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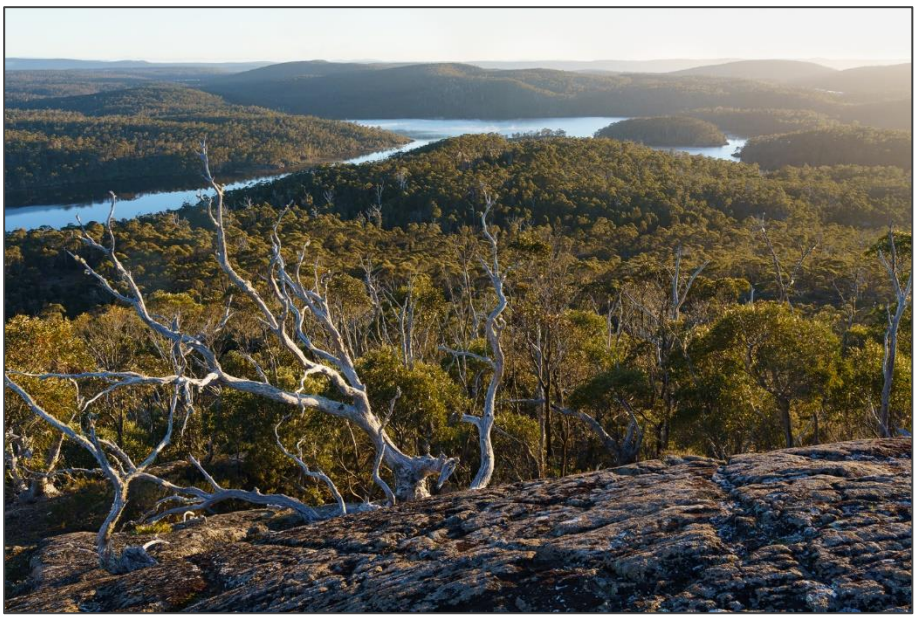
Lake Malbena wilderness assessment

**The impact of the proposed Halls Island development
on the wilderness character of Lake Malbena and surrounding areas**



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Cover photo: Lake Malbena and Halls Island from Mt Oana. Photo by Grant Dixon.

1 SUMMARY

An established wilderness-assessment methodology has been used to assess the impact on wilderness character[1] (WC) of a proposed helicopter-based tourism development at Lake Malbena in the Walls of Jerusalem National Park, within the Tasmanian Wilderness World Heritage Area (TWWHA). Lake Malbena is zoned Self-Reliant Recreation Zone in the *Tasmanian Wilderness World Heritage Area Management Plan 2016*.

The assessment shows significant loss of WC at the lake and in the surrounding country. This loss is due to the reduction in access-time remoteness associated with allowing commercial helicopter access to the lake. Values of WC would be reduced by at least 1 (on a scale of 0-20) over an area of 49 km^2, and by at least 2 over 22 km^2. The loss at the lake would be 3.9.

The methodology is not sufficiently refined to measure the impact on WC of constructing new buildings immediately adjacent to the existing, rudimentary hut at Lake Malbena. The same is true for the impacts associated with increased visitation to the lake, and increased activity associated with infrastructure maintenance. This does not imply that these factors would have no impact on WC; the opposite is likely to be true, and the methodology could be refined to measure the relevant impacts.

The fact that the development would be located outside the Wilderness Zone would not prevent it from negatively impacting WC in the area. Losses would occur both inside and outside the Wilderness Zone and the Walls of Jerusalem National Park. Indeed, the heaviest losses would occur inside the Wilderness Zone and inside the National Park. Protecting wilderness requires protecting the remoteness of remote areas, and the zoning scheme fails to do this.

A supplementary study, using a provisional extension of the methodology to assess the impact of aircraft overflights, illustrates that WC would also be significantly affected by overflights in the vicinity of the proposed helicopter flight path.

2 BACKGROUND

A private commercial developer proposes to build helicopter-accessed, luxury visitor accommodation on Lake Malbena's Halls Island in Tasmania's Walls of Jerusalem National Park, within the TWWHA.

The statutory management document for the TWWHA is the *Tasmanian Wilderness World Heritage Area Management Plan* (DPIPWE 2016), henceforth referred to as the TWWHA Management Plan.

Lake Malbena is located in the western part the Central Plateau, a region valued by bushwalkers and fly fishers for its remoteness and opportunities for solitude, as well as for its natural beauty

[1] See section 5 for a detailed explanation of the term 'wilderness character'.

and other values. As explained below, the lake lies in an area of moderately high-value wilderness and on the fringe of some of the remotest wilderness on the Central Plateau.

The development would involve the construction of several buildings in the vicinity of the existing rudimentary hut (which was built in 1956) on Halls Island. Clients would be flown by helicopter from a site near Derwent Bridge to a landing site approximately 200m east of the Lake Malbena shoreline, due east of Halls Island.

Lake Malbena itself, and hence Halls Island, is located within the Walls of Jerusalem National Park, the boundary of which intersects the south-eastern shoreline of the lake. The proposed helicopter landing site is located outside the national park in the Central Plateau Conservation Area. Both the national park and the conservation area are part of the Tasmanian Wilderness World Heritage Area (TWWHA). Lake Malbena is nearly 6 km from the nearest boundary of the TWWHA.

The helicopter flight path proposed by the proponent is shown in Maps 1 and 4. The flight path, which has been determined partly by consideration of the location of eagles' nests, would be approximately 22 km long. Approximately 15 km of the flight path would be located within the TWWHA, and 10 km would be within the Walls of Jerusalem National Park.

By the developer's (probably conservative) estimate, the ongoing running and maintenance of the development would require approximately 51 hours of helicopter flight time per year. As the duration of each flight would be approximately 12 minutes, this translates as approximately 260 flights per year.

The development would be in an area zoned in the TWWHA Management Plan as Self-Reliant Recreation Zone, just outside the adjacent Wilderness Zone (see Map 1). Note that these zones are management designations. By contrast, wilderness (as defined in the next section) identifies land based on its physical and geospatial characteristics, regardless of its management status.

This report assesses the impact of the proposed development on the WC of the region, as described below. The results are described in section 6 and illustrated in Maps 2-4.

3 DEFINITIONS

Following Hawes et al (2018), this report uses the following definitions:

Wilderness *is land characterised by a high degree of biophysical naturalness, linear remoteness from infrastructure and landscape disturbances, and time-remoteness from points of mechanised access, as well as having minimal evidence of modern technological society.*

Wildness *is the degree to which an area of land is natural, remote, and free of evidence of modern technological society, whether or not it has these qualities in sufficient measure to qualify as wilderness.*

Like other contemporary definitions of wilderness, the definition used here acknowledges that Aboriginal people have long occupied and had an influence on the creation of landscapes now measured and mapped as wilderness.

The definition of wilderness used here is broadly similar to that used in the TWWWA Management Plan, which defines a wilderness area as:

> *'an area that is of sufficient size, remoteness and naturalness to enable the long-term integrity of its natural systems, diversity and processes, the maintenance of cultural landscapes and the provision of a wilderness recreational experience'.*

4 SIGNIFICANCE OF WILDERNESS IN THE TWWHA

The TWWHA Management Plan describes wilderness as:

> '*…fundamental to the integrity of the TWWHA and many of the natural and aesthetic values that form part of its Outstanding Universal Value. The scale and remoteness of these areas is also important in the protection of the Aboriginal cultural values contained within them*.' (p. 174)

The Plan also states:

> '*The TWWHA fulfils all four criteria described for inclusion of properties on the World Heritage List as a natural property. It contains most of the temperate wilderness remaining in Australia and is one of the last remaining such areas in the world. It is this quality which underpins the success in meeting all four criteria for a natural property and is the basis for the maintenance of its integrity. This feature is characterised by large expanses of remote and difficult terrain distant from points of access*… (p. 43)

Tasmania's National Parks and Reserves Management Act (2002) contains an explicit management objective pertaining to national parks '*to preserve the natural, primitive and remote character of wilderness areas*.'

5 METHODOLOGIES

Wilderness character is a measure of factors that affect the perceived and actual wildness of an area or location (Hawes et al 2018). These factors include its degree of biophysical naturalness, the presence and proximity of human infrastructure, its remoteness in terms of non-mechanised travelling time from points of mechanised access, and evidence of modern technological society.

Two methodologies have been used in this report to assess the impact on wilderness of the Lake Malbena development. The first was the same methodology that was used to create the wilderness map on p. 176 of the TWWHA Management Plan. This methodology, which is described in Hawes et al (2015), measures a quantity which is defined as the sum of the variables Biophysical Naturalness, Remoteness from Settlement, Time Remoteness and Apparent Naturalness.

The quantity just described is called 'wilderness value' in the TWWHA Management Plan. However, reflecting the usage by the World Heritage Committee, this report will use the term *wilderness character* (WC) to refer to this quantity.

Biophysical Naturalness (BN) is a measure of the physical naturalness of a location, based on factors such as the presence of cleared land. Time Remoteness (TR) is a measure of the time required to access a location by non-mechanised travel (e.g. walking or rafting) from the nearest point of mechanised access. Apparent Naturalness (AN) is a measure of the linear distance of a location from features such as roads, dams, buildings and logging coupes. Remoteness from Settlement (RS) is a measure of remoteness from towns, hamlets and residences.

The measuring processes for RS and AN are weighted to reflect the scale of the features relative to which remoteness is being measured. For example, proximity to major features such as impoundments has a greater negative effect on AN than proximity to minor features such as walking tracks.

TR is calculated categorically, the categories relevant in the Lake Malbena area being <0.5 days, 0.5-1 day and 1-2 days. In this context, a day's travel is defined as 6 hours of travel excluding breaks. The TR at Lake Malbena itself is approximately one day. The categorical values of TR are converted to scalar quantities on a scale of 0-5.

Values for each of the four components of WC are calculated on a 500m x 500m grid across the region of interest. Each of the four components is calculated on a scale of 0-5, yielding values of wild character between 0 and 20.

The methodology just described does not take account of several factors that might reasonably be expected to affect wilderness character, such as building size, visitation levels, and aircraft overflights. Some of these factors are clearly relevant to the Lake Malbena issue, as discussed in 6.2. As noted in Hawes et al (2018), the methodology should ideally be refined to take such impacts into account.

It is beyond the scope of this study to attempt such an undertaking. However, a tentative assessment has been made of the impact of the helicopter overflights that are likely to be associated with the proposed development. The assessment used a methodology that the author developed previously to assess a helicopter-based development elsewhere in the TWWHA (Hawes 2007).

Overflights undoubtedly impact wilderness values, since they constitute visual and aural 'evidence of modern technological society'. Specifically they disrupt the peace and solitude of visitors, and affect the perceived wildness of an area even from the perspective of people who may never visit it.

The Halls Island developer claims that flights will be at least 1000m above ground level when the weather permits it. Flight altitudes will presumably be lower in adverse weather conditions, which are likely to be frequent given the altitude of the plateau (1000m+ ASL over much of the flight path).

To assess the impact of overflights, it has been assumed that the impact would be greatest directly under the flight path, and would decline exponentially to near zero at a distance 5 km on either side. The following formula was used:

$$F = 3 * \exp(-0.1 \times d^2)$$

where F is the deficit (deducted from WC) and d is the horizontal distance from the flight path. By this formula, the deficit immediately under the flight path would be 3.0, while at a distance of 2.5 km the deficit would be 1.6.

6 RESULTS AND DISCUSSION

6.1 Current WC (Map 2)

Map 2 shows the current WC of Lake Malbena and the surrounding country. The WC values shown in this map are the same as those shown in the map on p.176 of the TWWHA Management Plan, although Map 2 shows more categories of WC.

The presence of the small historic hut on Halls Island has a significant impact on AN, reducing this component to zero in the immediate vicinity of the hut and lowering its value over the surrounding area.

Despite the reduced values of AN due to the existing hut, current WC in the immediate vicinity of Lake Malbena is upwards of 14 (on a scale of 0-20), which is reasonably high. For example, it is slightly higher than the WC in the vicinity of the Waterfall Valley and Kia Ora huts on the Overland Track. Values of WC exceed 17 over an extensive band of country north, northwest and west of Lake Malbena.

6.2 Impact on WC measurable by the established methodology (Map 3)

Map 3 shows the projected WC assuming the development goes ahead, without taking into account the impact of helicopter overflights. Clearly there is a significant reduction in WC over distances up to several kilometres from the lake. To understand the factors that contribute to this result, it is useful to consider the impact of the development on the four components of WC.

Biophysical Naturalness

BN is measured by categorising grid squares according to the type of physical condition (e.g. largely undisturbed or cleared) that occupies the largest part of each square by area. As the grid resolution used in this study is fairly large (500m), the physical impact of the proposed development would not be sufficiently extensive to affect values of BN.

Remoteness from Settlement

The proposed development would not affect RS, as the proposed structures and the usage thereof would not warrant classifying the development as a settlement. It should be noted, however, that this situation would change if usage of the structures were to increase to levels

that would warrant classifying the structures as a 'Residence'. This would be the case, for example, if the structures were continuously or near-continuously occupied for at least 6 months of each year. Under that circumstance, values of RS would drop to zero on Halls Island and would be reduced over the surrounding area, resulting in additional overall reductions in WC.

Apparent Naturalness

The methodology employed in the TWWHA Management Plan does not distinguish between the impacts of small, historic, rudimentary huts like the one currently on Halls Island, and the impact of larger or more modern structures. Nor does it distinguish between the impact of isolated buildings and that of several closely clustered buildings. Consequently, the construction of the new structures on Halls Island as proposed by the developer would not measurably affect AN (at least not at a grid resolution of 500m), and hence would not affect WC, as measured with the existing methodology.

Similarly, the methodology does not take into account the impact on wilderness character of the dramatically increased level of visitation to the island that the development would entail, nor of the intermittent (at times continuous) occupation of the structures.

An additional impact associated with the development is likely to be increased human activity on Halls Island associated with maintenance of the facility. This is sometimes likely to involve noise pollution associated with activities such as hammering and the use of power tools. Again, the existing methodology does not take account of such impacts.

As a consequence of these limitations, the proposed development would not affect AN as measured by the established methodology.

It must be emphasised that the foregoing considerations do *not* imply that construction of the proposed structures, and the associated increased visitation and activity, would have no impact on wilderness character in the region. They merely reflect the fact that the existing methodology is not sufficiently refined to measure these impacts. It can reasonably be argued that the existence of modern, well-appointed and frequently visited structures on the island, and the knowledge that such structures exist and that such usage is occurring, would significantly affect the perceived wildness of Lake Malbena and indeed of the entire Western Central Plateau. (This would be true even if the proposed development were not publicly accessible by helicopter.)

The construction of a helipad at the proposed landing site could have an impact on AN, but the impact would be small owing to its proximity to the existing hut. As it is not clear at this stage whether a helipad would be constructed, this impact has not been assessed in this report.

The development may also involve, or may eventually require, the construction of sections of hardened track between the helipad and the lake shore, to prevent unacceptable damage to adjacent vegetation communities (particularly sphagnum). Even if such construction does not occur, the frequent use of this route and the impact of trampling on some parts of the route might warrant its classification as a walking track. This could have an impact on values of AN, and hence WC, at least locally. Again, owing to the uncertainties regarding such track development, the associated impact on WC has not been assessed in this report.

Time Remoteness

Using the existing methodology, the only component of WC that would be measurably affected by the proposed development is TR. TR would be affected because the accessibility of the proposed helicopter landing site to members of the public (specifically, clients of the proposed development) would justify the classification of this site as a point of mechanised access. (The same does not apply to landing sites that are used exclusively for management purposes by the management authority, in this case the Parks & Wildlife Service.)

Hawes et al (2018) argue that remoteness, including Time Remoteness, is a defining characteristic of wilderness and is a crucial ingredient of what can broadly be termed the 'wilderness experience'. There is a huge difference in the perceived wildness of a place that one can access and leave by helicopter, compared to a place that can only be accessed by hours or days of non-mechanised travel. Similarly, for visitors who access a place like Lake Malbena on foot (and potentially also by pack-raft), the sense of solitude and isolation would be dramatically impacted by the arrival of helicopters – disgorging clients fresh from civilisation – and even by the knowledge that such landings can occur there.

In quantitative terms, TR would be reduced to the lowest category (0-0.5 days) within half a day's walk from the helipad. This encompasses an area that is at present partly within the current 0.5-1.0 day zone and partly in the 1-2 day zone. Between a half day and a full day's walk of the helipad, TR would be reduced in areas that are currently in the 1-2 day category. The latter are mostly located located west of a line running roughly north-south and intersecting the lake along its eastern shore – hence they are located mostly within the Wilderness Zone and the Walls of Jerusalem National Park.

Visual impacts

The established methodology does not take account of the visual impacts associated with structures such as buildings and disturbances such as cleared land. For example, in calculating the impact of a building on the WC of a point two kilometres distant, it does not take into account whether the building is visible or not from that point.

This is clearly a weakness of the methodology, which should ideally be refined to take visual factors into account (Hawes et al 2018).

As far as the proposed Lake Malbena development is concerned, visual impacts cannot be taken into account using the established methodology. If the methodology were refined to take account of visual impacts, the impact of the proposed structures on the island would be increased in locations from which they were visible. The same would apply to a helipad, if one were constructed.

Overall Wilderness Character

The reduction in TR described above is reflected in an overall reduction in WC, which is clearly evident when one compares Maps 2 and 3. Of particular note is the dramatic reduction in WC across the area extending approximately 3 km from the lake, and a significant reduction across a large part of the aforementioned band of high-WC country north, northwest and west of the lake.

The area of land subjected to specified levels of reduction in WC are shown in Table 1. Note that 49 km^2 (4,900 hectares) have WC reduced by a value of at least 1.

The reduction in WC in the immediate vicinity of the lake would be 3.9.

Reduction in WC	Area over which this reduction would occur (km^2)
>1.0	49.0
>2.0	21.7
>3.0	12.5
>4.0	0

Table 1. Areas subject to indicated reductions in WC due to impact of the development on Time Remoteness

Note that the reductions in WC described above and illustrated in Map 3 would occur regardless of the fact that the proposed development would be outside the Wilderness Zone. Indeed, the majority of the heavier losses would occur inside the Wilderness Zone, where TR is currently higher.

This result illustrates that the zoning scheme in the TWWHA Management Plan does not adequately protect wilderness values, and specifically WC, in the TWWHA. As Hawes et al (2018) argue at length, protecting wilderness character requires maintaining the remoteness of remote areas, and the zoning scheme clearly fails to do this.

6.3 Impact of overflights (Map 4)

Map 4 has been derived to give a general indication of the likely impact of overflights on wilderness character in the area. As noted earlier, the developer has stated that the operation will require in the order of 260 flights per year. If one assumes that these will occur at a rate of 4 flights per day on average, whether for maintenance or to ferry clients (two flights each way to ferry parties of six clients plus guides), this implies there could be overflights on as many as 65 days per year. Hence, visitors to areas near the flight path will have, on average, a 1 in 6 chance of encountering overflights. As the flights are likely to be concentrated mainly during the high season of Oct-March, the actual likelihood of encounters will probably be much higher.

Using the second methodology described in 5, Map 4 shows that WC would be further reduced in the vicinity of Lake Malbena, and significantly reduced across a band of country bordering the flight path and running northeast of Lake St Clair to Lake Malbena. The affected country includes Travellers Rest Lake and Lake Ina, which are both significant recreational destinations.

The southern half of the flight path traverses country with only moderate WC (<11). However, as Hawes et al (2018) have pointed out, this should not be taken to imply that the maintenance of WC is unimportant in these areas. To illustrate this point, the WC at the popular day-walk destination of Crater Lake near Cradle Mountain is only 8, yet the degradation of its wild appeal by frequent overflights (for example) would be widely regarded as undesirable.

7 REFERENCES

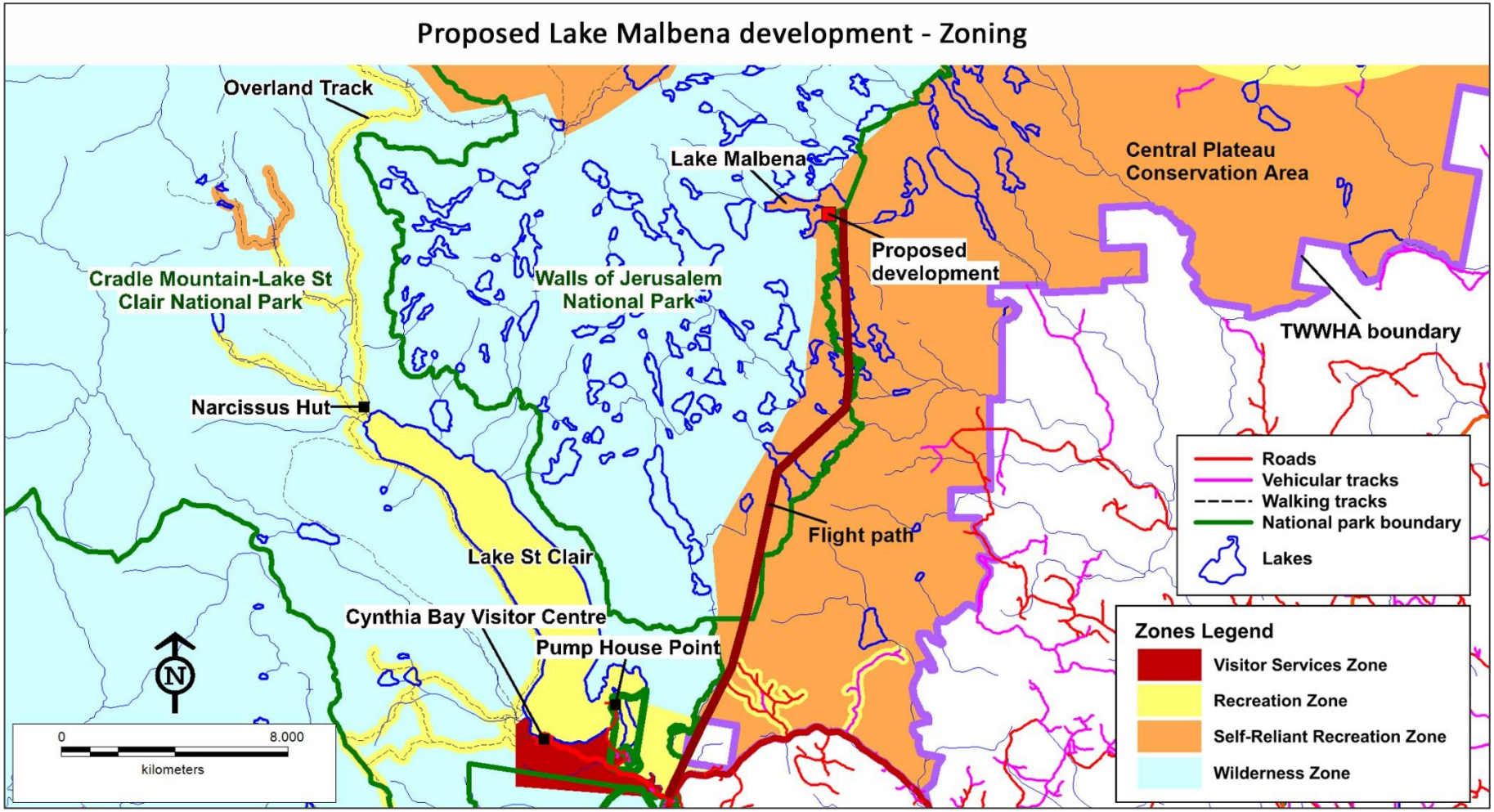
DPIPWE 2016. Tasmanian Wilderness World Heritage Area Management Plan. Department of Primary Industries, Parks, Water and Environment, Hobart.

Hawes M, Dixon G & Bell C 2018. Refining the definition of wilderness: Safeguarding the experiential and ecological values of remote natural land. Bob Brown Foundation, Hobart.

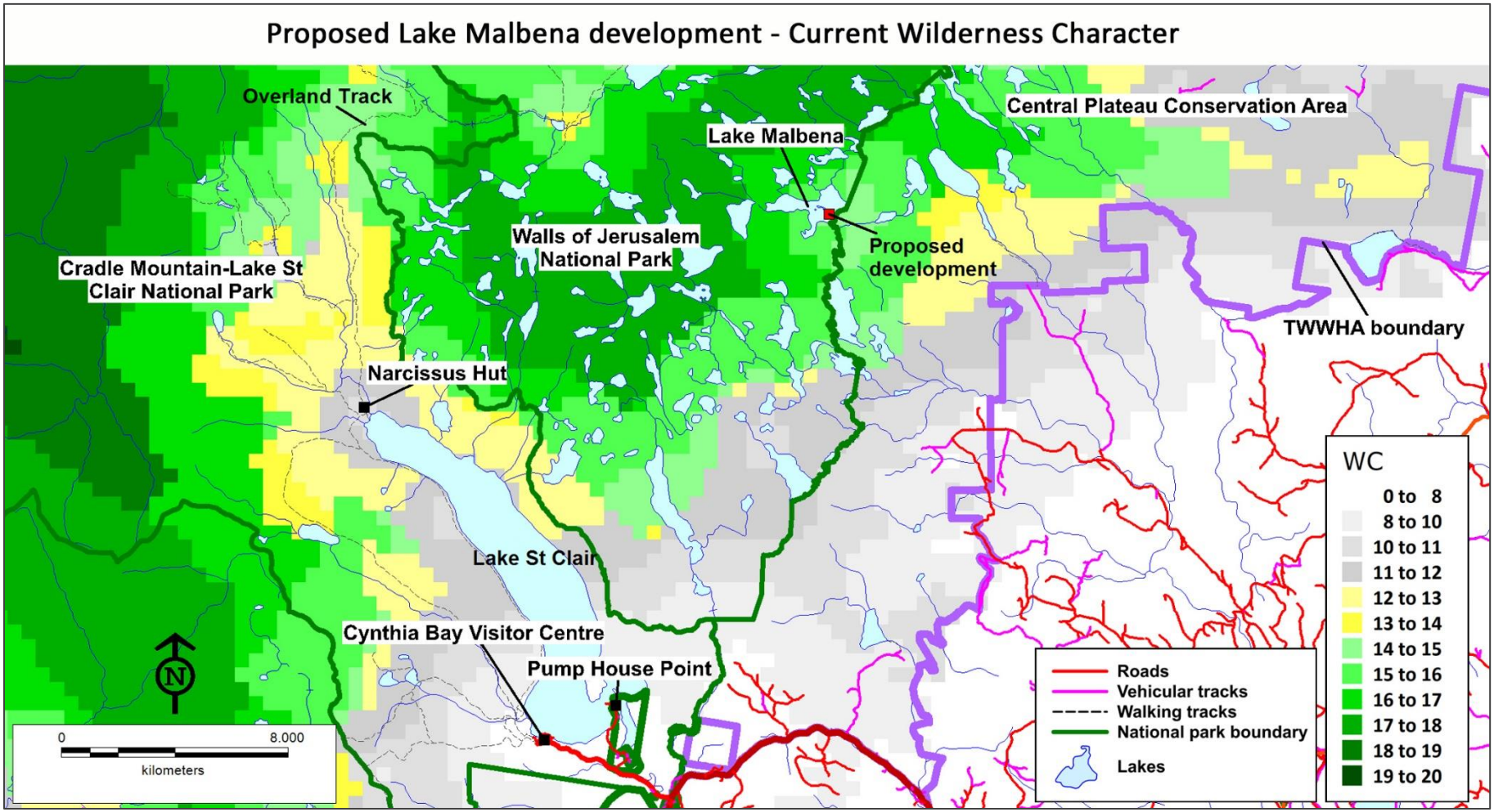
Hawes M, Ling R and Dixon G 2015. Assessing wilderness values: the Tasmanian Wilderness World Heritage Area, Australia. *International Journal of Wilderness, 21*(3), 35-41, 48.

Hawes M 2007. Impact on wilderness values of proposed helicopter tours at Cradle Mountain. Prepared for the Tasmanian Parks & Wildlife Service.

8 MAPS

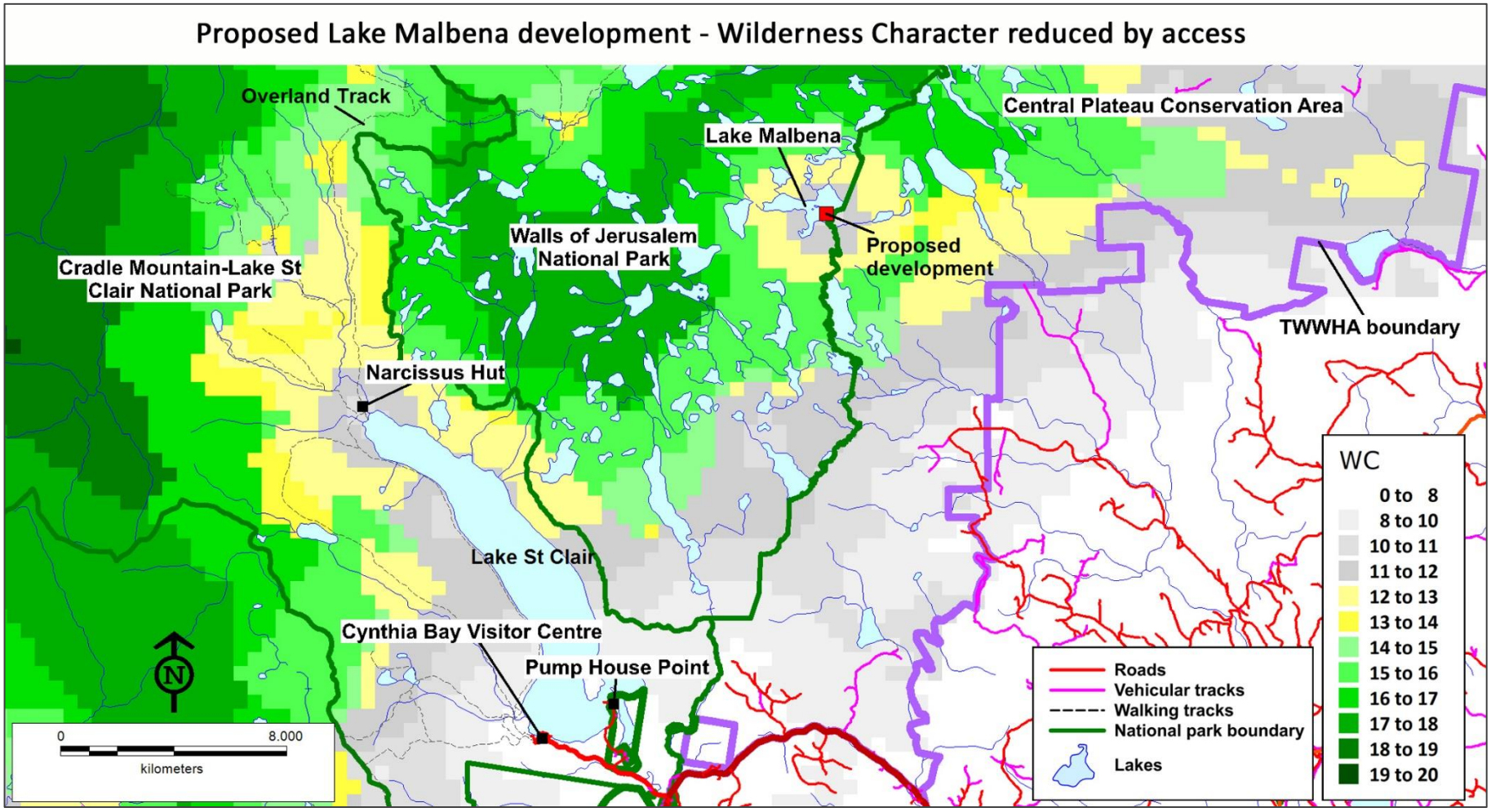


Map 1. Zoning and land tenure in the vicinity of Lake Malbena and the proposed flight path



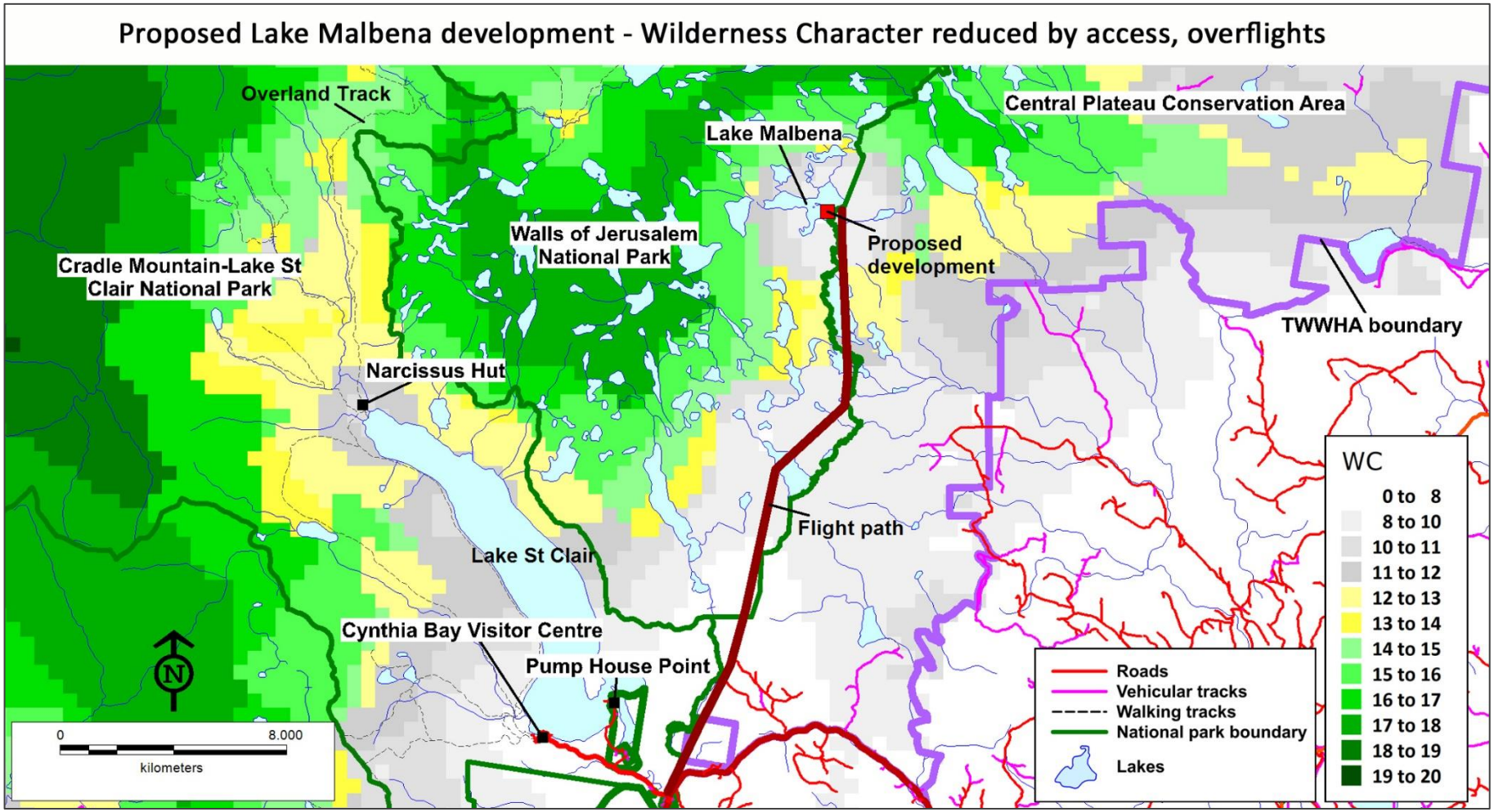
Map 2. Current wilderness character in the vicinity of Lake Malbena

This map was created using the same methodology that was used (by this author) to generate the wilderness map on p. 176 of the 2016 Tasmanian Wilderness World Heritage Area Management Plan. The calculated results are the same, although Map 2 shows more categories of wilderness character (WC). WC tends to increase with increasing remoteness from infrastructure like roads, huts and walking tracks, major infrastructure having the greatest impact. Note the loss of WC due to the existing (rudimentary) Halls Island Hut at Lake Malbena.



Map 3. Projected wilderness character following construction and operation of the Lake Malbena development, ignoring the impact of overflights

The introduction of private, commercial helicopter access east of Lake Malbena would degrade the wilderness character of the surrounding areas, with negative impacts rippling into the Walls of Jerusalem National Park. Note in particular the reduction in WC north and west of the lake, where access times would be reduced by up to a day. The heaviest losses would occur mostly inside the Wilderness Zone, despite the fact that Lake Malbena lies outside this zone.



Map 4. Projected wilderness character due to reduction in Time Remoteness and impact of overflights

This map builds on the information in Map 3 by adding the impacts associated with commercial helicopter overflights between Derwent Bridge and the eastern shore of Lake Malbena. The projected 260 flights per year would further erode WC at Lake Malbena and along a corridor bordering the flight path.