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## 21.22.18 Cardrona Valley PA: Schedule of Landscape Values

### General Description of the Area

The Cardrona Valley PA covers the ONL within the north-south oriented valley enclosed by the Cardrona Range/Harris Mountains to the west and the Pisa/Criffel Range to the east. The PA extends to the crest of the western Pisa Range flanks and to the landforms visually containing the valley to the west, including the eastern flanks of Mount Cardrona and a ridge of Mount Alpha. In a north-south direction the PA starts just north of Timber Creek and ends at Blackmans Creek about 3.25 kilometres upstream of Cardrona village. The majority of the Cardrona Ski Area Sub-Zone falls within the area.

### Physical Attributes and Values

Geology and Geomorphology • Topography and Landforms • Climate and Soils • Hydrology • Vegetation • Ecology • Settlement • Development and Land Use • Archaeology and Heritage • Mana whenua

### Landforms and land types:

1. A deeply cut fault valley with a flat alluvial floor of up to 700 m in width below Cardrona Village, narrowing above this point.
2. The Pisa/Criffel Range: the westernmost and highest element of the characteristic 'basin and range' fault block landscape that stretches across Central Otago. The parallel schist ranges of this sequence are characterised by broad planar crests and frequent tors. The western flanks of the range are relatively even in gradient and form a linear eastern 'wall' to the valley, with few significant ridges or gullies apart from Tuohys Gully.
3. Cardrona low hills: low hills and terraces of strongly weathered sandstone-dominant gravels between the valley floor and the main Cardrona Range/Harris Mountains. An angular ridge and gully landform, with alluvial flats and small terraces.
4. The Cardrona Range/Harris Mountains: dissected mountain slopes and hummocky slump topography with scattered schist outcrops and schist tors at higher elevations on Mount Cardrona.
5. Contains the Geopreservation Sites: Branch Creek Road faulted aggradation on an alluvial surface; and the NW Cardrona Fault at Blackmans Creek. These are regionally significant and not considered vulnerable to most human activities.

### Hydrological features:

6. The Ōrau (Cardrona River) is the most important water course within the PA, flowing the length of the valley. It is a usually shallow water course with gravel substrate, low banks, and substantial seasonal and weather-related flow variations. There is also significant surface water–shallow groundwater interactions with the river having adjacent influent and effluent reaches that may vary temporally. Significant floods occasionally spread across the valley floor (for example 1878 and 1999).
7. Other larger water courses are Tuohys Creek, Branch Burn (McPhees Creek) and Spotts Creek.

8. The water courses within the valley are a fishery resource and spawning habitat. They provide habitat for longfin eels, kōaro, upland bullies and Clutha flathead galaxias (nationally critical) and brown and rainbow trout.

### **Ecological features and vegetation types:**

9. Particularly noteworthy vegetation types include:
  - a. Kānuka shrubland / forest succession on mountain slopes towards the Upper Clutha mouth of the valley.
  - b. Grey shrubland communities on lower elevation south and east facing slopes and within prominent gullies in the Spotts Creek, Branch Creek and Boundary Creek catchments and bordering the main stem of the Cardrona River upstream of Cardrona township. Some of these shrublands are SNAs. The shrublands support tree daisy communities, including the At-Risk Declining *Olearia lineata*. Patches of bracken are common in and around areas of shrubland.
  - c. *Dracophyllum* shrubland on shady wetter faces and within gullies.
  - d. Dryland vegetation character, including tussock grasslands on mid and lower slopes.
  - e. Distinct gradient of indigenous vegetation types on Mount Cardrona from mixed grey shrubland-exotic grassland near the valley floor to mid slope short tussock grasslands in the montane zone to tall snow tussock grasslands and mixed snow tussockland-*Dracophyllum* spp. and herbfield communities in the sub-alpine and alpine zones. Small alpine wetlands (cushion and sedge bogs) occur in the upper basins on Mount Cardrona associated with low gradient streams and flushes.
10. Other characteristic vegetation types are:
  - a. Improved irrigated pasture on the valley floor, on flats within the Cardrona hills, and on some lower slopes of the Pisa/Criffel Range.
  - b. Short tussock over-sown with pasture on the lower and mid-slope mountain faces and Cardrona hills.
  - c. Crack willows lining the Cardrona River and other water courses.
  - d. Groups of exotic shelter trees around station homesteads, including distinctive mature Lombardy poplars.
  - e. Plantation of Douglas fir near Spotts Creek.
11. Valued habitat for skinks and geckos, a wide range of invertebrate species (including the threatened flightless shield bug and Otago endemic grasshopper), New Zealand falcon, Australasian harrier, New Zealand pipit, South Island oystercatchers, banded dotterels, black fronted tern, paradise shelduck and grey duck.

### **Land use patterns and features:**

12. On the less developed slopes, including some areas which have been retired for conservation and recreation purposes, a natural dryland vegetation cover including tussock grasslands prevails. In the valley floors and on the more accessible slopes and terraces the predominant land use is pastoral farming, although some areas have been retired for conservation and recreation. The Cardrona Ski Area Sub Zone partly within the PA, and the Southern Hemisphere Proving Ground and Nordic Skiing Snow Farm are just outside of and accessed through the PA on the Pisa Range. Access roads to these activities are visually prominent within the landscape. Apart from Cardrona Valley Road and some roads around Cardrona Village which are sealed, all public and private access roads are unsealed.

13. Cardrona Village (Settlement Zone) is the main settlement within the valley, but significant urban development is anticipated and is starting to occur within the Mount Cardrona Special Zone. Some rural living development is present north and south of the village, and there is also a loose cluster of farming, commercial and other development including the Cardrona Distillery near the Cardrona Alpine Resort Road intersection. Widely spaced station homestead clusters set within areas of mature exotic trees are a feature of the flats and lower valleys, and there are a few consented but undeveloped building platforms in the Timber Creek gully on Hillend Station.
14. Ski area activities occur on the upper eastern slopes of Mount Cardrona and comprise significant built development (including ski fields, chairlifts, terminal and base station buildings and transport infrastructure), within the landscape but are not visually prominent from the valley floor.
15. With the exception of Cardrona Village and development near the Cardrona Alpine Resort Road intersection, buildings are generally well integrated within the landscape by existing landform features and/or established trees, so they are not highly visible from Cardrona Valley Road.
16. Aurora Energy electricity distribution lines servicing the village, ski areas and proving ground follow the valley floor, and there are substation sites adjacent to Cardrona Valley Road.
17. Gravel extraction has been undertaken at times in the Cardrona River and side streams.

### **Archaeological and heritage features and their locations:**

18. Rich history of 19<sup>th</sup> century gold mining and early European pastoral farming throughout the valley, with numerous archaeological and heritage features. These include the Roaring Meg and Little Criffel pack tracks, river flat ground sluicing and tailings, hydraulic sluiced cliffs, the Criffel Face and Tuohys Gully sluicings and reservoirs, water races, tunnels, dredge remains, domestic sites and homestead sites associated with historic farming. There are large, sluiced cliffs and water races extending along almost the entire length of the valley and at Mount Cardrona.
19. Historic route between Wānaka and Queenstown, and between Cromwell and Cardrona via Tuohys Gully.
20. Scheduled heritage sites include Old Butchery, Tuohy's Gully (QLDC ref. 500); Studholme Nursery Plaque, Cardrona Road (QLDC ref. 510), Hotel façade, hall and church, Cardrona (QLDC ref. 510).

### **Mana whenua features and their locations:**

21. The entire area is ancestral land to Kāi Tahu whānui and, as such, all landscape is significant, given that whakapapa, whenua and wai are all intertwined in te ao Māori.
22. The Ōrau (Cardrona River) has been identified as a wāhi tūpuna by Kāi Tahu.

### **Associative Attributes and Values**

Mana whenua creation and origin traditions • Mana whenua associations and experience • Mana whenua metaphysical aspects such as mauri and wairua • Historic values • Shared and recognised values • Recreation and scenic values

### **Mana whenua associations and experience:**

23. Kāi Tahu whakapapa connections to whenua and wai generate a kaitiaki duty to uphold the mauri of all important landscape areas.
24. The Ōrau is a traditional ara tawhito (travel route) linking Whakatipu-Waimāori (Lake Whakatipu) with Lakes Wānaka and Hāwea. It also provided access to the natural bridge on the Kawarau River.

25. Ōrau is also recorded as a kāika mahika kai where tuna (eels), pora ('Māori turnip'), āruhe (fernroot) and weka were gathered.
26. The mana whenua values associated with the ONL include, but may not be limited to, mahika kai, ara tawhito, nohoaka.

### **Historic attributes and values:**

27. The very strong associations of the valley with 19<sup>th</sup> century gold mining, with physical evidence of mining activities and associated settlement, preservation and interpretation of mining areas on both conservation and private, and names of claims being retained in place names.
28. Strong associations with high country dryland vegetation cover including tussock grasslands, pastoral farming, including historic buildings, homestead clusters/former sites, and features, places and station names.
29. Historic route between the Upper Clutha and Whakatipu Basins.

### **Shared and recognised attributes and values:**

30. A nationally and regionally renowned scenic and historic route between Queenstown and Wānaka, and a gateway for both the Upper Clutha Basin and the Whakatipu Basin.
31. An internationally recognised tourist, high performance alpine sport, and recreational destination.
32. High country dryland vegetation character, including tussock grasslands and divaricating shrublands, punctuated with exposed rock outcrops at higher altitudes.

### **Recreation attributes and values:**

33. Very popular destination for trout fishing, mountain biking, hiking, horse trekking, snowsports, as well as visits to historic sites and commercial recreation activities such as the distillery, mountain carting and shuttle services in the summer season for mountain biking/hiking and horse trekking providers.
34. The area features the highly popular Cardrona Ski Area Sub Zone, providing a year-round destination offering snow-based recreation such as skiing/snowboarding in winter and hiking/mountain biking opportunities in the summer. Year-round activities are also facilitated here, such as sightseeing, star gazing, mountain carting. The access road to Snow Farm (a ski touring area) is also within the PA area.
35. Popular walking trails including: Tuohys Track/Roaring Meg Pack Track, Spotts Creek Track, Little Criffel Track.
36. The Cardrona Valley Road is a popular route for both locals and visitors due to the distinct and engaging valley views.
37. Other popular tracks include diverse mountain biking trails and horse trekking trails within the valley.
38. The area is also a location for high performance sport e.g., skiing, snowboarding and LANDSAR training.

### **Perceptual (Sensory) Attributes and Values**

Legibility and Expressiveness • Views to the area • Views from the area • Naturalness • Memorability • Transient values • Remoteness / Wildness • Aesthetic qualities and values

### **Legibility and expressiveness attributes and values:**

39. Easily legible form of the valley, with long views available up and down, and the close, steep mountain walls or hills providing a strong sense of enclosure. Landforms are highly expressive of their formative

processes and the open character of the mountains due to the low, dryland vegetation cover, including tussock grasslands means that the hummocky or gullied surface of the land is clearly displayed.

### **Particularly important views to and from the area:**

40. Dramatic and highly attractive views from Cardrona Valley Road to the contained valley floor and enclosing mountains. The scale of the landforms and their proximity dwarf the viewer, giving a sense of sublime grandeur. There is a progressive opening up of views as people move down the valley, particularly north of the Cardrona Village node and Cardrona Distillery complex. From this point the consistent 'wall' of the Pisa/Criffel range, with its open, natural and relatively wild character, dominates views across the sparsely inhabited 'working farm' rural foreground. To the west, views are often enclosed by the pastoral land of the Cardrona low hills but in places (e.g. north of Cardrona Village, Branch Creek, Spotts Creek and Timber Creek) vistas open out to the rugged and often snow-covered Mount Cardrona and Harris Mountains in the distance. Activities within the Cardrona Ski Area Sub Zone are reasonably difficult to see from the road and the Mount Cardrona Station Special Zone is largely screened by rising topography.
41. Spectacular panoramic views from ski field roads, ski areas and Little Criffel Track, taking in the greener and more vegetated valley, and the contrasting open expanses of tawny or craggy surrounding mountains, with glimpses to the Upper Clutha Basin in the north.

### **Naturalness attributes and values:**

42. The landscape is perceived as having a high level of naturalness, particularly to the south of the Cardrona settlement. Little apparent human modification is present on the mountain slopes and Cardrona hills other than roads, tracks, pasture improvements and fencing. Natural spread of kānuka, grey shrubland and bracken on the mountain slopes and gullies are evidence of a progression towards regenerating native forest, and remaining tussocklands on the mountains enhance the naturalness of the landscape.
43. The presence of development on the valley floor, in Cardrona Village, in Mount Cardrona Special Zone, and in the Cardrona Ski Area Sub-Zone (including access roads) modifies perceptions of naturalness, but pastoral land on the valley floor is still perceived as a pleasant rural foreground to the mountains and hills and retains a significant level of naturalness. The ski areas, village and special zones are nodes of human occupation and development within a landscape dominated by natural patterns and farming land use.

### **Memorability attributes and values:**

44. Highly memorable journey through a large, enclosed valley with views of dramatic mountain ranges, largely clothed in dryland vegetation / tussock grasslands enhanced by their changing vegetation colours and snow cover across the seasons.
45. Highly memorable views from elevated roads, tracks and ski areas within the PA that take in the entire valley form and its relationship to the Upper Clutha Basin.

### **Transient attributes and values:**

46. Seasonal snowfall and ice, large variations in the Cardrona River flow, changing green, brown and tawny gold of pastoral areas, the characteristic autumn colours of poplars and willows, changes in the play of light and shadow on the hummocky mountain slopes, and the presence of birdlife and stock.

### **Remoteness and wildness attributes and values:**

47. A sense of remoteness and wildness can be experienced on walking and mountain biking tracks within the landscape, including Tuohys Track and Spotts Creek Track and in locations away from Cardrona Valley Road on the high-country stations and the ski areas when viewing the surrounding landscape.

## Aesthetic attributes and values:

48. The experience of the values identified above by a significant number of residents and visitors travelling on Cardrona Valley Road or visiting Cardrona village and the ski areas (including access roads).
49. More specifically:
  - a. The muscular unmodified slopes of the Pisa/Criffel range with their relatively even gradient and crest.
  - b. The craggy Cardrona Range/Harris Mountains largely clothed in natural dryland vegetation including tussock grasslands.
  - c. The contrast between the mountains and the pastoral alluvial flats and terraces in the valley floor and on the low hills.
  - d. The strong sense of enclosure within a long, straight and legible valley.
  - e. At a finer scale, the following aspects contribute to the aesthetic appeal:
    - i. the open tussock grasslands and indigenous shrublands on the mountain slopes;
    - ii. the presence of snow and ice during winter months;
    - iii. the contrasting and changing colours of sky, mountain slopes, snow cover and rocky outcrops;
    - iv. the play of light and shadow on the mountain slopes;
    - v. Historic buildings, buildings that display a historic character and scattered station homestead clusters in the valley and Cardona hills;
    - vi. the rural character and mature exotic trees within the valley;
    - vii. the autumn colours of willows and poplars on the valley floor, contributing to the scenic appeal despite not being native.

## Summary of Landscape Values

Physical • Associative • Perceptual (Sensory)

Rating scale: seven-point scale ranging from **Very Low** to **Very High**.

very low	low	low-mod	moderate	mod-high	high	very high
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These various physical, associative and perceptual attributes and values described above for the Cardrona Valley PA come together and can be summarised as follows:

50. **High physical values** due to the high value landforms, faulted valley, Cardrona River, the range of vegetation features and habitats, and the mana whenua features associated with the area.
51. **Very high associative values** relating to the mana whenua associations with the area, the historic attributes of the valley, the very strong shared and recognised values, and the popularity of the area as a tourism and recreational destination.

52. **High perceptual values** relating to:

- a. The legibility and expressiveness values deriving from the visibility and openness of the landscape, enabling a clear understanding of the landscape's formative processes.
- b. The aesthetic and memorability values of the area as a consequence of its dramatic and highly appealing visual character and the large number of people visiting or moving through the valley.
- c. An impression of high naturalness arising from the dominance of the more natural landscape over built development and landform modification.

## Landscape Capacity

The landscape capacity of the Cardrona Valley PA for a range of activities is set out below.

- i. **Commercial recreational activities – some** landscape capacity for activities that integrate with and complement/enhance existing recreation features, particularly the Cardrona Ski Area Sub-Zone. Activities should be: located to optimise the screening and/or camouflaging benefit of existing natural landscape elements; designed to be of a sympathetic scale, appearance, and character; integrate appreciable landscape restoration and enhancement and enhance public access.
- ii. **Visitor accommodation and tourism related activities – some** landscape capacity for visitor accommodation activities that are: co-located with existing facilities; designed to be of sympathetic scale, appearance and character; integrate appreciable landscape restoration and enhancement and enhance public access. **Extremely limited** landscape capacity for tourism-related activities outside of the Settlement Zone, Mount Cardrona Station Special Zone and SASZ except where co-located with the Settlement Zone on the valley floor and is: of a modest or sympathetic scale; has a low-key, visually recessive 'rural' character; integrates appreciable landscape restoration and enhancement; enhances public access; integrates a strong defensible edge to avoid the potential risk of development sprawl; and complements the existing character of Cardrona settlement.
- iii. **Urban expansions – extremely limited or no** landscape capacity.
- iv. **Intensive agriculture – some** landscape capacity on the valley floor that maintains naturalness and scenic views from roads.
- v. **Earthworks – limited** landscape capacity for earthworks that protect historic, naturalness and expressiveness attributes and values, and are sympathetically designed to integrate with existing natural landform patterns. **Some** capacity for tracks and trails for recreational use.
- vi. **Farm buildings – limited** landscape capacity for modestly scaled buildings that reinforce existing rural character.
- vii. **Mineral extraction – extremely limited or no** landscape capacity for gravel extraction in the Cardrona River riverbed only that protects the naturalness and aesthetic attributes and values of the ONL.
- viii. **Transport infrastructure – limited** landscape capacity for modestly scaled and low key 'rural' roading and carpark areas on the valley floor that is positioned to optimise the integrating benefits of landform and vegetation patterns. **Very limited** landscape capacity for additional roads, upgrades or expansions to existing roads, carparking areas and passing bays on the enclosing mountain slopes of the valley.
- ix. **Utilities and regionally significant infrastructure – limited** landscape capacity for infrastructure that is buried or located such that it is screened from external view. In the case of utilities such as overhead lines or cell phone towers which cannot be screened, these should be designed and located so that they are not visually prominent. In the case of the National Grid, **limited** landscape capacity in circumstances

where there is a functional or operational need for its location and structures are designed and located to limit their visual prominence, including associated earthworks.

- x. **Renewable energy generation – extremely limited or no** landscape capacity for commercial scale renewable energy generation. **Limited** landscape capacity for discreetly located and small-scale renewable energy generation.
- xi. **Forestry – extremely limited** landscape capacity for small scale production forestry on the valley floor.
- xii. **Rural living – limited** landscape capacity for rural living development co-located with existing development on the valley floor and Cardrona hills and sited so that it is set back from Cardrona Valley Road and contained by landform and/or existing vegetation – with the location, scale and design of any proposal ensuring that it is generally difficult to see from external viewpoints. **Very limited** landscape capacity for rural living development close to Cardrona Village or Mount Cardrona Special Zone without cumulative adverse effects on the rural character and naturalness of the PA.
- xiii. **Passenger lift systems – limited** landscape capacity to improve public access to focal recreational areas higher in the mountains (including between lower lying areas and the Cardrona Ski Area Sub Zone) via non-vehicular transportation modes such as gondolas, provided they are positioned in a way that is sympathetic to the landform, are located and designed to be recessive in the landscape.

## **PLANT AND ANIMAL PESTS**

- A. Plant pest species include wilding conifers, crack willow, sweet briar and lupin.
- B. Animal pest species include deer, goats, ferrets, stoats, weasels, hares, rabbits, possums, mice and rats.