

11. SKIFIELD REVEGETATION

Since the first days of the Remarkables Ski Area development there has been a requirement to restore and replant ground that has been disturbed to create roading, put in lift towers, lay cables and pipe lines and more recently, to create or improve the terrane for skiing and for safety. Where it was necessary to remove vegetation for development purposes then it was expected that where possible any open ground would be revegetated by replanting tussocks and other plants previously removed and saved or by growing on tussocks from seed to hand plant areas such as around lift towers and buildings, banks above ski trails, car parks and roads and where possible to plant on to the ski trails and particularly trail edges.

Over the years various methods of restoration have been used with varying success. One of the more successful restoration projects was early on where a spur was removed to form the first car park. A skilful machine operator removed tussocks from the area to be cut and replaced them on the finished slopes behind. The large area re-tussocked was only visible from the undisturbed tussockland if you were aware of the change. This method has been used this year on the new Sugar Bowl trail with a similar result. (Refer Figure 71 below).



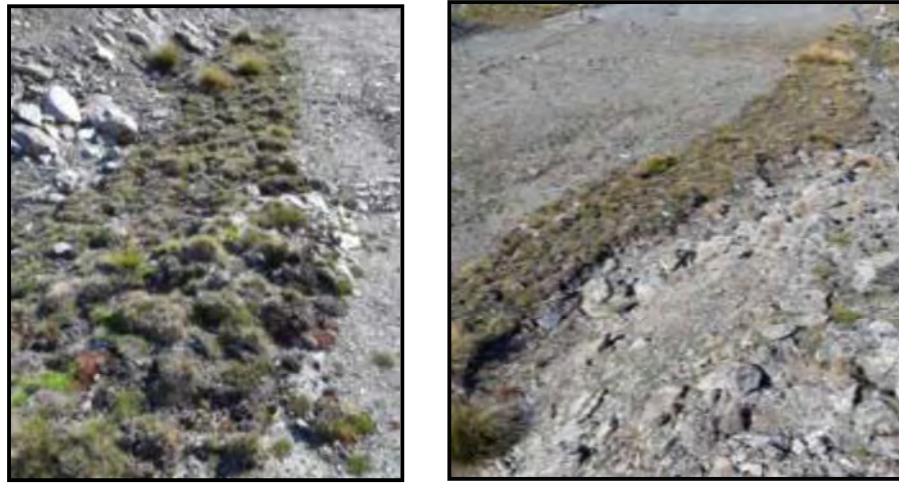
Figure 71. Sugar Bowl trail 2020 under construction. The area enclosed by the black fence and the track above has been reshaped and revegetated by machines and is hardly distinguishable from the untouched tussock grassland.

Less successful has been some past work where tussocks have been stored in piles for weeks or months then replaced.

The present skifield team have been experimenting over the past few years with seed collection and distribution (hand seeding) of both grasses and herbs, growing slim-leaved snow tussock from seed and hand planting, replanting cushion plants and even successfully replacing part of a wetland.

It was considered that replanting cushion plants would not be successful and early attempts with machine placement were not. However an area in the upper Sugar Bowl at about 1800 m that was hand planted shows that cushion plants can be replanted successfully with care. Species present here include *Dracophyllum muscoides*, *Epilobium tasmanicum*, *Raoulia hectorii*, *Raoulia grandiflora*,

Rytidosperma pumila, *Poa colensoi*, *Colobanthus buchananii*, *Chionochloa macra*, *Craspedia lanata* and *Agrostis muelleriana*.



Figures 72 & 73. Two successful experimental transplanted cushionfield communities at 1800 m in the upper Sugar Bowl, approximately 5 years old.



Figure 74. Aerial view of the recent work (refer Figure 71 above) with reworked area outlined in yellow and replanted area the slope below the skin trail. Note piles of saved top soil and replanted tussocks on the trail.



Figure 75. Experimental hand transplanting and hand seeding along the fence, upper Sugar Bowl. View uphill. Several hand planted plots can be seen up the fence line and at the right.



Figure 76. Further rehabilitation taking place in 2020 on the same site as Figure 75 above but the opposite view, here looking down the site. In foreground tussock clumps are being placed by digger and lower on the corner, seen as bare ground in figure 75. Later hand work is carried out to ensure plants are upright and well bedded in.



Figure 77.
Car park 4 development
2015 before modification.
Below and above the
existing road.



Figure 78.
Note the rehabilitation below
the road and beside the parked
vehicles. Also the far corner
has been cut and replanted.

11.1 Comparison of Restored slim-leaved tussock grassland with an adjacent natural slim-leaved tussock grassland.

An area restored tussock area (*Chionochloa macra*) beside the Alta road and above the lower Alta wetland was sampled to compare the species numbers and their relative coverage. The undisturbed grassland was 90% *Chionochloa macra* with litter 5%, *Poa colensoi*, *Raoulia grandiflora*, *Epilobium atriplicifolium*, *Raoulia subsericea*, *Rytidosperma pumila*, *Scleranthus uniflorus*, *Uncinia fuscovaginata* and lichens.

The adjacent replanted area had widely spaced tussock where rock and rubble was about 90% cover. Species present as well as the replaced tussock were *Epilobium tasmanicum*, *Carex wakatipu*, *Epilobium atriplicifolium*, *Raoulia subsericea*, *Rytidosperma pumila*, *Scleranthus uniflorus* and *Polytrichum* sp. This area had been reworked several times and was an example of restoration that was not ideal and where insufficient tussocks had been used but that in time would recover to become similar to the undisturbed areas as had occurred in other similar areas below. On one of these areas below the road the public had formed an unofficial access track to the car park that was causing some erosion by opening up the ground cover.



Figure 79. Shows the areas referred to above. Rastus Burn centre, old Sugar Bowl lift top right, Alta road centre bottom. The surveyed areas are to the left of the Alta road junction where spaced tussock shows to the left of the stone drain compared with the denser tussock left of the yellow line. All the area within the yellow line has been re-worked several times since at least 2011. Overall revegetation and its recovery has been good with further improvement expected. The yellow lines enclose re-worked areas with the widely spaced tussocks marking an old 4WD and walking track from time before the Alta road was made.



Figure 80.

Where special plant species have been identified such as *Anisotome lanuginosa*, staff are deployed to carefully dig the special plants up and then re-planted once the works have been completed or they are planted close by.



Figure 81. Cut squares of vegetation are carefully Removed in baskets and placed on wet ground Below (red & green baskets).



Figure 82. Same area after trench dug, pipeline laid and buried. To orient oneself note large rock upper centre left. Lower centre in Fig. 81.



Figure 83. After two months all vegetation that had been removed was relocated and placed like a patchwork quilt, over the reformed ground and packed into place.



Figure 84. The site February 2019