greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

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Farming in Queen Elizabeth Park: The biodiversity context

In July 2017 a member of the public and Friend of QEP made comments about the potential adverse effects farming is having on ecological values in Queen Elizabeth Park (QEP). This paper addresses these comments.

Comment 1: Damage to Flora and fauna by the Farming operation

The use of herbicides and insecticides on pasture with a high water table will directly eliminate native plants and insects and decrease the instream macroinvertebrate community and the native fish that depend upon it. This is not allowed under the protection of flora and fauna and the protection of wildlife under the Reserves Act.

The insecticide currently used is very selective, so it only targets a portion of the invertebrates (springtails) that support instream fauna. We therefore consider that the insecticide used on pastures with a high water table in QEP will not significantly decrease the instream macroinvertebrate community and therefore not affect food supply for native fish.

The lessee takes the opportunity, when spraying weeds with glyphosate, to control springtails by spraying the insecticide Sparta. Sparta is derived from naturally occurring soil bacterium, is non-persistent in the environment, has a half-life of 9-17 days and has a very low toxicity. Previously the farm lessee, when spraying glyphosate, sprayed the insecticide Chlorpyrifos (which is approved by the EPA) to control springtails. The agronomist who prepares the spray plans recommended the change from Chlorpyrifos to Sparta, as Sparta is safer to use and safer for the environment.

We agree that the spraying of herbicides in pastures may affect native plants that are present. We disagree though that this will decrease the instream macroinvertebrate community and the native fish that depend upon it. The unsprayed riparian margins make the greatest contribution by far to the health of the instream fauna. Many other factors affect the instream macroinvertebrate community. Linking the effect of herbicides on native plants in adjoining pastures to changes in this community requires more than just comparing measurements of the instream macroinvertebrate community. See our response to Comment 2 for more detail about this point.

Comment 2: Evidence that Spraying is causing damage to Flora and fauna

Water quality in streams receiving from converted farmland has become much more polluted between December 2015 and November 2016 as measured by the Macroinvertebrate Community Index. This coincides with the period where herbicides and insecticides were sprayed on those fields.

Comment 2 is based on the data contained in the tables below. The Kapiti Biodiversity Stream Project collected this data.

MCI	Whareroa input site 2	Control site 1	Farm sites 3	Farm sites 4	Farm sites 5
2015 December	106	65	91	80	80
2016 December	109	63	71	63	63

MCI	Whareroa input site 2	Control site 1	Farm sites 3	Farm sites 4	Farm sites 5
2015 December	Mild pollution	Severely polluted	Moderately polluted	Moderately polluted	Moderately polluted
2016 December	Mild pollution	Severely polluted	Severely polluted	Severely polluted	Severely polluted

GWRC considers that this interpretation of the macroinvertebrate monitoring results is not correct. The MCI was originally a measure of organic (not agrichemical) pollution. But now, when there are fewer point source discharges, the MCI generally responds more to factors like habitat and flow. This is especially true, as is the case here, when sampling was conducted outside of riffles.

The decrease in MCI after spraying does not mean spraying affected the macroinvertebrate fauna. The fauna may have responded to some other stressor not detected by the sampling regime. Such stressors include higher flow variability (as there were several high flow events in the catchment between September and November 2016, but none leading up to the 2015 sampling), poorer habitat conditions in the preceding months, or lower night time dissolved oxygen.

It is not possible to determine the impact spraying is having by sampling these five sites before and after spraying. This is because the effects of the spraying could not be isolated from other environmental changes. Understanding the impact activities such as spraying are having on macroinvertebrate fauna would require targeted investigation with a range of different measures and appropriate levels of replication carried out over multiple catchments

Comment 3: Riparian margins

The width of riparian strips has only recently been agreed for major streams, and the width for tributaries has not yet been considered. Many fences have recently been replaced and for most, the new width agreement will not be implemented until these new fences are replaced.

Drains are another issue that has not been thought about. GW does not have a program for revegetation and when it does weeds control and revegetation and will take years to implement. Riparian strips will not be effective for years.

GWRC, since 2011-2012, has protected waterways in QEP by retiring margins of streams and stream tributaries. The fenced retired margins range from between 2 and 10 metres wide. The early retirements were alongside smaller tributaries and have narrower margins than those recently retired. These narrower margins allow for some revegetation. These margins also enable a machine to work from the outside of the fenced area and clear any blockages without entering the waterway.

Currently GWRC fences 10 metre wide areas along both banks for all retirements or fence replacements around the main streams. GWRC has also retired several areas of wet, low value pasture, fenced these from stock and is planning the areas' revegetation. GWRC will also control weeds in all these fenced areas. Since mid-2016 GWRC has completed over 2000 metres of fencing that meets or exceeds the 10 metre buffer.

GWRC's current priority is to retire streams and their tributaries from grazing. GWRC is considering how to manage the drains post the completion of this priority task.

GWRC's main objective for revegetating riparian margins is to provide effective stream shading, improve fish habitat and create ecological corridors. The intent is to eliminate the need for instream weed removal either by mechanical or chemical methods as stream shade establishes. However,

over many years various revegetation methods and species have been trialled at QEP with limited success.

The Parks department is seeking advice from other GWRC teams and is monitoring the success of the Kapiti Coast Biodiversity Project on the best methods to establish stream shade. Since 2014 the Project has been trying to determine the most effective ways of quickly establishing stream shade. The results of their trials may help GWRC to find a good solution.

GWRC has also made allowance to develop any future recreational tracks that may link the farmed areas, when planning retirement fencing. These linkages will allow people to see the farming activity without disrupting it or putting their safety at risk.

The focus over the next year is to continue fencing riparian margins in both farmed areas and those licenced to the Kapiti Pony Club, and to begin weed control in fenced retired areas. The control work needed is significant and may take 2-3 years to complete. During this time GWRC will plan the revegetation based on best practice results and advice to ensure that it is meeting the water quality, biodiversity, aquatic ecosystem health and mahinga kai requirements of the draft proposed Natural Resources Plan.

We disagree with the comment that riparian strips will not be effective for years. The currently fenced riparian strips effectively prevent stock accessing the waterways, filter sediment and contaminants from overland flow, provide habitat for indigenous species and act as ecological corridors. These strips are increasingly shading adjoining waterways.

Comment 4: Wetlands are geological and natural feature

Much of the flat land, is wetland (even though damaged) and should be retired. Wetlands are natural and geological features protected under the Act. The drains should be blocked to the level of the surrounding land and the wetlands, including that converted to farmland, restored.

Some areas on the flat high water tableland within QEP have the potential for restoration to wetland. GWRC is investigating opportunities to improve how the waterways and wetlands in QEP are managed, including considering whether to change the hydrology in these areas of the park.

Comment 5: North of Waterfall Stream

There are two wetlands identified in the SLUP north of Waterfall Stream that GW is again attempting to drain and convert to farmland. If successful, GW will have eliminated native flora and fauna and eliminated two natural and geological features.

The Parks department has resource consents (WGN160291 and WGN170026) to remove gravel from parts of the Waterfall stream in order to improve water flow and instream habitat. During the assessment of the department's application for consent the decision maker considered that the area where this work is occurring is not wetland.

Comment 6: Intention of GW to spray areas not yet sprayed

GW had listed 5 areas for spraying that should not have ever been considered because they conflict with the Reserves Act. One conflicts with the Network plan made by GW under the Reserves Act and with the GW document "Key Native Ecosystems Plan for Queen Elizabeth Park".

GWRC designed its Key Native Ecosystem (KNE) programme to protect areas that are important for native plants and animals in the Wellington region. GWRC manages a substantial area of QEP through this programme. This area is identified as the Queen Elizabeth Park KNE site. GWRC sets out its management of this KNE site in the *Key Native Ecosystems Plan for Queen Elizabeth Park 2014-2017*. GWRC identifies in this plan that spraying of weeds is likely to be required.

GWRC does not agree that spraying these areas conflicts with the Parks Network Plan. In section 4.1.1 (pest plants and pest animals) of the plan, policy 16 states:

To base pest plant and animal control programmes on the:

a. Vulnerability and ecological value of the ecosystem under threat

b. Nature and extent of the threat posed

c. Distribution and size of the pest population

d. Impact of any adverse effects of methods employed

e. The most efficient and cost effective techniques available.

GWRC considers that spraying is consistent with this policy. The Parks department seeks input from GWRC Land Management and Biosecurity officers in order to devise pest plant control programmes that meet this policy's requirements.