

Indigenous biodiversity and ecological stability issues involved with the proposed Fiordland Link Monorail traverse of Conservation Lands.

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Background.

I am a professional plant ecologist with a lifetime of experience in southwestern New Zealand, particularly in Mt Aspiring and Fiordland National Parks. I am a past member (and Chair) of the Otago Conservation Board (1990-2000) and also the N.Z. Conservation Authority (2000-2005), and am also a continuing member of the Otago Conservation Board's Scientific Advisory Group (SAG). As a member of the NZ Conservation Authority I was involved with the 2005 revision of the General Policy for National Parks that gives both direction and guidance on implementing the National Parks Act 1980, and also the Conservation General Policy (2005) which covers conservation management strategies.

- **The proposed Fiordland Link Monorail** is a 4-stage (catamaran, all-terrain vehicle, monorail, bus) link between Queenstown and Te Anau Downs enroute to Milford Sound (with a possible alternative to Te Anau Township). The purpose of the proposal apparently to provide a more variable and interesting route than the present one; the travel time differential will be negligible. The proposed monorail would traverse 29.5 km of indigenous vegetation (forest, tussock grassland, wetland) through conservation lands (Snowdon Forest and Fiordland National Park), all designated as Te Wahipounamu South-west New Zealand World Heritage Area.

- Only the monorail passage and associated infrastructures through conservation lands are considered in this submission. This application has been appropriately classed as a "large scale" concession application in the DOC Officer's report since detailed location of the proposed corridors is apparently to be finalised pending the application being granted. The proposal involves a 29.5 km monorail being constructed along a 6m wide track and a parallel accompanying, combined 3m-wide maintenance and mountain bike track (with frequent 'link tracks') through Snowdon Forest Conservation Area and small areas of Mavora Lakes Park and Fiordland National Park. The World Heritage status of the area highlights its international significance (although it does not have requirements inconsistent with any current relevant management plans).

- Some 22.9 km of the route passes through forest and 6.7 km through open grassland, shrubland, wetland or river bed. The last 14km of the proposed mountain bike track diverges from the monorail route and traverses mostly conservation land while the latter traverses private land, but both would emerge together on the Milford Road at Te Anau Downs.

- Terminal buildings of ~1350m² are planned on conservation land (marginal strip and Fiordland National Park) at both ends of the proposed monorail, with associated parking additional and some access roads planned at Te Anau Downs. While I have not traversed the proposed route I know many sections of Snowdon Forest and associated tussock grasslands and wetlands based on several visits and have read accounts of the indigenous vegetation along the proposed route.

- The environmental impacts associated with these proposed developments on the conservation lands are, collectively, significant in my assessment.

- The application covers a 200 m wide corridor 'envelope' (or locally 300m) for the two parallel strips to be cleared of either forest or other indigenous vegetation in Snowdon Forest Conservation Area, amounting to 22 ha of indigenous beech forest as well as 4.35 ha of non-forest (tussock grasslands and wetlands) along a total 6.6 km length.

- The forest consists of both red and mixed mountain-silver beech forest and is said to involve some 10,859 trees and 14,439 saplings amounting to 10,637 m³ of wood. The Management Plan (MP) report estimates that some 76 'very large trees' would need to be felled to establish the preferred route. Old growth red beech mixed forest, which is a feature of this part of Snowdon Forest, is of very limited extent in Fiordland (referred to by Wildland Consultants (2010) as "a keystone ecosystem": another important stand occurs adjacent to the Milford road at Cascade Creek in the Eglinton Valley) and any loss could not be directly offset outside conservation land in the region.

- Wildland Consultants (2010) indicate that "the potential for additional damage from tree-felling operations has been significantly under-estimated in the MP report" and also that this report "significantly under-estimates" the potential for additional damage from tree-felling operations and also for the creation of large canopy gaps along the route. They do record, however, that the MP report notes that collateral damage to standing trees outside the minimum clearance area may occur and that these damaged trees may be removed or trimmed. I concur with these assessments and I also agree with Wildland Consultants (2010) that further widening of the monorail corridor through forest 'for commercial or safety considerations' may be a risk.

- I am concerned that disposal of the timber from the forest clearance operations has not been clearly specified but any substantial amount of heavy slash left in the area is likely to attract native pinhole borer, as with the standing dead beech trees on the Te Anau lakeshore after killing due to unnaturally high lake levels (Mark, et al. 1977).

- Several indigenous vegetation types are listed as being implicated, in addition to the beech forests: red [copper] tussock (*Chionochloa rubra* subsp. *cuprea*) grassland, short tussock grassland, mature matagouri (*Discaria toumatou*) shrubland and bog pine (*Halocarpus bidwillii*) shrubland.

- Some 4.2 km of tussock grassland along the monorail route will be affected with additional areas at the Kiwi Burn terminus but the MP doesn't define the area to be affected or describe how the 'salvage' of 'stripped tussock grassland will be stock-piled and stored for reuse in rehabilitation which is intended.

- The 'direct transfer' of tussock grassland sods around piers and beneath the monorail on open sites is also vague and unconvincing, based on my assessments of previous attempts to direct transfer tussock grassland as a rehabilitation procedure. I concur with Wildland Consultants (2010) that the direct transfer of grassland is unlikely to be successful, if only because compact placement of turves of c 1 square metre is very difficult and exotic weedy plant species are encouraged, particularly in the gaps between turves. The MP report indicates that tussock grassland habitats are 'internationally important' so it follows that the retention of their habitat integrity is equally important.

- At least two threatened plant species, the hemi-parasitic yellow mistletoe *Alepis flavida* within the beech forest (apparently "more common along the route than the MP report suggests" according to Wildland Consultants, April, 2010) and also the tufted hair grass *Deschampsia cespitosa*, which is known to be of uncommon occurrence in the region and classified nationally as "Vulnerable" (see Mark & Dickinson 2001), occurs locally in the wet grasslands.

- In addition there is concern for the likely presence of bats (C. O'Donnell, DOC, pers. comm., February 2013) and lizards (M. Tocher, Wildland Consultants, pers. comm., February, 2013), both likely to be involve threatened species, which means that comprehensive surveys of both of these groups in the affected areas, at an appropriate time, would be necessary before any work commences.

- The Management Plan report indicates that the proposed monorail route "crosses Land Environment L1.1c (Southland lowlands with a cool climate, and very gently undulating floodplains on well-drained soils; classed as 'Critically Threatened', with <20% indigenous cover remaining and <10% of indigenous cover protected.)

- According to Wildland Consultants (2010) "the MP does not identify that the monorail route also crosses the 'Underprotected' Land Environment Q4.1c, which has <20% of its indigenous cover protected." They also confirm the MP report that red (copper) tussock grassland in the Kiwi Burn and Mararoa River is distinctive on the grounds of now being rare in the region". They also recognise "historically rare ecosystems" in the area, being braided rivers, strongly leached terraces and plains, lake margins, tarns, and seepages and flushes." In addition, they regard the vegetation as "having very high value for ecological context", being "mostly intact, and supporting important habitats of indigenous fauna." In describing 'Significant habitats along the 29.5 km route' they endorse the six important habitat types identified by Boffa Miskell (2006) and add a further three: low-elevation wetlands, old growth matagouri shrubland and bog pine shrubland.

- 'Regenerating forest' as well as 'forest edges' would be seriously damaged as well as mature forest and I am concerned that, in the Landscape section (8.4) it is stated that the proposed route 'Intermittently emerges from the main body of forest' [and] 'It is largely within the bush'. It is also stated under "Landscape" (s. 8.4) that 'The route is located near the edge of the forest', which is clearly the area most vulnerable to wind damage.

- The maps actually show extensive stretches of the proposed monorail very close to the forest edge, e.g., Whitestone River terrace and "Ascention Creek" The clearance of strips close to the forest margin would seriously increase the risk of blow-down to which beech forest is known to be relatively vulnerable (generally explained by its shallow root plates).

- Even the clearance of strips within a beech forest is also likely to increase its vulnerability to blow-down, for which there is obvious evidence in most stands of beech forest country-wide, including Snowdon Forest.

- Narrow clearance strips would be preferable in this context but the profile sketches (Figs. 5.1 & 5.2 ; pp 51-2, App. A (1), Pt 3: Concession application overview), combined with the stated average speed of the proposed monorail (70 kph) would likely create little more than a blur of forest trees for the passengers and could also be quite unsettling for many.

- The proposal has certainly made provision for dealing with blow-down trees and slash with "daily inspections", perhaps using special jiggers or special attachments, or electronic monitoring being suggested as options to be considered. The statement that 'the possibility of a train being trapped between tree falls is unlikely' is rejected, since it has occasionally occurred with cars on the Milford hiway.

- In terms of concealment it would obviously be preferable to have the proposed monorail well within the forest as is partly the case, but I reject the claim (s. 8.4) in the application that in open natural areas the train 'would largely merge with the tussock and shrubland either side of the corridor.' However, it is also stated that 'the train would be highly visible and would fundamentally change the character of the Kiwi Burn locality for those visiting it. In particular, it would appreciably diminish the naturalness, endemic value and overall coherence of the local landscapes.' I concur with this latter statement.

- The route of the proposed monorail is essentially a remote recreation area with a range of indigenous ecosystems and landscapes and relatively little visited at present, a feature which would be entirely lost if the proposal proceeded.

- Considering an offset proposed by the applicant is a 200ha addition to DOC's "Operation Ark" in the Eglinton Valley (presumably in perpetuity since any lesser period would be inappropriate: this offer should be clarified as to its duration), together with a public hut in the Kiwi Burn, plus toilets for mountain bikers along the proposed route, and 'any other public recreational facilities' have also been offered.

- Such an offer would not compensate for the intrusion and impairment of a keystone ecosystem, increased threat to several already threatened indigenous biota, major disturbance to important ecosystem processes, and the loss of an

important remote recreational area, all in an area already recognised as an internationally ecologically significant (World Heritage) area.

References:

Boffa Miskell. 2006. The Fiordland link experience. Terrestrial ecology report. Report prepared for Riverstone Holdings Ltd. 35 pp plus appendices.

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Wildland Consultants. 2010. Audit of terrestrial ecological assessment for the Fiordland link Experience proposed Monorail development. Contract Report No 2401. Prepared for the Department of Conservation, Invercargill. 43pp.