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Restricting Vehicle Use at Tawhirihoe Scientific Reserve



TANGIMOANA
Taken 17/12/09

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1.0 Executive Summary

This report outlines the unique nature of Tawhiriho Scientific Reserve and the importance of protecting this dune system from the destruction caused by vehicles. A number of options to reduce and or eradicate vehicles from the reserve are outlined and discussed and recommendations are made on the most viable.

Four options were discussed; closing the beach to vehicles is likely to be effective but would be difficult to implement because of a probable lack of public support. Increasing signage and reducing vegetation in Tawhiriho Recreational Reserve are both options the Department of Conservation could implement easily. Increasing signage may have limited effectiveness however as many of those who regularly drive in the Scientific Reserve do so knowing it is prohibited. Closing Tangimoana Beach Road in combination with reducing vegetation in the Recreational Reserve is likely to reduce vehicle numbers in the Scientific Reserve. Tangimoana Beach Road is owned by the Manawatu District Council however and this would therefore require their cooperation.

It is recommended that the Recreational Reserve be made more attractive to drivers and that the closing the Tangimoana Beach Road be explored with the District Council. It is also recommended that signage be increased to clearly show which areas make up the Scientific Reserve and which the Recreational Reserve.

2.0 Introduction

Tawhirihoe Recreational and Scientific Reserves are located north and south of Tangimoana Beach Road at Tangimoana beach, as can be seen in Figure one. Control of this area was passed from the Manawatu District Council to the Department of Conservation in January 2001 (Blackwell, 2003). Tawhirihoe was designated a Scientific Reserve because of the unique values of this dune system. Poole, 2003

writes that the 'Manawatu Coastal Environment is dominated by the largest parabolic and transgressive dunefield in New Zealand' (p.13). Vehicles are prohibited from the Scientific Reserve because of the destructive impact they have on the dune system (Stephenson, 1999). Currently, however, many people continue to drive on the dunes this report will look at methods for reducing and/or eradicating this trend.



Figure one: Tangimoana Beach Department of Conservation (2009).

Dunes are formed by wind transported sand that is deposited and held by dune vegetation (Davidson-Arnott, 2010). At Tawhirihoe Scientific reserve this sand binding vegetation is predominantly the native spinifex and pingao and the exotic marram (Blackwell, 2003). Parabolic dunes are U-shaped dunes that are formed from blowouts which migrate downwind, forming trailing arms (Muckersie, 1989). Ephemeral wetlands are temporary wetlands that form in the deflation hollows (within the 'U' on the seaward side) of these dunes. Ephemeral wetlands are home to many rare native plants including *Eleocharis neozelandica* (Singers, 1997). The 'moving parabolic dunes on the Manawatu coast are arguably the most dynamic and mobile dunes of any in the world' (Singer, 1997, p.10).

The Tangimoana dune system is therefore unique and should be protected for its intrinsic value and the services it provides. Arnott, 2010 identifies a number of benefits that arise from the presence of dunes at the coast. These benefits include protecting the area behind the foredune from storm surge and high wave action, preventing saltwater intrusion into coastal aquifers, the provision of a unique ecological habitat and the intrinsic value that is derived from natural beauty.

The aim of this report is to provide solutions reduce the number of vehicles accessing Tawhiriho Scientific Reserve.

3.0 Options

- 3.1 Close the beach to vehicles.
- 3.2 Close Tangimoana Beach Road.
- 3.3 Additional Signage.
- 3.4 Alterations to Tawhirihoe Recreational Reserve.

4.0 Discussion

4.1 Close the beach to vehicles

Currently vehicles are permitted on the beach at Tangimoana, as they are in most of New Zealand. If the beach was closed to vehicles restricting vehicles from the sand dunes would become easier because the access points could be blocked. The Manawatu District Council is responsible for access to the beach and therefore it is the District Council that would make the decision on whether to close the beach, this is likely to be an unpopular option with locals and therefore it is improbable that the District Council would favour this approach.

Closing the beach to vehicles would not be a unique course of action however. In 2010 the Waimakariri District Council passed a bylaw prohibiting vehicles on the beach between Woodend and Waikuku. The council states three reasons for this decision, firstly to improve public safety, secondly to protect the coastal dunes and estuary and lastly to protect the local indigenous flora and fauna (Waimakariri District Council, 2009). This option is also provided for in the New Zealand Coastal Policy Statement 2010 which states that use of vehicles on beaches should be controlled where among others there is a risk of damage to dune systems, harm to ecological systems, danger to other beach users or disturbance of peaceful enjoyment of the beach environment.

4.2 Close Tangimoana Beach Road

Tangimoana Beach Road is one of the main access points for vehicles entering the dunes. This stretch has been repeatedly fenced and then vandalized using valuable Department of Conservation resources. Tangimoana Beach Road divides the Tawhirihoe Scientific Reserve from the Tawhirihoe Recreational Reserve, however the road itself is owned by the Manawatu District Council. This means it would have to be the District Councils decision to close the road. Currently this road is buried in sand from the neighbouring sand dunes, and is therefore only

accessible by 4WD. This is a recurring problem dating back to 1947 when the secretary of the Tangimoana Domain Board wrote to the County Clerk explaining that visitors could not use the road to access the beach (Scott, 2005).

In 2006 a report exploring options to ensure access to the beach is maintained was written by Brent Holmes. In his report Holmes writes that the District Council is regularly clearing sand from the road at a cost of \$5,000 a month. Holmes recommends that the District Council construct a new road and estimates that this would cost \$56,250 excluding GST. This road was never built and there is no guarantee if it was that the same problem would not arise, given the mobile nature of this dune system. Closing the road would therefore save the District Council a substantial amount of money and solve a recurring problem. There is an additional access road for the beach which is tidal. This means that at certain times the beach would not be accessible by vehicle, this would relieve the pressure on the environment vehicles create without completing restricting access.

4.3 Additional Signage

Vehicle users driving on the dunes at Tawhirihoe Scientific Reserve often claim they did not know this was prohibited. There are a number of signs distributed along the beach and a large sign is situated at the fork of the two access roads, with a map outlining where vehicles can and can't be driven. It is conceivable however that these signs could be missed. It would not be possible to place signs along the whole of the front of the Reserve due to the Reserves size. The sign mapping out the area of the reserve is placed at a distance from the beach making it hard to match the areas marked once on the beach. To ensure that every driver is informed of the restrictions on the dunes large signs could be placed at the end of both access roads. In particular a sign placed on Tangimoana Beach Road would be able to show clearly which area of the dunes makes up the Recreational Reserve and which makes up the Scientific Reserve as these are situated either side of the road. This ensures those caught driving in the dunes cannot

use ignorance as an excuse, to access the dunes that driver would have had to pass a sign clearly informing them of the restrictions.

4.4 Alterations to Tawhirihoe Recreational Reserve

Tawhirihoe Recreational Reserve is located north of Tangimoana Beach Road in an area of the dunes which is less valuable. This is to provide those who wish to drive on the dunes a place to do so (Blackwell, 2003). This area is not often used as intended because it is densely vegetated with exotic weeds and is therefore not as attractive to drive on as the Scientific Reserve. It is possible that if the Recreational Reserve was made more attractive for driving fewer drivers would use the Scientific Reserve for this purpose. This could be done by removing some of the vegetation on these dunes, this however risks increasing erosion and blowouts (Muckersie, 1989). If vegetation was removed selectively to limit erosion the negative impacts from increasing erosion in the Recreational Reserve would be out-weighed by the benefits to the Scientific Reserve. This option would be complimented by option 4.2 as eroding dunes in the Recreational Reserve is likely to increase the amount of sand accumulating on Tangimoana Beach Road.

5.0 Conclusion

Tawhirihoe Scientific Reserve is an important dune system that is unique in New Zealand. World-wide coastlines are being degraded through human development; therefore it is important to preserve the natural coastal systems we have left (Poole, 2003). Four options were identified to reduce vehicle numbers in Tawhirihoe Scientific Reserve. The first option closing the beach to vehicles completely is likely to be the most effective. This option is also the least viable however as it is unlikely to be popular with the public. Additional Signage would be easiest to implement although costly, this option will ensure more beach users are aware of the rules, however many of the regular offenders are aware that driving in the Scientific Reserved is prohibited and continue to do so, these people will not be affected by additional signage. Closing Tangimoana Beach Road and making the Recreational Reserve more attractive could be effective when implemented together as the additional access to the beach passes the Recreational Reserve and therefore would become more easily accessible than the Scientific Reserve.

6.0 Recommendations

- 6.1 Increase the attractiveness of the Recreational Reserve by removing selective vegetation.
- 6.2 Explore closing Tangimoana Beach Road with the council.
- 6.3 Install additional signage at access points to the beach.

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