MEMO

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FOR YOUR INFORMATION

Advice on draft Belmont Regional Park Long-Term Restoration Strategy from Knowledge and Insights

Purpose

1. The Environment Projects Team has approached Knowledge and Insights (K&I) to provide some advice on a draft report the for the Environment Committee (Report 25.140) entitled 'Belmont Regional Park Long-Term Restoration Strategy'.

2. This memo is intended to summarise the K&I feedback on the draft Environment Committee Report relating to the restoration strategy approach set out in the Report.

Knowledge and Insights Advice

He tūtohu - Recommendations

3. The Report recommends the approval of a restoration strategy that proposes a staged approach to restoring Belmont Regional Park (BRP) over a 10-year period involving a combination of strategic patch planting in areas of higher ecological value and enabling natural regeneration restoration in other areas.

4. Our advice is that this recommendation be realigned to reflect the Recloaking Papatuanuku Project goal of 'recloaking' the BRP in indigenous vegetation by re-establishing a representative range of indigenous ecosystems on degraded grazing land through enhancing indigenous flora, fauna and natural carbon sequestration processes so that it reads:

   'That the Committee:

   ***Approves** the restoration strategy described in this report, that the future restoration at Belmont Regional Park will involve; a staged restoration over a period of 10 years with strategic planting designed to enhance and promote the establishment of representative indigenous ecosystems and associated processes on the degraded grazing land. While also allowing for the natural regeneration of indigenous vegetation to occur in proximity to existing indigenous cover.'*

Te tātaritanga - Restoration Strategy Description

5. The Restoration Strategy section of the Report describes in more detail the staged removal of grazing over a 10-year period, retiring 100ha per year, 20 percent of which would be patch planted to bush blocks, with the remaining 80 percent of the area left unplanted to regenerate naturally.

6. The use of a natural regeneration pathway allowing indigenous ecosystems to succeed though a gorse phase is a technique that has been shown to work in places in New Zealand (e.g. Hinewai). This can over time lead to dense, biodiversity rich forest ecosystems. It has not however been demonstrated if this approach is best suited to BRP in its entirety. While it is likely that some areas would benefit from this approach, there are questions surrounding which areas would best respond, and if this would be appropriate for 80% of land area as proposed.

7. Under this model, we expect to see indigenous bush patches being established which, if planted with appropriate indigenous species, will attract fruit dispersing birds to facilitate a succession of indigenous plants in the bush clumps.

8. In the 80 percent of the area outside of the bush patches that is left to naturally regenerate, we expect to see a slow progression initiated by the invasion of exotic shrubs, predominantly gorse.

9. Based on vegetation monitoring plots established in pasture left to naturally regenerate at the Parangarahu Lakes Block in East Harbour Regional Park, we expect this "gorse phase"

to persist for around 30 years before the initial invasion of exotic shrubs grow out and begin to create light-gaps for indigenous plants to begin to establish.

10. Exotic shrubs will dominate for at least 20-30 years in areas best suited to this approach, this being areas where shelter, organic soils, available moisture and readily available indigenous seed source are present. After this we expect to see indigenous species begin to overtop the exotic canopy. In areas not suited to this approach, where soils are thin, rocky, dry, and sites are exposed, we expect the exotic scrub phase to last much longer, up to 50-100 years. Only at this point will the vegetation begin to reach the target of 30 percent of the canopy over five meters tall to qualify for carbon credits.

11. The natural regeneration pathway is best suited in areas of BRP where the presence of environmental weeds is low, and there is a readily available indigenous seed source and adequate soil moisture (e.g., pasture dominated gulley heads with adjacent regenerating indigenous forest). Environmental weeds such as Darwin's barberry, blackberry, wild cherry and others will also readily establish in gorse and outcompete indigenous plant species in the establishment phase.

12. During the "gorse phase" the 80 percent of the area left to regenerate naturally will contribute little to the representation of indigenous biodiversity. Providing a source of invasive exotic plants that will be hard to control amongst the gorse (e.g., wilding pines). It will also pose a prolonged elevated fire risk to the park, which threatens to reset the indigenous planted bush blocks, placing visitors and surrounding communities at risk.

13. The bush patches are expected to achieve the target 30 percent of the canopy over five meters tall in 20-50 years, but they will need to be larger than one hectare, with a minimum width of 30 metres to qualify for carbon credits.

14. To ensure the bush patches achieve these minimum standards to qualify for carbon credits, optimise the ecological requirements for restoration (e.g. are located as stepping stones between existing seed sources), and support the management objectives for the park (e.g. soil retention), we recommend a spatially supported planning approach. This would identify opportunities to achieve park objectives and ensure ecological requirements are optimised and carbon credit requirements met.

15. This spatial planning approach would also allow us to test whether the proposed restoration approach is likely to be achievable in practise and to plan adjustments to allow for future infrastructure and recreational use. The following criteria (but not limited to) could incorporated into the spatial planning process:

    - Targeting grazed areas where natural generation may be limited (e.g., poor soils, exposed faces, large distance from natural seed source).

- Presence and location of existing environmental weeds
- Opportunities for enhancing ecological services (ie, sediment reduction, slope stability).
- Opportunities for creating ecological stepping stones and habitat provision
- Amenity or cultural requirements
- Fire risk - minimising through green fire breaks

Use of exotic trees to meet short-term carbon goals

16. Part of the Report proposes setting aside 100ha of the grazing land at BRP for the planting of exotic eucalyptus trees to meet short term carbon sequestration targets.

17. We see several issues with this approach that will detract from the long-term objectives of Recloaking Papatuanuku and the use of the park.

18. While eucalypts grow fast, sequestering carbon, they cannot be left standing if we are to transition to an indigenous vegetation community to meet the long-term biodiversity objective.

19. This will cost money to harvest the trees, which can only be offset by planting at commercial densities for harvest.

20. Harvesting will severely degrade any establishing indigenous biodiversity values. Setting indigenous recovery of the shrub layer back 5-10 years. This is important to note as eucalypt trees host little New Zealand biodiversity and the recovery of indigenous biodiversity will be reliant on any species planted under the plantation.

21. In contrast, indigenous forests, while growing slower (i.e., sequestering carbon at a slower rate), are ultimately more carbon dense and would ensure carbon storage in perpetuity, while meeting the indigenous biodiversity objective.

22. Eucalypt trees have been widely demonstrated to have an allelopathic effect on the soil, preventing the seed of indigenous species from germinating long after the trees have been removed. This will hamper the establishment of indigenous biodiversity.

23. Eucalypts are also highly inflammable, raising the fire risk to the restoration efforts, visitors and surrounding suburbs to which a conflagration initiated in the eucalypt plantation could spread through fire spotting (i.e., the process of burning material being blown away from the blaze to start new fires), facilitated by these tall trees.

24. We note that the future costs and resource requirements associated with the ongoing management and removal of exotic stands are likely to be high and should be considered as part of a cost-benefit analysis of including exotic forest in the Restoration Strategy for BRP.