted almost 500,000 native trees and restored a number of large wetlands. The concurrent implementation of intensive pest control has resulted in the return of almost 50 bird species and the regeneration of over 8 million native seedlings.

9. 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 272 Landcare groups that undertake pest control over 285,000+ hectares and record associated numbers of indicator bird species. In addition, I directly organise and supervise predator control over 850 hectares for the local Landcare group.

10. I have received honours from the Society for Conservation Biology, the Royal Society of New Zealand and the International Ornithological Congress. The Royal Society award was the Charles Fleming medal for my contributions to the New Zealand environment. The Society for Conservation Biology recognised my contribution to the special conservation issues of New Zealand with a Distinguished Achievement Award. I was also made a life member of the New Zealand Ecological Society in 2008. I received an ONZM for services to conservation in the 2012 New Year's honours.

SCOPE OF EVIDENCE

11. I offer rationale for the proposed Tupou Special Purpose Zone (TUPZ) regarding the new industry of biodiversity production and carbon storage requires a modified approach. The current provisions of the Rural Production Zone (RPROZ) does not recognise the ecological outcomes of current and proposed activities. For this reason there is a need for a bespoke planning framework that supports the significant gains of activity in contrast to the disincentives of the current zoning.

TUPOU ZONE SUBMISSION AND RATIONALE

12. As presented in earlier submissions, the PDP as drafted creates strong disincentives for the major new activities being undertaken at Tupou. Restoring native ecosystems has the potential to produce a large Significant Natural Area (SNA) which would have unreasonably control future activities on the Tupou landholdings. In contrast, if the land remains as poor quality grazed land, none of those restrictions would apply.

13. New Zealand has a biodiversity crisis and has one of the most endangered biodiversity of any country in the world. New Zealand also has a climate change commitment that cannot be met using current approaches. Carbon storage in native forests is an under utilised option.

14. Human settlement has resulted in the loss of about 75% of native forests and 90% of wetlands. For these reasons alone, New Zealand has strict controls on felling forest and damaging wetlands. These are logical approaches except where the landowner is markedly increasing the amount of forest and the condition and number of wetlands. Why should a landowner who has increased forest cover by say 100ha only be allowed the same level of change (100m2) as a landowner who has not increased their forest at all. At Tupou we will be initially replanting over 500ha.

15. Most rules in the PDP, the RMA and similar documents seek protection of indigenous flora and fauna and the rules in the PDP focus on areas of forest as a surrogate for protecting habitats and fauna. The reality is it does not. Comparing the threat status of plants and animals (Figure 1) shows that birds have been especially reduced and threatened whereas the majority of plants are not threatened.

16. The introduction of mammals such as cats, rats, possums, mustelids, hedgehogs, pigs, deer, goats and others have predominantly eliminated native fauna. Glasby[1] records that New Zealand forests are like empty cathedrals – the architecture remains but the choir and the congregation have been decimated! Only retaining forest and implementing intensive pest control can protect both flora and fauna.

17. The state of Tupou when it was purchased by Tahi Estates demonstrates the problem. Some forest remains and some areas had been fenced to exclude livestock. Kanuka was regenerating but the area, even where stock was excluded lacked regeneration of most forest species. Surveys showed there were no fruit

[1] GP Glasby 1991. A review of the concept of sustainable management as applied to New Zealand. J Roy Soc NZ 21: 61-81

or seeds (all eaten by possums and rats) and there were virtually no birds to disperse the seeds.

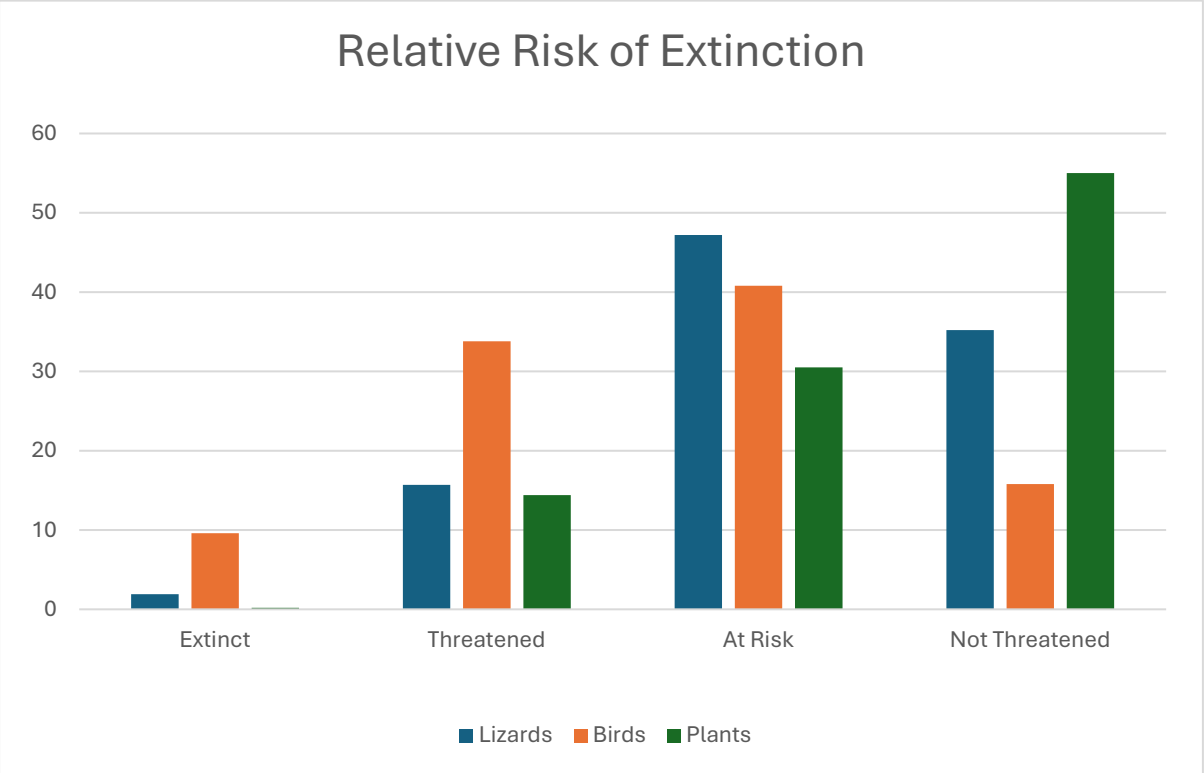

Figure 1. The relative threat status of native plants, birds and lizards

18. The value of a Special Zone (see evidence of Andrew McPhee for details) is that it allows the landowner to immediately move to plant native forest with full pest control rather than wait to determine where and how large, small roads and education/ecotourism facilities will be located. Delaying planting and pest control reduces carbon sequestration and animal population sizes. Alternatively, planting in pines can provide short term carbon storage but basically zero fauna habitat. There would be no restrictions on felling pines in contrast to natives.

19. The program at Tahi (www.tahi.com) is strongly science based. The work has shown that native trees store carbon initially at a slower rate than pines but by year 20 they begin to outperform pines (Figure 2). Using dendrochronology, Tahi has also shown that the removal of pests, especially possum, and removing trampling of the ground around trees (by stock, deer, pigs, goats) carbon storage greatly increases. We have also developed a Biodiversity Value Index (BVI) (Figure 3) that places a relative value on different species in relation to their ability to store carbon and their value to birds and invertebrates.

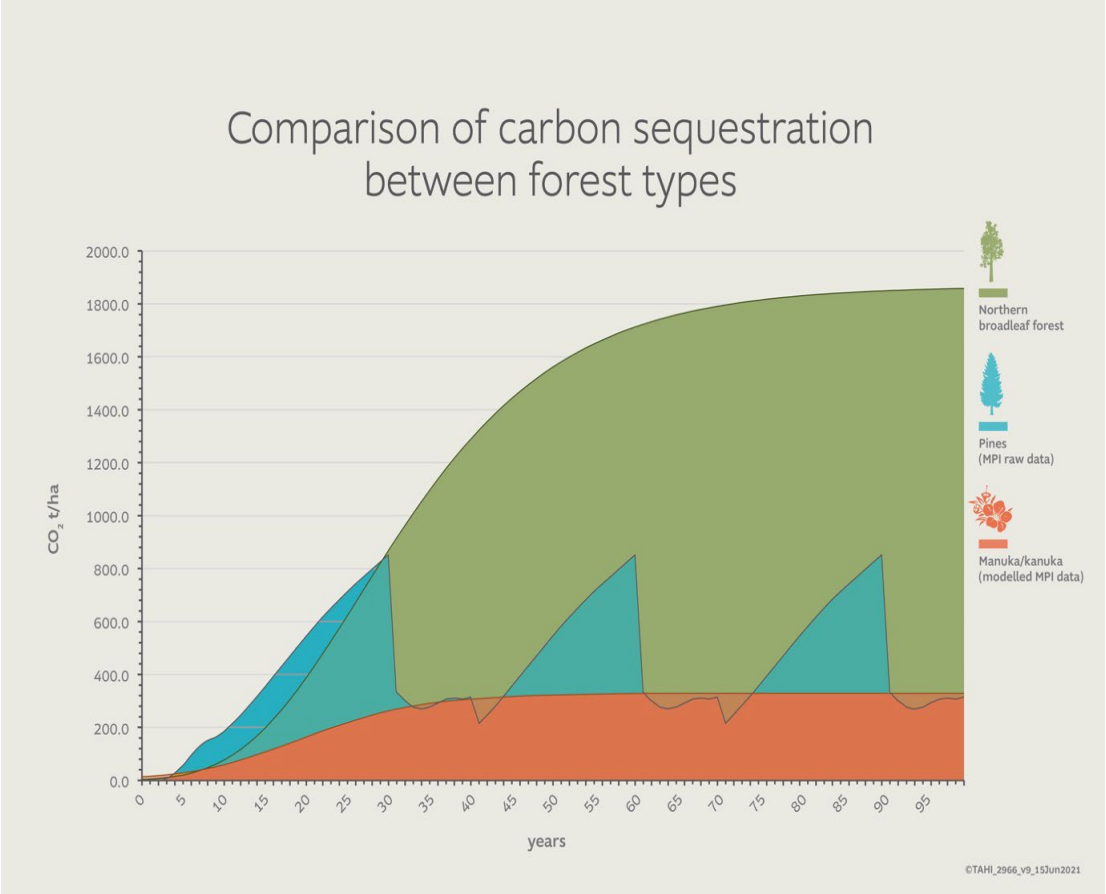

Figure 2. Comparison of carbon sequestration

The biodiversity and 'carbon' value of plant species at Tahi.

Common name	Species	Longevity	Carbon Content	Carbon Years Index	Bird Value	Invertebrate Value	Biodiversity Quality Index	BV Index
Puriri	*Vitex lucens*	Extra Long	Extremely High	80	High	High	25	100
Pohutukawa	*Metrosideros excelsa*	Extra Long	Extremely High	80	High	High	25	100
Rimu	*Dacrydium cupressinum*	Extra Long	Medium	32	High	Low	5	35
Kohekohe	*Dysoxylum spectabile*	Long	Medium	16	High	Medium	15	30
Kauri	*Agathis australis*	Extra Long	High	48	Low	Low	1	47
Five finger	*Pseudopanax arboreus*	Short	Medium	4	High	Medium	15	18
Manuka	*Leptospermum scoparium*	Short	High	6	Low	High	5	10
Mapou	*Myrsine australis*	Very Short	High	3	Medium	Low	3	6
Plantation Pine	*Pinus radiata*	Very Short	Medium	2	Low	Low	1	3

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Figure 3. Biodiversity Value Index

20. If in the future, Tupou wants to clear forest to put in a road or a building, limitations can be put in place such as no removal of trees with a BVI over 50 and a requirement for net biodiversity gain. Indeed, the planting and pest control already undertaken is a significant biodiversity gain.

21. Independent ecologists were employed to provide baseline measures of the ecological state of the property immediately after purchase. As at Tahi, ongoing measurement of birds, lizards, pests, regeneration and water quality are in progress and will continue. All results will be made available for use by others.

22. Currently Aotearoa's unique indigenous biodiversity is separated into vegetation and fauna. When considering protection of significant biodiversity the current approach does not protect functioning ecosystems as well as it could. Fauna are more at risk of extinction than flora, but currently are only considered through passive "protection" of their habitat.

Reforestation and Biodiversity Management Plan (RBMP)

23. Activities in the TUPZ are managed through a Reforestation and Biodiversity Management Plan (RBMP) (see details in evidence of Mr McPhee). This provides details of how plants are chosen and how they will be managed. Ecological integrity is key and where possible all plants introduced will be ecosourced. Ongoing management will be adaptive with changes resulting from ongoing monitoring. The Landowner and science advisers have 21 years experience based on the reaforestation and pest control at the other property, Tahi. The learnings of the past 21 years have already determined the strategy at Tupou. Policy P1 and associated rules are designed to support these actions.

24. The program at Tupou is professionally managed by scientific advisers. Initial independent surveys of Tupou allow regular measurement of changes which can allow modifications of plans. The initial plantings were of both canopy trees and shrubs. Starting 2025, the project has already changed to an initial planting of canopy trees to advance the rate of carbon storage and subsequent years will see infilling with shrubs. This approach also links to the pest control program as it is anticipated that the fauna that will use the shrubs will take a number of years to regenerate after more than a century of decimation by mammalian pests. Hence planting the shrubs later is planned to meet the demands of the growing faunal populations.

The Pest Management Plan (PMP);

25. The Pest Management Plan (PMP)(see evidence of Mr McPhee for details) has been developed through years of trials at Tahi. In addition to recording the

declining numbers of pests killed each month, pest populations are monitored through tracking tunnels, chew cards and trail cameras. A full time staff member has been appointed to manage the pest control in the areas of reaforestation while farm staff manage traps and bait stations in the farmed area. Actions across the property are coordinated to ensure maximum results.

26. This plan is covered by TUPZ-P4 and associated rules. The plan is necessary to protect and enhance fauna populations. Only by building the fauna can a fully functioning ecosystem result. They are necessary for pollination, seed dispersal and control of pest invertebrates.

BVI

27. One tool that has been developed by the science advisers at Tahi is the BVI. This is a helpful tool both for deciding species mixes for planting and can also be used to manage future clearance if required. Ensuring that only trees with a low BVI are removed ensures that species most important to fauna and species most responsible for carbon storage can be retained.

28. The BVI score consists of two aspects of carbon storage – the amount per volume of the plant (density) and the length of time the carbon will be retained (potential age). On top of this is a score of the amount of food and shelter that the plant offers for birds and invertebrates. For example, puriri scores very highly because it is a very dense wood (high carbon content), it can live for centuries, it flowers for up to 6 months of the year especially in winter when little other nectar is available, it has fruit that are eaten by birds and it is often hollow when alive and dead and hence offers nest and roost sites for many animals (kiwi, ruru, bats, weta etc). Because of this, puriri contribute disproportionally to planting lists and it is the type of tree that would not be cleared for any reason.

Ecological significance

29. The integration of the two key parts of the program – reaforestation and pest control – are necessary for an effective ecosystem restoration project. Restoring forest without pest control can only produce fauna depauperate forest which is already the norm throughout New Zealand. Moreover, without full pest control, carbon storage is compromised as the research at Tahi has clearly demonstrated. Moreover, integrating pest control over the whole property ensures a landscape approach to biodiversity management.

30. Preliminary studies on Tupou have shown that there is a good remnant population of North Island brown kiwi as well as a small population of oi /grey faced petrels. This later bird has few mainland populations remaining and will benefit from the

intensive pest control. In addition, nest boxes for both oi and kiwi have been added to the property.

31. The current Council records for the property list five suggested SNA. Three of these relate to variable oystercatcher and New Zealand dotterel on the beaches. Both species are At Risk of extinction. Initial surveys showed that they are present on the beaches and they do nest. Cat and mustelid tracks were found as well and few eggs resulted in surviving chicks. In contrast, all nests in 2024-2025 season produced surviving chicks. These results and those of future bird and lizard counts will show the effectiveness of the integrated pest control plan. They will also show the effects over multiple ecosystems from forest to wetland and beach.

SUMMARY

32. The current plans for Tupou will primarily enhance the ecosystem health and integrity through reafforestation, pest and weed control. The ecological changes are science based and planned to integrate with other current uses of the property. Two ecology trained staff have been appointed to ensure effective day to day management. Their actions are overseen by ecology trained advisers who also work at Tahi.