Managing the wilderness character of the TWWHA

In a global context the importance of wilderness is widely recognised. Wilderness has been assigned its own category under IUCN’s classification system for protected areas (Dudley et al 2012), and wilderness preservation is an explicit management objective for many national parks and similar reserves around the world (Suh and Harrison 2005).

Kormos et al (2015) have recently argued for a wilderness approach to the identification and management of natural World Heritage sites, mainly to improve global ecological conservation and the associated integrity of World Heritage values. A broader rationale for the protection of wilderness has been long-recognised in Tasmania (Hawes et al 2015) and elsewhere (e.g. Carver et al 2013, Orsi et al 2013) encompassing a need to maintain remoteness, and this in turn can enhance protection of the integrity of the enclosed natural values.

The wilderness character of the TWWHA is a fundamental underpinning to the area’s World Heritage and other values. This comprises very extensive areas of natural country containing little or no evidence of modern technological society which is remote from mechanised land access.

The wilderness values of the Tasmanian Wilderness World Heritage Area (TWWHA) have been foremost since it was added to the World Heritage List in 1982, as emphasised by the name of the property. The 1989 nomination of an expanded TWWHA cited wilderness as an overarching theme to which all other values of the TWWHA contribute and enhance (DASETT 1989). IUCN recognised the importance of these wilderness qualities in its Technical Evaluation, commenting on the “essential wilderness quality” of the site when discussing the integrity of its World Heritage values (IUCN 1989).

Consistent with this, both the 1992 and 1999 (and still current) TWWHA Management Plans embraced the concept of wilderness as a basis for management. The 1992 plan noted (page 20):

“Maintenance and enhancement of wilderness quality therefore serves two important functions:

• it is the best overall management strategy for preserving the natural and cultural environment of the WHA in perpetuity, and
• it preserves an irreplaceable attraction and source of inspiration for people everywhere.”

The 1999 management plan delineated a large Wilderness Zone with the objective (page 57):

"To use wilderness as a primary means of managing, protecting and conserving World Heritage and other natural and cultural values."

The 1999 management plan also included “maintain or enhance wilderness quality” as a specific overall objective and prescribed the wilderness mapping undertaken in 2005 (Hawes 2006) as a tool to aid wilderness management.

The 1999 plan was a widely lauded document with wide consultation involved in its development, but a range of new and emerging issues now date the document. For example, the nature, scale and potential locations of tourist developments currently proposed are quite different from those envisaged when the
current management plan was drafted in the 1990s. Hence a contemporary management plan for the TWWHA requires both a tighter definition of what wilderness is and related rules for its management in order to guide the appropriate assessment and management of such developments.

The Tasmanian government’s 2014 Draft TWWHA Management Plan was widely criticised for downplaying the wilderness values of the TWWHA and for greenlighting developments that could substantially damage those values. Critics included the World Heritage Committee, which urged the government to modify the draft plan to provide:

- **Recognition of wilderness character of the property as one of its key values and as being fundamental for its management; and**

- **Establishment of strict criteria for new tourism development within the property which would be in line with the primary goal of protecting the property’s OUV, including its wilderness character and cultural attributes.**

**Defining wilderness**

There is a broad diversity of opinion about the meaning of the word ‘wilderness’ and about the measures that are necessary to protect wilderness. The situation has not been helped by the fact that numerous definitions of the word are in circulation, and that the word ‘wilderness’ is often used loosely to the point where it is virtually meaningless.

A key point of confusion is whether wilderness denotes remote natural country or merely natural country that may (or may not) contain a remote ‘core’. A potential consequence of this confusion is that politicians (and even land managers) may mistakenly assume that wilderness can be adequately protected by ring-fencing remote country without protecting the areas that keep it remote.

The commonly recognised qualities of wilderness are naturalness and remoteness, in particular remoteness from mechanised access. For the purposes of identifying, protecting, managing and enhancing wilderness values it is desirable to define wilderness in precise terms. We propose the following definitions:

- **The wilderness character** of a locality or area is the degree to which it is:
  - undisturbed by and remote from the impacts, influences and artefacts of modern technological society;
  - remote from points of mechanised access; and
  - free from permanent habitation.

- **Wilderness** is land that has a high degree of wilderness character.

- Land with a high degree of wilderness character (wilderness) will always be surrounded by land or sea with a lower degree of wilderness character. This is *Remoting Country*, land or sea whose natural and undeveloped condition contributes to, and is necessary for maintaining, the wilderness character of adjacent wilderness.

The above definitions do not draw a sharp distinction between ‘wilderness’ and ‘non-wilderness’. Rather, the concept of wilderness character recognises a spectrum of naturalness and remoteness ranging from intensively developed to highly remote and largely pristine.
Wilderness character mapping

The values associated with wilderness are diverse and sometimes subtle, and cannot be fully accounted for in quantitative terms (Landres et al 2008). It is nevertheless possible to identify some of the key physical and geographical attributes that are necessary and sufficient for an area to qualify as wilderness, and to a large extent it is possible to quantify these attributes. Assessments based on such measurements can be used to estimate the extent and quality of existing or potential wilderness across a given region, and can be a useful tool for protecting, maintaining and enhancing wilderness character.

In the mid-1980s the Australian Heritage Commission developed a wilderness-assessment methodology as the basis for a nationwide wilderness inventory (Lesslie et al 1988a, Lesslie and Maslen 1995). The National Wilderness Inventory (NWI) methodology identifies remoteness and naturalness as the key components of wilderness character (termed “value” in the NWI methodology). Rather than attempting to distinguish ‘wilderness’ from ‘non wilderness’ the methodology assesses wilderness value as a continuum ranging from urban to pristine. The methodology was used to assess wilderness character across Tasmania (Lesslie et al 1988b) and other parts of Australia in the late 1980s and 1990s, and it has since formed the basis for several studies in Europe (Henry and Husby 1995, Carver et al 2002). Wilderness character mapping undertaken in the USA is also based on remoteness and naturalness indicators (Landres et al 2008, Tricker et al 2013).

Although the NWI methodology is the most comprehensive wilderness-assessment methodology yet developed in Australia, it has some deficiencies. In particular, it takes no account of the influence of terrain and vegetation on access-remoteness (see Figure 1). To address this deficiency, a modified version of the NWI approach was developed when the wilderness character of the TWWHA was re-mapped in 2005 (Hawes 2006, Hawes et al 2015), this being a prescription of the 1999 TWWHA Management Plan.

Figure 1: The rate of non-mechanised travel off-track can vary greatly across the TWWHA; very slow in mountainous and thickly-forested country (left), quite fast in open country (right).

It is understood that the Tasmanian government has recently undertaken wilderness mapping of the extended TWWHA using the modified NWI methodology and current data. This is presumably a response to the aforementioned criticism of the downgrading of wilderness in the 2014 draft TWWHA management plan and is hence encouraging, but it is unclear how the mapping will be utilised to guide management.

The modified NWI wilderness mapping methodology calculates Wilderness Character as the sum of four variables: Remoteness from Settlement, Time Remoteness, Apparent Naturalness and Biophysical Naturalness. The Wilderness Character (Value) of a region is mapped by assigning these values to each
square in a grid covering the region of interest. The grid resolution can be selected to suit the size of the region and the resources available for the analysis. A 1 kilometre grid was used for the 2005 study.

- Remoteness from Settlement is a function of the minimum map-distance from towns and smaller settlements, weighted according to population.

- Time Remoteness is the shortest non-mechanised travelling time from points and corridors of mechanised access. This involved identifying ‘contours’ of access remoteness that were respectively half a day, one day and two days remote by foot, raft or kayak from the nearest point of mechanised access, thereby dividing the region into four zones that were subsequently assigned numerical Time Remoteness values (see Figure 2).

- Apparent Naturalness, which is a measure of how ‘wild’ or ‘undeveloped’ an area might seem to a visitor, is a function of the distance from the nearest non-natural features such as roads, impoundments and transmission lines (see Figure 3).

- Biophysical Naturalness values are determined by environmental conditions (such as logging and grazing history) within each square and measured on a scale of 1-5 with values determined by a list of condition classes.

![Figure 2: Contours for the Time Remoteness variable used in the 2005 wilderness character (value) mapping of the southern portion of the TWWHA. Note indentations in the contours associated with walking tracks (green lines) and the greater separation of Time Remoteness contours in areas of more open country (e.g north of Port Davey) compared to scrubby country (e.g. slopes of Southern Range, in southeast corner of map).](image-url)
Figure 3: Apparent Naturalness distribution used in 2005 wilderness character mapping of the TWWHA. Note the relative influence of roads (red lines; e.g. Picton Valley), vehicular tracks (pink lines; e.g. Low Rocky Point), impoundments, buildings (e.g. huts at Davey Gorge and Bond Bay), offshore boat access (selected beaches on the west and south coasts), residences and airstrips (Melaleuca), and walking tracks (green lines).

The primary data source for the 2005 study was the Tasmanian government’s GIS database, which contains geodata on roads, impoundments, vegetation types and a wide range of other geographical features. These data were supplemented by information from a variety of sources including satellite imagery and local knowledge. Figure 4 shows the resultant 2005 wilderness character (value) map of the TWWHA.

An important caution for any approach to wilderness mapping utilising spatial data, highlighted by Tricker et al (2013), is to be mindful of the source data (e.g. accuracy, completeness and scale of any GIS layer) when considering any resultant wilderness quality maps.

Furthermore, while the NWI and revised methodologies are based solely on geographical data, both methodologies inevitably involve subjective decisions about the influence of factors such as accessibility and naturalness.

It is also important to note that no amount of data can fully convey the ecological significance of a pristine landscape, nor can maps such as those derived in this study necessarily represent the less tangible or more personal qualities of wilderness, the perception of which inevitably varies with the individual.

No attempt has yet been made to assess the impact of view-field disturbances, although doing so was a directive of the 1999 TWWHA Management Plan and it has been acknowledged that development of such a technique could enhance future wilderness character mapping.
Figure 4: Wilderness value (termed “character” herein) for the TWWHA, as mapped in 2005. Note TWWHA boundary shown, and wilderness mapping undertaken, do not include the post-2005 extensions.
Managing wilderness character

As a tool for objectively assessing the likely impact of proposed developments on wilderness character, and for determining the extent and condition of the remaining wilderness areas as well as monitoring their character over time, wilderness mapping has the potential to play an important role in achieving the objective of maintaining and enhancing wilderness character.

Quantitative assessments of wilderness character can be used to identify areas where wilderness character exceeds a specified threshold, and those areas may be designated as ‘wilderness areas’ for management or other purposes. Past wilderness assessments in Tasmania (e.g. the 1996 Regional Forest Agreement) and elsewhere in Australia have considered country with a wilderness value => 12 to be “high quality wilderness”.

Remoteness is an inherent component of wilderness character. Furthermore, while maintaining or managing remoteness is integral to maintaining the integrity of wilderness, it is also the best way to maintain the integrity of many of the natural values contained therein.

A location or area can have high wilderness character only if it is surrounded by areas of land or sea that are in a largely undeveloped condition (although such remoting country may not in itself have high wilderness character). Maintaining high wilderness character therefore requires maintaining the predominantly natural and undeveloped condition of wilderness and its associated remoting country. In particular it requires the exclusion of roads, dams and other major artefacts from these areas, and restrictions on the development of lesser artefacts such as huts and vehicle tracks that detract from wilderness character.

Wilderness management overseas recognises these issues. Helicopters for private use are not allowed in wilderness under the US Wilderness Act (1964) nor are they permitted to land in designated wilderness areas in New Zealand. Carver et al (2013) describe wilderness character mapping in the USA and list mechanised transport and ‘facilities that decrease self-reliant recreation’ (specifically mentioning cabins; i.e. huts) as factors that reduce wilderness character.

Hence, for the TWWHA, it is proposed that:

- Management zones whose purpose is or includes the protection of wilderness must incorporate remoting country associated with the wilderness that is to be protected, and must make provision for maintaining that country in a largely natural and undeveloped condition.

- Local, more detailed assessments (mapping) of wilderness character should be undertaken ahead of any developments (including tourism developments) considered likely to impact wilderness character (e.g. Figure 5). Such assessments should be an explicit and required part of the formal assessment process for such developments.

- The 2013 additions to the TWWHA contain a network of former forestry roads totalling about 2,500 kilometres. Most of these are now arguably superfluous and should be closed and rehabilitated. This presents a one-off opportunity to enhance wilderness quality and its long term management around the margins of the TWWHA.
Figure 5: Impact on wilderness character (value) of a potential hut near New River Lagoon on the South Coast Track (as currently proposed by a commercial tourism operator). Top – landscape with South Coast Track (green line), Middle – existing (2005) wilderness character across the same area, bottom – ripple effect lowering of wilderness character outwards from a hypothetical hut. The darkest shading identifies areas with the highest category of wilderness character (18-20)
References


