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Re: Evidence -Hearing 8B - Genetically Modified Organisms

Malibu Hamilton

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INTRODUCTION

1. My name is Malibu Hamilton. I made a submission to the proposed draft plan. I am the convener of Whaingaroa Environmental Defence Incorporated Society (WED). The Secretary, John Lawson lodged the submission for WED. This evidence covers both submissions.

OVERVIEW

2. In my submission, I raised several issues of concern such as case law, appropriateness of Councils to set in place GMO provisions and the advancement of Crispr, Gene Drive and Daisy Chain technology. Plus, the push by the Research industry to seek that trees such as Douglas Fir, Plantation Pine, Ryegrass, Fruit, along with a variety of cows and animals, are established in Aotearoa.
3. The submission covered the inability of the HSNO Act to protect the community from any adverse impacts that may arise once it has been released and more importantly, it is the community who picks up the cost for liability. Furthermore, the submission highlighted that case law has demonstrated that there is no impediment to District councils inserting GMO objectives, policies or rules in the district plans.
4. The submission by WED has similar concerns of risk and liability, particularly for removal and elimination of escaped GE organisms. Examples were given of some of the information from the Whangarei, Far North, Kaipara and Rodney District Councils.

CRISPR CAS9

5. In 2012, Professor Jennifer Doudna and Emmanuelle Charpentier discovered and pioneered the Crispr technique that found the bacterial protein named Cas9 could work with the immune system to guide RNA to act like molecular scissors while working with DNA and along with different RNA. Since then, Professor Jennifer

Doudna and other top scientists has been seeking a moratorium on the new gene-editing technique that has the potential to alter human DNA that can be inherited.

“You could exert control over human heredity with this technique, and that is why we are raising the issue,” said David Baltimore, a former president of the California Institute of Technology and a member of the group whose paper on the topic was published in the journal Science. 1 (March 19, 2015) New York Times)

6. Of concern is that Crispr Cas9 allows the permanent modification of genes within organisms and can eliminate a genetic trait in an entire species including humans forever. ²
7. In December 2016, several world Governments called for a global moratorium on lab research and a freeze on gene drive field trials at a United Nations biodiversity meeting because the technology can rapidly spread modified genes through populations and could be used to engineer entire species. That was narrowly rejected and those countries stated they will try again. ³
8. In 2018, the EPA held the Te Herenga National Hui in February at Te Mahurehure Marae Pt Chevalier Auckland. A key note speaker was Kevin. Esvelt on the topic of gene editing and is from the United States. He was in Aotearoa to push for gene drive for pest control as part of Predator 2050 and to look for islands for his live rat trial experiments.
9. In 2014 Kevin Esvelt became widely sought after globally as he made the statement that he could eradicate rats using gene drive techniques. He later retracted that statement due to global opposition and the realisation that it could result in serious consequences globally. His stance now is changed and he promotes his experimental “daisy chain” technique. ⁴

¹ https://www.nytimes.com/2015/03/20/science/biologists-call-for-halt-to-gene-editing-technique-in-humans.html?_r=0 (March 19, 2015) New York Times)

² <https://humansarefree.com/?s=GMO>

³ <https://en.unesco.org/news/unesco-panel-experts-calls-ban-editing-human-dna-avoid-unethical-tampering-hereditary-traits>

⁴ <https://sciblogs.co.nz/news/2017/11/17/brakes-gene-drive/>

10. As a member of Te Herenga, I personally challenged the statements he was making and raised several issues of the inherent danger of both his gene drive and daisy chain experiments. I also stated that the Minister of Conservation has said no to any DoC administered islands being used for his experiments as published in the NZ Herald.

Sage - a Green Party minister - said there would be serious risk to New Zealand's environmental reputation if there were field trials here using gene technology.

"Gene editing is an unproven technology for predator control. Gene technologies are problematic and untested and have significant risks.

"They have no social licence to operate. There is a lot at stake and there is a need for the utmost caution.

*"There would be serious questions around the risks to New Zealand's GE Free reputation from being associated with any field trials of gene technology." ⁵
(Conservation minister opposes GM-rodent plan - NZ Herald)*

See Appendix 1 below.

11. Furthermore, Netflix documentary film makers attended the Te Herenga Hui for the two days while they were in Aotearoa filming. The "Unnatural Selection" has now been released on Netflix. ⁶ It is a 4- episodes series. EO3 is the episode from the Te Herenga Hui and Maori opposition to gene drive. The documentary showed the "new gold rush" to market and benefit of the new opportunities by the use of Crispr Cas9 gene drive, gene editing technique.
12. It does show the unethical behaviour of some of the bio-hackers and proponents and demonstrated why a large body of scientists is seeking outright bans or moratoriums until bio- ethics have been firmly established.
13. Due to gene editing kitsets now becoming available on the internet,⁷ there is substantial risk from lay people, bio-hackers, garage scientists' and amateurs to create significant damage to biodiversity, ecosystems⁸ and a high probability of releasing GMO bugs and viruses. ⁹

⁵ https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11952990

⁶ <https://www.netflix.com/nz/title/80208910>

⁷ <https://www.the-odin.com/gene-engineering-kits/>

⁸ [https://www.theguardian.com/science/2016/sep/30/experts-warn-home-gene-editing-kits-
pose-risk-to-society](https://www.theguardian.com/science/2016/sep/30/experts-warn-home-gene-editing-kits-pose-risk-to-society)

⁹ <https://www.nytimes.com/2018/05/14/science/biohackers-gene-editing-virus.html>

SECTION 42A REPORT

14. In terms of the legal issues: Tomkins Wake state that the GMO submissions are in scope due to the public notification for Stage 1 referring to a full review of the ODP. I consider that the comments and position are appropriate in the circumstances. (para 25)
15. I support the comments in para 34 to 38 that District councils do have the function to control the effects of the use of GMOs. There is no longer any impediment to stop either District or Regional Council from inserting GMO objectives, policies or rules in the local plans.
16. In terms of the GMO provisions needing a section 32 evaluation, as part of the Hapu/Iwi early reference group; I tabled the Whangarei District Council GMO provisions and several technical associated documents to seek that those or similar provisions would be added to the pre- draft discussion plan to enable them to go through a robust community process and to be part of any section 32 evaluation. The staff did package that up and created a discussion document but the Councillors rejected that approach. See Appendix 2 below.
17. In terms of the precautionary approach: I support the comments in para72 to para 81 and do consider it appropriate to use section 3 *meaning of effect* as an existing tool that sits inside the RMA process along with the rational in the use of s3(f).
18. Certainly, there are several versions globally of the precautionary principle that also may need to be considered as they also relate to scientific uncertainty.

The Rio Declaration states:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Rio Declaration 1992, Principle 15).

And a stronger definition can be found in an EU communication:

The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU (EU, 2000).

19. I support the comment in para 91 that the GMO provisions will need to be consistent with Auckland particularly as Bombay and Pukekohe is a vegetable and crop growing along with farming areas and there is a potential for GMO to be used in those areas.
20. In terms of para 93, I support the comment that the potential hazards of GMO are of a similar nature, and that because of the cross boundaries it would be a simple exercise to make allowances to suit the planning context for the Waikato District Plan rather than start a fresh.
21. The report traversed through a lengthy evaluation of the GMO provisions of the Auckland Unitary Plan. In the main, I support the comments that with some changes the provisions could be fit for purpose for this PWDP. Additionally, I support the comments in para 121, 122, 123 and the changed wording, particularly as it is crucial to have strong Maori GMO provisions inserted. I support the conclusions in para 136,137, 138, 139.
22. In terms of para 144, 147, as Hapu/Iwi reference group member, I have lodged our interest early as above, and it is somewhat frustrating to see that our attempt “to get into the process early” has not resulted in the outcome needed to provide wide community involvement and worse still, disadvantaged now for not achieving the desired outcome.
23. Many of us submitted and appeared at the 2004/2005 district plan change including and GEFREE NZ, GEFREE Northland and WED. Furthermore, it is clear that large segments of the regional populations are concerned in relation to seeking to obtain further local government provisions to give more surety to protect against adverse impacts of GMOs. Far North, Whangarei, Hasting District Councils along with Auckland all have got GMO provisions and that was only achieved with community ongoing concerns. Both conventional and organic reproductive crops must also be protected and the integrity of heritage seeds is critical along with ensuring that the economic outcomes for organic growers is not compromised.
24. It does seem odd that our direct cross boundary neighbour Auckland, has strong provisions while we remain unprotected, despite a potential for Auckland to be adversely impacted by potential problems arising from the Waikato area and therefore open to compensation from Waikato District Council.
25. In terms of Implementation considerations: The comments in para 150 to 154 are interesting. Para 154 does raise a relevant issue particularly if a GMO disaster does occur. As stated above, there has been many attempts to get Waikato District council to provide appropriate protection from GMO incidents, accidents or disaster.

26. In terms of Maaori perspectives as set out in: Paragraph 59 to 61 set out comments on the Waikato-Tainui Environmental Plan (Tai Tumu Tai Pari Tai Ao) and the Maniapoto Environment Plan along with stating that Panel needs to take into account those plans.

The Quality Planning website¹⁰ states:

“the Courts have held that the obligation to 'take into account' an iwi management plan (IMP) consists of a number of elements:

- *weigh the relevant factors being considered*
- *effect a balance between these factors that is appropriate to the circumstances*
- *be able to show that you have done so.*

SUMMARY

The above evidence highlighted the risks associated with the development of Crisper Cas9 technique to alter gene traits and the subsequent risks with having open source gene editing DIY kits availability. Particularly within lay people, biohackers, amateur and garage scientists there is high probability to cause significant damage to biodiversity and ecosystems. Additionally, I highlighted that global opposition by some groups and several countries seeking bans or moratoriums.

I highlighted the danger of and potential impacts of the overtures by Kevin Esvelt in his quest to use Aotearoa as a test bed for his experimental live predator rat project along with the response by the Minister of Conservation.

A response was put forward on the section 42A report and the appropriateness of the fact that the plan was notified as referring to a full review of the ODP therefore ensuring submissions were in scope. I supported the comments that Councils do have the function to control the effects of the use of GMOs.

I made comment on the s32 evaluation and precautionary approach with providing two international examples of the use of the provision for scientific uncertainty and supported the comment for provisions to be consistent with Auckland because of cross boundary matters along with supporting that the GMO matters are similar and a simple exercise to make allowances to suit the differing planning context is preferable.

¹⁰ <https://www.qualityplanning.org.nz/node/1013>

I agreed with the wording changes to improve the Auckland Unitary plan so it is fit for purpose for the PWDP and to provide for strong Maori GMO provisions. I also commented on the wide community support for the creation of provisions from Auckland to the Far North and Hastings District Council and on that basis, it represents high regional concern in relation to GMOs.

Lastly, I commented on the paragraphs that analysed the Maori perspectives and the recommendation to take into account the Waikato-Tainui Environmental Plan (Tai Tumu Tai Pari Tai Ao) and the Maniapoto Environment Plan.

I support the paragraphs above in the section 42A report as they are enabling provisions to be set inside the PWDP.

DECISION SOUGHT

We seek the Hearing Committee to amend the Proposed Waikato District Plan to include the following:

- a. A resource management framework for the management of GMOs that is regional specific taking into account environmental, economic and social well-being considerations.
- b. Strong precautionary and prohibitive provisions, policies and rules relating to GMOs that are the same (or similar) as those in the Far North District Plan, the Whangarei District Plan and the Auckland Unitary Plan, to ensure a consistent approach across Northland, Auckland and the Waikato and to eliminate cross boundary issues.
- c. Consents which would require exemption from plan rules should automatically be publicly notifiable whether the rules are on GMOs, or any other matter.

APPENDIX 1

CONSERVATION MINISTER OPPOSES GM-RODENT PLAN

5 Dec, 2017 5:00am

6 minutes to read

[By: David Fisher](#)

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A group of conservationists and scientists with US military funding eyeing up New Zealand islands for gene testing have been given the elbow by Conservation Minister Eugenie Sage.

[A NZ Herald investigation has found the group - called Gbird - was considering how New Zealand islands would fit with US\\$6.5 million of US military funding.](#)

As it did so, Gbird formed links throughout conservation and pest control networks in its push to get support for research on new gene drive technology.

Sage - a Green Party minister - said there would be serious risk to New Zealand's environmental reputation if there were field trials here using gene technology.

"Gene editing is an unproven technology for predator control. Gene technologies are problematic and untested and have significant risks.

"They have no social licence to operate. There is a lot at stake and there is a need for the utmost caution.

"There would be serious questions around the risks to New Zealand's GE Free reputation from being associated with any field trials of gene technology."

Eugenie Sage, Conservation Minister.

Sage said she was looking for answers from the Department of Conservation and Predator Free NZ Ltd over contacts with Gbird and Darpa funding.

The details are amid thousands of documents charting the rise of Gbird as gene drive technology achieved prominence after the discovery of straight-forward ways of editing DNA.

The DNA edits could remove traits that might normally be inherited, such as eradicating one gender from a population of rodents to force that group into extinction.

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[US military money eyes up Kiwi islands for tests](#)

4 Dec, 2017 6:15pm

19 minutes to read

Our investigation found Crown research institute Landcare Research had signed up as another of its founding members, pledging to push for "NZ Incorporated" support of Gbird, which stands for Genetic Biocontrol of Invasive Rodents.

The documents - obtained through the Freedom of Information Act from a university partner in the US - include a meeting report in which New Zealand islands are considered for trials of the technology.

The report, from Gbird co-ordinator Royden Saah, came after a meeting in July with University of Auckland senior lecturer Dr James Russell, who led research on wiping out pests of islands.

Saah told Gbird there were no New Zealand islands with rodents that fitted with \$6.5m Darpa funding which had been obtained by North Carolina State University, a Gbird member.

"We are now considering small NZ islands that don't have rodents present that could be used as trial sites, with mice sourced from remote NZ islands larger than our 300ha cut-off that may be future targets themselves (but not initial trial islands)."

New Zealand's member on the GBird steering committee, Dr Dan Tompkins from Landcare Research, confirmed the group had visited New Zealand and was focused on using gene drive technology for pest eradication.

Dr Dan Tompkins Landcare Research's team leader for wildlife and ecology management, Dunedin Picture supplied

"They have been looking around for potential test sites. We're talking five to 10 years down the line if everything aligns."

Tompkins said Gbird had "been talking to James Russell and DoC about whether there are suitable sites in New Zealand".

He said nothing was going ahead without New Zealand agreeing as a country to accept the technology.

"Would these things be socially acceptable? There is a potential for them to be used in pest control.

"A lot of it is just people talking in theory. [The technology] doesn't exist yet."

The trove of documents shows Landcare Research signed up to Gbird's advocacy, promising in the Memorandum of Understanding to "coordinate a 'NZ incorporated' engagement with, and support for, Gbird".

It is the only organisation of the seven members to offer specific championing across government of Gbird and its interest in gene drive technology.

Documents show Tompkins introduced Gbird members to those across New Zealand's pest eradication management - people he had professional contact with through his role at Landcare Research and as the person drafting the Pest Free 2050 research strategy.

Gbird's public relations director Heath Packard confirmed islands such as those surrounding New Zealand were of interest in future trials.

He said no island had yet been decided in any country for trials which were "likely years away" from even asking if they should be done.

"In preparation of that GBird has been developing criteria for looking for potential field trial island sites.

"One of those criteria is that the site must be governed by countries with highly developed regulatory programs and capacity like NZ, Australia, or the USA.

"We are currently exploring potential sites with the sole purpose securing genetic samples of island mice to determine if it is possible to identify locally fixed alleles in the population that is not found in other populations off island."

He said there were no funding arrangements in place with DoC or any other party in New Zealand.

Packard also confirmed conversations had taken place with DoC, and continued in relation to "helping coordinate potential Maori participation on GBird's independent ethics committee".

"The purpose of this is to have representation of indigenous community views which we are also seeking from other countries."

The documents were provided to the *Herald* through ETC Group, a lobby group which has represented small-scale farmers and shifted to opposing genetic modification.

Co-executive director Jim Thomas said the documents revealed the scale of Darpa investment in gene drive research is US\$100m - much higher than previously known.

He said the funding from the US military saw research bodies such as GBird working hard to shape their public image to win public support for trials.

Thomas said the area was untested and because of this he was surprised to see the documents reveal ongoing contact between Gbird and New Zealand public officials.

Otago University's Professor Neil Gemmell - an expert in this field - said it was possible for outside interests to influence New Zealand's pest control strategy "if we let them".

He said an independent body to manage and oversee interactions and research on gene drives and a rigorous monitor of potential conflicts of interest was necessary.

Forest & Bird chief executive Kevin Hague said there was a lack of coordination among the various agencies and people involved in Pest Free 2050.

That lack of organisation came at a time where New Zealand was of intense interest to pest eradication researchers around the world.

Hague said it was unlikely national views on genetic modification had changed much since opposition 15 years ago. "I'm pretty sure there will be vigorous opposition to genetic technology."

The documents were obtained for ETC Group by researcher Edward Hammond and the Third World Network through the Freedom of Information Act.

Appendix 2

Thu 26/11/2015 4:43 p.m.

Dear Colleagues

As mentioned in the previous Iwi Reference Group Meeting you are welcome to attend our presentation to our Council of the Genetically Modified Organisms (GMO) discussion document, attached. The presentation will take place at our Council Chambers from 2-2:30 pm on Monday 30 November.

Kind Regards,

Damon Mathfield

Senior Policy Planner

Waikato District Council