

The Bushwalking and Track Review : Stage 2

Western Arthur Range

Final Recommendations from the
Bushwalking and Track Review
(BATR) Panel



A report from the Bushwalking and Track Review Panel

to the

Parks and Wildlife Service

Dept. of Tourism, Parks, Heritage *and* The Arts

March 2004



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1. Purpose of the document

The purpose of this paper is to present the Bushwalking and Track Review (BATR) Panel's final recommendations for the future management of bushwalking and walking tracks in the Western Arthur Range, in the Southwest National Park, within the Tasmanian Wilderness World Heritage Area.

Layout of the options paper

After a brief statement of the purpose of the Final Recommendations document, the *limits of acceptable change* concept and the review process are outlined in Section 2. Section 3 details the objectives of the review. The Panel's final recommendations for the management of the various track sections and side-tracks on the range are then presented in Section 4. Sections 5 and 6 introduce the LAC standards and discuss the future management of the social and environmental conditions along the range, and how breaches of the standards should be treated. Section 7 gives an overview of the recommended approach to implementing the Panel's recommendations. Funding the management of overnight bushwalking tracks and the implementation of the LAC management strategy in the Western Arthur Range are discussed in Section 8. Finally, the report concludes with an evaluation of the Panel's recommendations (Section 9). Two Appendices provide specific information about the Walking Track Classification Specifications and their associated LAC Standards.

The Bushwalking and Track Review (BATR) Panel members

Peter Franklin - Independent walkers

Doug Grubert - Independent walkers

David Atkins - Fed. of Tasmanian Bushwalking Clubs

Andrew Davey - Fed. of Tasmanian Bushwalking Clubs

Helen Thyne - World Heritage Area Consultative Committee

Ashley Artis - Angling

Robert Campbell - Conservation (Tas. National Parks Assoc.)

Kerry Bridle - Natural Science

Jenny Cusick - Tourism

2. The *limits of acceptable change* and the review process

The *limits of acceptable change* concept provided the foundation for the review of bushwalking and walking track management in the Western Arthur Range. This concept developed from the realisation that all recreation use has some effect on the environment in which it takes place, and that even low levels of recreation have some effect¹. Thus, the issue is not what level of recreation is appropriate, but rather what degree of change in the social and environmental conditions is acceptable. Based on this concept the approach has been to develop a strategy that allows managers to identify the point at which changes in the social and environmental conditions become unacceptable and then to initiate management actions designed to prevent further impact or mitigate existing impacts.

The first task of the review was the development of the management options paper for public comment. In formulating the options presented in that report, a revision of the walking track classification system was undertaken and the limits of acceptable change standards were developed. In doing so, the track classification system used by the Parks and Wildlife Service (PWS) was aligned with the Australian Standards for walking tracks². These basic tools provided the foundation for the assessment of the existing conditions along the range with respect to the classifications and standards. Building on this foundation, a range of

¹ Frissell, S.S. & Stankey, G.H. 1972, 'Wilderness environmental quality: search for social and ecological harmony', *Proceedings of the Society of American Foresters Annual Meeting*, Hot Springs, Arkansas, October 1972, pp.170-183.

² Standards Australia 2001, Australian Standard, Walking Tracks AS 2156.1 — 2001 and AS 2156.2 — 2001. Standards Australia, Sydney.

specialists from within the PWS and the Nature Conservation Branch (DPIWE) provided technical input that included track and campsite condition monitoring, internationally refereed research into impacts and recovery after trampling³, visitor demographics and the pattern and distribution of use (current and historical), walker survey findings, and campsite occupancy data. This understanding formed the basis for the development of realistic management options.

The Western Arthur Range: Management Options paper was completed after eight meetings of the BATR Panel, plus many hours spent researching and reading background material.

The options paper was released for a four-week public comment period on Saturday 18th October 2003. In total, some ninety-three submissions were received. Details of the public comment have been summarised in the *Western Arthur Range: Management Options Public Comment Report*.

Two focus groups were conducted by an independent facilitator to provide additional insight into the views of independent walkers with respect to the management options presented in the options paper. The results of the focus groups are presented in a report prepared by Janine Combes, Community Focus.

In arriving at the recommendations presented in this report, consideration has been given to the public submissions received during the public comment period, the results of focus groups held with independent walkers, and input from a range of specialist from within the PWS and the Nature Conservation Branch (DPIWE).

3. Meeting the objectives

At the beginning of the review of the management of bushwalking and walking tracks in the Western Arthur Range, the BATR Panel established a set of objectives to guide its deliberations. These objectives were:

1. The bushwalking and track management strategy for the Western Arthurs should:
 - be consistent with the self-reliant zoning for the Western Arthurs (Map 1) and the objectives of the WHA Management Plan;
 - be consistent with the ongoing provision and management of a variety of bushwalking opportunities across the WHA and the PWS estate;
 - preserve, and where possible, enhance the challenging self-reliant and wild nature of bushwalking experiences for which the Western Arthurs is known and valued;
 - ensure a logical progression with respect to the standard of tracks and campsites;
 - prevent, stabilise and/or minimise track and campsite degradation in an ecologically sensitive manner; and,
 - prevent or where necessary control any increase in the peak use density⁴ at campsites.
2. To manage existing and future environmental impacts within acceptable limits, and where necessary reduce and/or rehabilitate these impacts in an ecologically sensitive manner which preserves the natural values of the area.
3. To evaluate management options with respect to their social, environmental and economic costs and the extent to which they help achieve each of the above objectives.

³ Whinam, J. & Chilcott, N. 2003, 'Impacts after four years of experimental trampling on alpine/sub-alpine environments in western Tasmania', *Journal of Environmental Management*, 67: 339-351.

⁴ Use density at campsites refers to the number of people staying overnight at a site.

An evaluation of the Panel's recommendations is presented in Section 9.

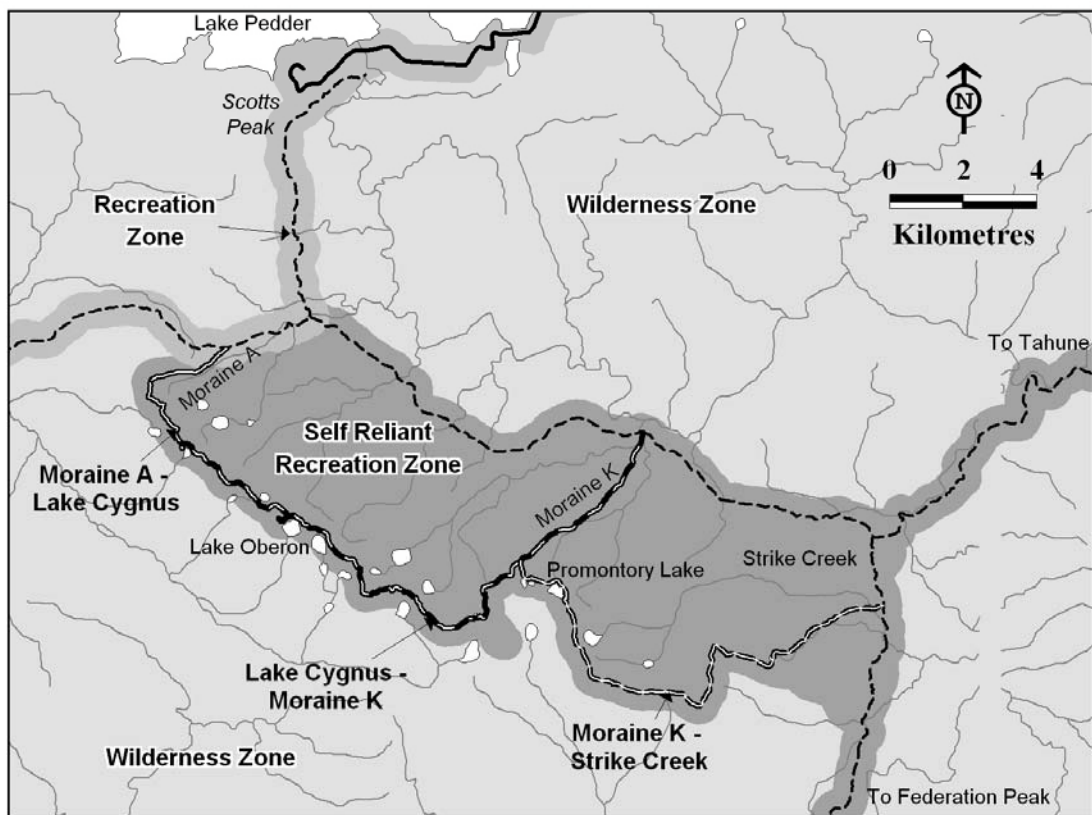
4. Recommendations

Important note to readers: Existing (descriptive) versus prescriptive standards

Managers use track classifications primarily as a planning tool. That is, the classifications provide a simple and precise way of prescribing the type of track on-ground managers should provide. When used in this way, the classifications (Appendix A), and their associated limits of acceptable change standards (Appendix B), provide clear guidance as to the conditions that are to be achieved/maintained. Prescriptive track classifications, such as those presented in this document, **DO NOT** necessarily describe existing conditions.

Consensus support for recommendations

The Panel has strived to achieve consensus for the recommendations presented in this report. While a worthy goal, this is not always possible. Despite this, the Panel is united in its support of the LAC management approach, and the foundation provided by the track classifications and their associated schedule of standards. There is also complete consensus for the recommendations pertaining to the management of the main traverse track to the east of Lake Cygnus (Map 1) and all the side tracks along the range. However, despite broad agreement with the recommendations for the management of the western section of the range, consensus was not achieved for the management of the track between Moraine A to Lake Cygnus. The contrasting viewpoint has been detailed to ensure transparency and insight into how the view of the Natural Science representative differed from the endorsed recommendation of the rest of the Panel's members.



Map 1. Management zones and track sections in the Western Arthur Range, in the Southwest National Park, that is part of the Tasmanian Wilderness World Heritage Area.

Main track

It is recommended that the main track be divided into three sections (Map 1), with specific recommendations for each. From west to east these sections are:

1. Moraine A – Lake Cygnus;
2. Lake Cygnus – Moraine K; and,
3. Moraine K (from the junction of the main traverse and the Moraine K descent track) – Strike Creek.

Moraine A – Lake Cygnus (including the campsite)

A staged upgrade to a T2 standard is recommended for this western most section of track. This section comprises Moraine A and extends through to, and includes, the descent into Lake Cygnus and the camping area. This track section is the most highly used on the range; and, its upgrading will broaden the range of track standards along the range, and expand the number of T2 walking opportunities available in the WHA. This recommendation is consistent with the feedback gained during the investigation of overnight bushwalking opportunities in the WHA that was undertaken in October 2002⁵.

It is also recommended that the Junction Creek campsites be improved to encourage their use as a base-camps to facilitate day trips up onto the range, thereby reducing camping pressure on the more sensitive alpine environment of the range top.

Track work along the Moraine A – Lake Cygnus track section should be undertaken in sympathy with the environment and consistent with the track work already completed. While track work is to be of a T2 standard, it is recommended that future works should tend toward a 'narrower' width to minimise its footprint.

In the initial stage of implementation, priority should be given to stabilising conditions along the entire range. Once conditions along the range are stable and actions are in place to ensure standards are maintained and or brought within acceptable limits, any outstanding works to upgrade the Moraine A – Lake Cygnus track section should be completed.

While track work within the T2 track classification is undertaken mainly for environmental purposes, concessions are made for walker comfort. Along with the upgrading of the track standard is an increase in the recommended maximum party size from eight walkers to a recommended maximum of 13 walkers per group⁶. Guided tour operators must be licensed and the number of trips may be restricted. However, the recommended maximum party size for this section of track should remain at eight persons until the upgrading of the track is complete.

For the upgrading of Moraine A through to Lake Cygnus to be permitted, a change to the Tasmanian Wilderness World Heritage Area Management Plan 1999 is required, as the area will have to be rezoned from Self-Reliant Recreation to Recreation (Map 1). The Panel recommends the proposal to rezone this section of track be canvassed during the mini-review of the Management Plan scheduled to commence in the first half of 2004.

Note: Despite initial consensus, the representative for Natural Science resigned from that position stating she could not support the above recommendation and provided the following explanatory statement.

As the representative for 'science' on the BATR panel, I am not comfortable with the proposed upgrade of the western end of the Arthur Range track from a T3 to a T2. There are

⁵ *The Bushwalking and Track Review: Stage One, World Heritage Walking: Overnight bushwalking in the Tasmanian Wilderness — Public Comment Report.*

⁶ Note: The recommended maximum group size of the main traverse track, to the east of the junction of the descent into Lake Cygnus, remains at eight.

issues with changing the track classification including the possibility that more people may be tempted to start the walk given it's perceived 'easier' rating. The change in track classification to allow for larger group sizes may encourage more use, and not just during the peak season. Other walkers may decide to visit the range outside the peak season to avoid meeting large groups in the WHA. While many visitor impacts are being monitored, we still do not know the full extent of our environmental footprint on this extremely fragile environment. For example, it is highly likely that current user numbers have caused an increase in nutrient levels around existing campsites, possibly impacting on water quality in the topographically constrained tarns. The impact of increased nutrients in a nutrient poor system, might take many years to become visible, and is likely to have some impact on the local flora and fauna. While we can minimise direct physical damage such as erosion at campsites and along tracks, it is much more difficult and expensive to monitor, pre-empt and control any indirect physical impacts. Because it is economically and environmentally sensible to preserve rather than reconstruct, I support a more cautious approach to track classifications along the range, if only to minimise any impact that is not currently identified.

Lake Cygnus (track junction) – Moraine K (including the descent track)

The Lake Cygnus to Moraine K track section incorporates the most rugged and physically challenging terrain of the Western Arthur Range. Moreover, the topography along much of this section limits the type and extent of track works possible. As such, it is recommended that the track from the Lake Cygnus track junction through to, and including, Moraine K is managed to a T3 standard to allow flexibility with respect to the range of methods that can be used to maintain it in a stable condition. This classification provides on-ground managers with the capacity to improve surfacing and drainage to maintain conditions within the limits of acceptable change.

The intent of managing this section to a T3 standard will be to provide the opportunity for visitors to explore and discover a relatively undisturbed natural environment along defined and distinct tracks. This recommendation is consistent with the existing aspirations of the PWS, as prescribed in the Walking Track Management Strategy⁷, and allows the placement of track markers where necessary to ensure that direction is obvious along most of the track. Recommended maximum party size for groups walking this section of the main traverse will remain at the current level of eight people.

Moraine K (from the junction of the main traverse and the Moraine K descent track) – Strike Creek

The track from Promontory Lake through to Strike Creek is the least visited section of the Western Arthur Range, and is also the least impacted. The BATR Panel recommends this section of track be managed to a T4 standard with the intent of preserving existing conditions by minimising erosion and limiting track widening. Managing to this standard will enhance the existing wild nature of this end of the range. As such, visitors will need to be able to find their own way along an often indistinct track where improved track surfacing and drainage will be for environmental purposes only.

Recommended party size will be reduced to 6 people per group.

Side-tracks

There are numerous side-tracks to points of interest along the Range. While many of the side-tracks are known traffic corridors, most have remained little impacted despite some erosion. Naturally, the condition of these side-tracks varies depending on their level and pattern of use, the types of vegetation present, slope, and the substrates upon which they are situated.

⁷ PWS 1998, Walking Track Management Strategy for the *Tasmanian Wilderness World Heritage Area*, January 1994, Vol. 1, PWS, Hobart.

Following further consideration of the available information, recent field inspections, and public comment, the recommendations are made on a case by case basis, rather than recommending a blanket standard for the management of side-tracks within specific sections of the Range (as presented in the Options Paper). Moreover, the existing condition of the side-tracks and the recommendations that have been made for the management of the main traverse track, have informed the Panel's decisions and advice.

In many situations the side-tracks receive relatively little use and minimal impact is evident. In such cases, it is advised that they be managed as Non-Designated Routes (NDR). Similarly, the impact along some side-tracks has been minimised through naturally defuse patterns of use in open areas. To allow this natural regime to continue, the Panel considers the NDR standard to be appropriate, rather than encourage use to be concentrated along a single corridor as would be the case if a designated route were to be defined. However, some NDRs may need reclassification as Designated Routes (DR) where diffuse use patterns begin to result broadscale impacts. The application of the DR standards would permit the identification of a designated corridor to maintain access but limit the impact footprint.

Other side-tracks, are considered better managed as Designated Routes (DR) or as T4 standard tracks.

The Panel's recommendations for the classifications to be applied to specific side-tracks are detailed in Table 1. The associated LAC standards for these classifications are outlined in Appendix B.

Table 1. Side-tracks and the recommended aspirational track classifications

Side-tracks	Recommended classification
<i>Moraine A - Lake Cygnus</i>	
Mt Hesperus	T4
Lake Fortuna	DR
Ridge SE Lake Fortuna	NDR
Capella Crags	NDR
Ridge SE of Lake Cygnus	NDR
<i>Lake Cygnus - Moraine K</i>	
Mt Hayes	T4
Lk Ceres	NDR
Procyon Peak	DR (accepted variance)
Mt Orion	T4
Mt Sirius	T4
Moraine E	DR (accepted variance)
Mt Pegasus South	NDR
Dorado Peak	NDR
Mt Columba	NDR
The Dragon	NDR
Mt Shaula	NDR
Mt Aldebaran	DR

Table 1. *Continued*

<i>Moraine K - Strike Creek</i>	
Carina Peak	NDR
Mt Canopus	DR
Lake Venus	NDR
West Portal	T4
Crags of Andromeda	NDR
Lucifer Ridge	T4
All other possible and unspecified side routes	NDR

DR – Designated Route

NDR – Non Designated Route

After some consideration, the Panel recommends that Procyon Peak and Moraine E be managed as Designated Routes despite conditions exceeding the LAC standards for that classification along some of their length. Variations from the standards will be 'accepted' in the short to medium term, but the intent of applying the Designated Route classification is to prevent any further deterioration of the existing conditions and to minimise the footprint of the track in the long-term.

The Panel considers the range of recommended classifications and standards with respect to the side-tracks provides the opportunity for visitors to the Range to enjoy the spectacular scenery and sights while limiting further track development.

5. Limits of acceptable change (LAC): Indicators and standards

Indicators and standards are essential to management in a LAC context. Together, they provide the means to measure and monitor the quality of social and environmental conditions that shape the type and quality of bushwalking experiences provided by the walking track network. Furthermore, they will allow the PWS to determine if management objectives and obligations are being met.

The BATR Panel, in partnership with the PWS, identified a set of key indicators (Table 2). Their selection was also informed by public input from Stage One of the BATR process. It is recommended that these indicators be adopted as the basis for monitoring the social and environmental conditions of the Western Arthur Range.

Table 2. Social and Environmental Indicators

Social	Physical crowding via campsite capacity and occupancy
Environmental	Campsite condition
	Total width of track
	Track depth
	Surface condition (mud)
	Width free of vegetation
	Total length of <i>pad</i> ⁸

⁸ See Appendix B for definition.

The indicators provide the foundation for a set of standards that define the minimum acceptable conditions that are to be maintained for respective classes of track. The Panel recommends that a two-stage system of *yellow light* and *red light* standards be adopted in order to facilitate a precautionary approach to managing conditions along the range.

Yellow light standards: concept and definition

Yellow light standards are precautionary and are intended as an alert, for example the rate of erosion is such that a breach of red light standard is likely within two years. A breach of the yellow light standard triggers the commencement of broad-scale monitoring program and possible adoption of precautionary management actions to prevent or slow further deterioration.

Where impacts are likely to be irreversible, precautionary management actions should be undertaken as a matter of course once yellow light standards are reached.

Red light standards: concept and definition

Red light standards define the ultimate LAC thresholds. If and when these thresholds are reached, management actions will be undertaken immediately to return reversible conditions to acceptable limits or, in the case of irreversible impacts, to halt further deterioration as far as possible.

How existing breaches of the red light standards should be treated

In the first stage of applying the LAC standards approach to the established track network there will be sections that are found to be out of standard. Where red light standards have already been exceeded, the priority assigned to corrective management actions will be determined by:

- the degree and extent to which standards have been exceeded;
- the rate at which further deterioration is likely to occur;
- the likely environmental consequences of further deterioration (eg damage to rare plant communities); and,
- the prospect for natural or assisted recovery.

The immediate objective should be to halt or at least substantially retard further deterioration. If stable, priority for works can be directed elsewhere or such an area may be noted as an acceptable variance in the short-term. The long-term objective should be to restore impacts to within acceptable limits as far as possible. Further clarification with respect to the implementation of the LAC management strategy can be found in Section 7 of this paper.

The Standards, presented in Appendix B, specify the point at which changes in social and environmental conditions become unacceptable (LAC standards), and identify what steps will be taken to maintain conditions within acceptable limits.

6. Managing social and environmental conditions on the Western Arthur Range

The management of the social and environmental conditions on the range is multifaceted as it incorporates the management of campsites, tracks and side-tracks. While each component of the LAC management strategy has a primary function, their management influences the other components of the system. For simplicity, however, these components have been presented separately in this document.

Managing campsite expansion and crowding via campsite occupancy

The potential for walker related impacts is often most acute at the campsites, where use and activity is concentrated. Campsite expansion and overcrowding are two related factors that directly affect the quality of the environment and walkers' experiences. At times of peak use the capacity of some campsites is exceeded and camping overflows onto little impacted or revegetation sites.

The Panel recommends that the data from the Campsite Occupancy Monitoring Program, established in December 2003, in the Western Arthur Range, form the basis for determining the optimum capacity⁹ of the main campsites. Further, from 2004-2005 it is recommended that walkers only camp at *designated* campsites to limit/prevent the development of unplanned sites along the range.

Due to the rugged nature of the range and the restrictions this places on viable campsite locations, the capacity of campsites may be greater than the sizes stipulated in the PWS Walking Track Classification Specifications (Appendix A). Where necessary, such deviations should be considered acceptable variances.

Once capacity levels have been established, an optimum maximum number of daily departures from Scotts Peak should be identified. Factors to be taken into consideration in determining this number should include the influence of inclement weather and routes walked. The principle for setting this limit should be to maximise the number of departure opportunities per day while not exceeding campsite capacities.

While the use of single person tents should be taken into consideration when determining campsite capacities, walkers should be actively encouraged to camp in two person tents to maximise the number of people accommodated.

The Panel recommends that the occupancy of *designated* campsites be monitored on an ongoing basis. An education program encouraging optimum use of the *designated* campsites is also recommended, along with the adoption of a system of standards and management actions to prevent unplanned campsite expansion and physical crowding (Table 3).

Proposed *designated* campsite locations (West-East)

Lake Cygnus
 Square Lake
 Lake Oberon
 High Moor
 Haven Lake
 Lake Vesta
 Promontory Lake
 Lake Rosanne

Determining the optimum number of daily departures from Scotts Peak

The optimum number of daily departures will be calculated to ensure campsite capacities are not exceeded, and to enhance the probability that walkers can stay on a *designated* campsite that is in good condition.

Designated campsites

Walkers will be encouraged to restrict camping along the range to *designated* campsites. Camping in *non-designated* camping areas along the range will be actively discouraged in order to limit impact and prevent the development of additional unplanned campsites.

⁹ The number of tents that can be properly pitched on a site without excessive physical crowding or necessitating use of any sloping, seriously eroded rocky, or swampy areas. Capacity estimates are based on a standard tent, which in terms of shape and ground area occupied, has been assumed to be a Macpac Olympus, Minaret or similar 2-person style tent.

Table 3. A three phased approach to managing occupancy at *designated* campsites

Phase	Management Actions (in order of priority)
Everyday management actions	<ul style="list-style-type: none"> ▪ Education (2 person tents, party size recommendations, correct information) ▪ Publicise busy times and shoulder periods ▪ Liaise with key organisations
Yellow-light breach	<ul style="list-style-type: none"> ▪ Introduction of a voluntary departure booking system to disperse use across time (changing patterns of use)
Red-light breach	<ul style="list-style-type: none"> ▪ Enforced departure booking system via Track Pass with daily departure limit to disperse use ▪ Enforce party size limits ▪ Lower daily departure limit

Managing the physical condition of campsites

The physical condition of campsites along the range varies dramatically. Some campsites are barely distinguishable while others are so badly eroded that people avoid using them in favour of camping on less impacted or untouched areas. Many of the more intensely used and impacted campsites have been hardened in the hope of preventing the creation of additional campsites and to provide walkers with more comfortable and robust sites on which to pitch their tents. These hardened campsites are located at Lake Cygnus, Square Lake, Lake Oberon, High Moor and Haven Lake; and have been included on the list of proposed *designated* campsites.

The Panel recommends the condition of all campsites be monitored via the existing campsite monitoring program. Any changes in condition that breach the campsite condition standards (Appendix B) will trigger the implementation of management actions designed to stabilise and prevent the spread of impacts. These management actions are outlined in Table 4.

Table 4. A three phased approach to managing impacts at campsites

Phase	Management Actions (in order of priority)
Everyday management actions	<ul style="list-style-type: none"> ▪ Education - Minimum Impact Bushwalking (MIB)
Yellow-light breach	<p><i>A breach of a Yellow-light standard will initiate broadscale monitoring as outlined in Appendix B)</i></p> <ul style="list-style-type: none"> ▪ Undertake PEC
Red-light breach	<ul style="list-style-type: none"> ▪ If a <i>designated</i> campsite - harden campsite ▪ If a <i>non-designated</i> campsite – close site and examine cause of impact

Managing the condition of tracks and routes

The PWS began monitoring the condition and rates of change of the walking tracks and routes in the Western Arthurs in 1992, and in more detail since 1994. The indicators used by the monitoring program over the past decade, plus public feedback gained during Stage One of the BATR process, informed the identification of a number of indicators to monitor track condition and development. Research and stakeholder feedback also informed the development of standards for each indicator.

The indicators that have been identified and endorsed by the BATR Panel include *total width of track*, *track depth*, *surface condition (mud depth)*, *width free of vegetation*; and encompass rates of change (Appendix B). It is recommended that the existing monitoring program be adapted to incorporate the LAC monitoring program for these indicators across the Western Arthur Range.

A breach of any one standard, recorded via the monitoring program, will trigger the implementation of management actions appropriate to that standard, as outlined in Table 5.

Table 5. A three phased approach to managing the condition of tracks and routes

Phase	Management Actions (in order of priority)
Everyday management	<ul style="list-style-type: none"> ▪ Education, etc.
Yellow-light breach	<p><i>A breach of a Yellow-light standard will initiate broadscale monitoring as outlined in Appendix B)</i></p> <ul style="list-style-type: none"> ▪ Where applicable undertake PEC and or track hardening as appropriate to the specific track's classification ▪ Introduction of a voluntary departure booking system to disperse use across time (changing patterns of use) ▪ Voluntary quota (self-regulated)
Red-light breach	<ul style="list-style-type: none"> ▪ Enforce quota ▪ Lower quota ▪ Review validity of classification

7. Implementation of the LAC management strategy

The Panel believes public support for, and the ultimate success of the LAC management strategy for the Western Arthur Range is dependent on the commitment of adequate funding to enable its full implementation.

If the LAC management strategy for the Western Arthur Range is fully funded, the Panel recommends implementation take place in two steps to minimise walker disruption while working toward achieving and maintaining the desired standards. The initial step will involve setting up the LAC management strategy and stabilising conditions across the range. The second step will be the commencement of the ongoing LAC management program. This two step program is discussed in more detail below.

Step One: Set up and stabilise

The track will be divided up into *monitoring segments* (Appendix B) and inspected to confirm or determine its condition in relation to the recommended prescriptive track classifications and their associated limits of acceptable change standards. It is understood that the PWS has already initiated work in this area in response to the Options Paper.

For each breach of a standard, it will be determined if the site is stable or actively eroding. If the site is stable (eg eroded to bedrock but over width) it will be noted as an *acceptable variation*. The feasibility of restoring the site to standard as a long-term objective will also be assessed.

If the site is active, it will be programmed for stabilisation works via a priority works program. The priorities for corrective action will be determined by:

- a) the degree and extent to which standards have been exceeded;
- b) the rate at which further deterioration is likely to occur;

- c) the likely environmental consequences of further deterioration (eg damage to vulnerable or endangered plant species or communities); and,
- d) the prospect for natural or assisted stabilisation or recovery.

A consequence of the initial inspection a Priority Works Program will be developed. The Priority Works Program will commence immediately upon implementation of the limits of acceptable change management strategy.

The Canary Monitoring Sites will also be established (Appendix B).

Step Two: Initiation of the LAC management program

In the second stage of implementation, the initial task will be to assess the progress of the Priority Works Program, and then to establish priorities for the subsequent works program. This is an ongoing strategic programming of works that is to be undertaken on an annual basis.

Any new or ongoing breaches of standards identified during the Stage 2 monitoring will be treated as per the LAC schedule, that is:

- where *yellow light* standard is breached:
 - stabilisation works will be added to the priority works list. The type and extent of works will be in accordance with the Walking Track Classification Specifications (Appendix A);
 - if available funds are exceeded, or excessive stabilisation works for the track's classification level are required, modification of use patterns will be investigated and implemented (eg education, voluntary departure booking system implemented or adjusted); then,
 - if these measures fail, a quota for the track section will be implemented through a self regulated departure booking system.
- in the case of red light breach:
 - stabilisation works will be added to the priority works list;
 - if a stabilisation option is not available¹⁰, or not likely to succeed, a mandatory departure booking system incorporating an appropriate quota will be introduced;
 - if breach is not mitigated by the above, the quota will be lowered for that track section if this is likely to achieve the desired result. If this not likely to succeed; then,
 - review the validity of the track's classification.

8. Funding

The Panel recommends a strategic approach to funding of the overnight walking track network be implemented. This is considered crucial if the PWS is to meet its objectives of maintaining a range of recreation opportunities and protecting the natural and cultural values people come to enjoy. A minimum requirement of the strategic funding approach should be the provision of base level funding commensurate with the ongoing cost of maintenance of existing infrastructure and environmental stability. Furthermore, the Panel recommends that funds also be allocated to implement the limits of acceptable change based approach to the management of bushwalking and walking tracks in the Western Arthur Range area.

¹⁰ Not consistent with the specifications for the particular track classification (outlined in Appendix A).

In recognition of the costs associated with the implementation of the limits of acceptable change approach to the management of bushwalking and walking tracks, the Panel proposes the introduction of an Overnight Walker Contribution Scheme (OWCS) for *all overnight walking tracks* managed by the PWS. Such a scheme should be integrated with the Tasmanian National Park Entry Fee System, with the generated funds to be earmarked for the *statewide* overnight walking track budget.

The OWCS funds proposal is conditional upon the maintenance of historic levels of recurrent funding for overnight walking tracks. These funds have incorporated allocations from the Tasmanian National Parks Entry Fee System, and the State and Federal governments. Moreover, disbursements of the funds generated via the OWCS are to be assessed and coordinated through a partnership between PWS and the Panel.

The development of the Overnight Walker Contribution Scheme and its integration with the Park Entry Fee System should reflect consideration of a number of factors, including:

- OWCS contributors discount to access to the Overland Track and any other overnight walks where specific fees are levied;
- Discount for Seniors Card, Pensioner Concession Card and Health Care Card holders;
- Minimum age for contributors
- Per person versus per household for OWCS endorsement;
- Pass type: weekly, monthly, annual, multi-year, ...

9. Conclusions

The original charter for the BATR project was to develop solutions that are socially, environmentally, and economically acceptable. This triple bottom line was incorporated into the objectives outlined in Section 3. These criteria represent the means by which the recommendations should be evaluated. Moreover, meeting these criteria is essential for the successful management of the Western Arthur Range and the PWS estate as a whole.

History has shown that key stakeholder support is essential to the success of any strategy that seeks to manage bushwalking and walking tracks in the WHA. The recommendations contained in this report are the culmination of extensive community and stakeholder consultation. As the composition of the Panel illustrates (p.1), there are diverse interests with often disparate views. As such, negotiation, and give and take, has been the essence of the BATR process. Despite some noted reservation, the Panel believes its recommendations strike a balance between the priorities and values of all stakeholders, including the PWS. Moreover, it is recommended that the broad bushwalking community and Government, both State and Federal, embrace the recommendations contained herein as a blueprint for the future management of the Western Arthur Range and consider it a model for broader application across the statewide overnight walking track network.

The Panel's support for the recommendations is founded on the basis that appropriate and adequate funding is allocated to ensure these recommendations are fully implemented. Support of the Panel and the public for the recommendations will be diminished if the LAC management strategy is implemented with insufficient resources.

The recommendations that have been made preserve and enhance the self-reliant and wild nature of the area and the bushwalking experiences it affords along most of the range¹¹. From an environmental perspective, the LAC management approach, advocated by the

¹¹ The Panel recommends that the track from Lake Cygnus and Moraine K (48.8% of the main traverse track) be managed in accordance with the T3 standards, and the track from Moraine K to Strike Creek (38.5% of the main traverse track) be managed in accordance with the T4 standards. The application of the T4 standards in this eastern section of the range represents a shift in emphasis to a less developed and wilder track classification.

BATR Panel, clearly articulates a two tiered system of standards for the limits of acceptable change in both social and environmental conditions (Appendix B). Never before have such standards been developed for the management of bushwalking and walking tracks in Australia. Building on the foundation of the revised and endorsed track classification system (Appendix A), these standards provide a precautionary warning mechanism to alert managers that change in the social and/or environmental condition is nearing the limit/s of acceptable change. The standards also define the ultimate limits beyond which further change is unacceptable. Moreover, accompanying the standards are recommendations for appropriate management actions designed to stabilise and prevent further impact and/or mitigate existing impacts.

The Panel recommends that initial priority be given to stabilisation works and bringing conditions along the length of the range in keeping with their respective standards. At the same time, the Panel has recognised the merits of the staged application of the T2 standards to the most used portion of the range, the Moraine A to Lake Cygnus track section, in the medium to long term. This section of track comprises approximately 13% of the main traverse. While some modification to the zoning in the western end of the Range is necessary for this recommendation to be implemented, this should be considered within the context of the package of recommendations presented in this report. Overall, about 49% of the main traverse track will continue to be managed to the existing prescriptions and in the order of 39% will be managed to a wilder, more natural standard than previously prescribed, with stabilisation of the Range being the foremost priority.

Early on, it was recognised that any 'solution' developed by the Panel had to be economically acceptable. Consideration of the cost of management and access to adequate resources was a key concern in ensuring the economic feasibility of the recommendations. In this context, the Western Arthur Range presented a particular challenge. The Range is remote and the most rugged of possible locations for a walking track to be situated. As such, the costs associated with track-work and maintenance are higher than those for many, if not all, other areas in the WHA. Recognition of these costs is illustrated in the Panel's recommendation for the integration of an Overnight Walker Contribution Scheme with the existing Park Entry Fee System, as outlined in Section 8 of this report. This recommendation is made after having given consideration of public input¹², and the need to establish discreet strategic funding source for the management of the overnight walking track network.

The Panel recommends the PWS endorse the recommendations and commence implementation as soon as possible. Further, it is recommended that the LAC management strategy for the Western Arthur Range be reviewed five years after implementation.

¹² *The Bushwalking and Track Review: Stage Two, Western Arthur Range: Management Options — Public Comment Report.*

Appendix A – Walking Track Classification Specifications

Walking Track Classification System

Parks and Wildlife Service

This Walking Track Classification System is the outcome of a review of the track classifications defined in the *Walking Track Management Strategy for the Tasmanian Wilderness World Heritage Area*¹, hereafter the Strategy. The Bushwalking and Track Review (BATR) Panel undertook the review in partnership with the Parks and Wildlife Service. The BATR Panel endorsed the classification system outlined herein on the 1st June 2003.

The Walking Track Classification System is largely based on the track classification system used by the PWS and outlined in the Strategy but does not incorporate classifications for river portage tracks.

The primary purpose of this system is as a tool for the planning, provision and maintenance of walking tracks across the lands managed by the PWS.

Alignment with the Australian Standards (AS 2156.1)

An effort has been made to align the revised track classifications with the Australian standards for walking tracks (AS 2156.1) and the equivalent AS 2156 classifications are indicated in the specification tables on the following pages.

The Australian Standards provide a broad set of standards, however, in order to facilitate consistent interpretation of the character and differences between the track classes, the PWS Walking Track Classification System provides a more detailed set of specifications and guidelines which have been tailored to the Tasmanian context.

Explanatory Notes

It should also be noted that the Walking Track Classification System has considerable flexibility built in, as such, the system provides for discretion and consideration of contextual factors in its application. Two examples of the in built flexibility are:

- party sizes are “*recommended*” sizes only; and,
- campsite specifications state that “*in suitable localities an area might have more than one campsite*”.

The following text provides an explanation of the intent and interpretation of various elements in the preceding table.

¹ Parks and Wildlife Service (1998). *Walking Track Management Strategy for the Tasmanian Wilderness World Heritage Area. Volume 1. Main Report*. Hobart, Tasmania, Parks and Wildlife Service. 91-101.

Gradient:

The Gradient specifications are provided as 'guidance for managers' to assist them in the design and modification of walking tracks. As such, the specifications with respect to track gradients must be applied with a degree of flexibility, for two main reasons:

First, much of the existing track network was established prior to the development and application of a track classification system. Indeed, the path of many tracks evolved as the result of walkers following a line of convenience in negotiating terrain that is often steep, and by its topographic nature restrictive of alternate routes of lesser incline.

Second, exact specifications would be impractical to implement – for example it would be impractical to ensure that every metre of every T2 track was at a gradient of less than 20°.

Surfacing and drainage (mud):

The prevention or repair of muddy sections of track will generally be given a lower priority than the prevention or repair of erosion or track widening except where mud churning is causing or is associated with track widening or erosion.

The repair or re-routing of sections of excessively deep (ie. >25cm) mud-bowls may be undertaken on tracks of T2, T3 and T4 standard, and even on localised sections of designated routes, as a low priority in the long term. Such repair should be undertaken using techniques compatible with the track classification, eg. using rock infill or single-width planking.

W1 Wheelchair standard nature trail (AS 2156 Class 1)	W2 (Standard) nature trail (AS 2156 Class 2)	T1 Track grade 1 (AS 2156 Class 3a)	T2 Track grade 2 (AS 2156 Class 3b)	T3 Track grade 3 (AS 2156 Class 4)	T4 Track grade 4 (AS 2156 Class 5)	R Route* (AS 2156 Class 6+)
OVERVIEW						
<p>Opportunity for large numbers of visitors, including those with reduced mobility, to undertake walks which are provided with a high level of interpretation and facilities.</p> <p>Users can expect abundant opportunities to learn about the natural environment through interpretive signs or brochures.</p> <p>Users can expect frequent encounters with others.</p>	<p>Opportunity for large numbers of visitors to walk easily in natural environments which are provided with a moderate to high level of interpretation and facilities.</p> <p>Users can expect to learn about the natural environment with moderate to abundant opportunities to learn through interpretive signs or brochures.</p> <p>Users can expect frequent encounters with others.</p>	<p>Opportunity for visitors to walk in slightly modified natural environments requiring a moderate level of fitness and where the provision of interpretation and facilities is not common.</p> <p>Users can expect opportunities to observe and appreciate the natural environment with limited provision of interpretive signage.</p> <p>Users can expect occasional encounters with others along the track.</p>	<p>Opportunity for visitors to explore and discover relatively undisturbed natural environments along defined and distinct tracks with minimal (if any) facilities.</p> <p>Users can expect opportunities to observe and appreciate the natural environment without the provision of interpretive signage.</p> <p>Users can expect opportunities for solitude with few encounters with other along the track.</p>	<p>Opportunity for visitors with advanced outdoor knowledge to find their own way along often indistinct tracks in remote areas.</p> <p>Users can expect frequent opportunities for solitude with few encounters with others.</p>	<p>Opportunity for highly experienced walkers to explore remote and challenging natural areas without reliance on managed tracks.</p> <p>Users can expect extended periods of solitude with few encounters with others.</p>	
LENGTH						
Usually less than 1.5 km for a loop track or 750m if users have to double back.	Usually less than 3km for a loop track or 1.5 km if users have to double back.	No limit for any tracks of T1 standard or lower.				
WIDTH						
Min 1.2m, preferably at least 1.5m or with sections more than 1.5m wide every 30m and at bends to allow wheelchairs to pass. Max 2.5m, preferably less than 2m over most of track. (Tracks more than 2m wide may be disorientating for users with impaired vision.) Ramped sections should be exactly 1.02m wide with handrails on both sides.	Min 0.6m, generally at least 1m. Max 2.5m, preferably less than 2m over most of track. (Tracks more than 2m wide may be disorientating for users with impaired vision.)	Min generally 0.5m, generally at least 0.75m. Max 1.2m.	Width variable along the length of the track. Min 0.5m but short sections < 0.5m acceptable. Max 1m.	No minimum width. Maximum 0.75m.	No minimum width. Maximum 0.5m.	Pads or tracks to be < 0.5m. Pads or tracks to be kept to an absolute minimum
GRADIENT						
Max gradient 5°; mostly less than 2°.	Gradient mostly less than 8°, max 15° over short (30m) sections.	Guidance for managers Gradient mostly < 15° but may be steeper in places.	Guidance for managers Gradient mostly < 20° but may be steeper in places.	Guidance for managers Gradient limited by environmental considerations only.	Guidance for managers Gradient limited by environmental considerations only.	Guidance for managers No restrictions.
SURFACING & DRAINAGE						
Well drained, "shoe" standard. Firm even surface, eg concrete, asphalt, fine gravel, sawn wood planking. Edges clearly defined.	Well drained, "shoe" standard. Reasonably firm eg stabilised soils, gravel, pine chips, stone. Note: Evenly laid cordwood may be suitable for some W2 tracks but cordwood is generally unsuitable for tracks likely to be used by aged or disabled people.	"Boot" standard. May be rocky and uneven in places. Some mud and water to 10cm is acceptable in places. Extensive hardening is acceptable where required.	"Wet boot" standard. Stabilisation/hardening/drainage mainly for environmental purposes but some concessions to user comfort. Surface may be rough over extended sections. Mud up to 20cm deep acceptable in places.	Improved surfacing/drainage minimal - for environmental purposes only.	Improved surfacing/drainage minimal - for environmental purposes only.	Improved surfacing/drainage minimal - for environmental purposes only.
STEPS						
No steps; ramps < 5°.	Steps and stairs may be included, with handrails where necessary for user safety.					

* Applies to all trackless areas regardless of zoning.

W1 Wheelchair standard nature trail (AS 2156 Class 1)	W2 (Standard) nature trail (AS 2156 Class 2)	T1 Track grade 1 (AS 2156 Class 3a)	T2 Track grade 2 (AS 2156 Class 3b)	T3 Track grade 3 (AS 2156 Class 4)	T4 Track grade 4 (AS 2156 Class 5)	R Route* (AS 2156 Class 6+)
SCRUB CLEARANCE						
Min 0.3m on either side at ground level, 0.5m at shoulder level, 2.2m height clearance. No obstacles.	Min 0.3m on either side at ground level, 0.5m at shoulder level, 2.2m height clearance. No obstacles.	Clear of scrub across width of track and to above head height. Fallen debris and other obstacles will be rarely encountered.	Mostly clear of scrub across width of track. Some fallen debris and other obstacles may be encountered occasionally.	Sufficient to facilitate fairly easy navigation under normal conditions. Fallen debris and other obstacles may be encountered.	Minimal. As a general rule living woody vegetation will not be cut except where to ensure the track continues to be navigable.	None.
FACILITIES						
Bridges to full width of track, signposts, interpretation facilities, viewing platforms. Shelters and benches are acceptable but not picnic tables. Track markers are unnecessary.	Bridges to full width of track, signposts, interpretation facilities, viewing platforms. Shelters and benches are acceptable, but not picnic tables. Track markers are unnecessary.	Bridges and water crossings Bridges to be installed over all major creeks and rivers. Stepping-stones acceptable; fords acceptable where water is generally less than 10cm deep.	Bridges and water crossings Bridges to be installed over all major creeks and rivers that are not normally safely and readily fordable at a depth of less than 0.5m. Bridges may also be installed to minimise erosion at creek crossings. Log crossings and cable bridges acceptable; flying foxes or swing bridges acceptable over larger rivers. Some fords may be flood-prone.	Bridges and water crossings Bridges or other constructed crossings generally not required if major creeks and rivers are normally safely fordable, except for environmental purposes. Rough log bridges acceptable but not necessary. Flying foxes acceptable over rivers which cannot normally be forded, but some fords may be flood-prone. Delays may be expected under abnormal conditions.	Bridges and water crossings Bridges or other constructed crossings generally not provided, except for essential environmental purposes. Where possible natural crossings are preferred. Flood delays acceptable and expected under abnormal conditions.	Bridges and water crossings None except for essential environmental purposes. Natural crossings are preferred.
		Track markers Track markers where necessary to ensure that direction is obvious except under extreme conditions (eg snow).	Track markers Track markers where necessary to ensure that direction is obvious except under extreme conditions (eg snow in non-alpine areas).	Track markers Track markers where necessary to ensure that direction is obvious along most of track, although route may not be obvious in snow.	Track markers T4 tracks may be marked but markers should be low-key. Track-heads may be marked in a low-key manner. Some tracks may be difficult to follow in places. No other facilities except where necessary for environmental purposes - eg "fan out" signs.	Track markers None except where necessary for environmental purposes - eg track markers to concentrate usage in bottlenecks on alpine traverses. Signs may be installed for essential management purposes.
		Signage Directional signposts at start of track and at junctions with tracks of grade T3 or higher. Junctions with T4 tracks may be unsignposted; otherwise signposts should refer to the main (T1) track only. Interpretative signs may be installed existing structures such as huts. Signs may also be installed for management and safety purposes. Note: Users should be warned that routefinding and progress on T1 tracks might be difficult under extreme conditions such as blizzards, flooding, or heavy snow.	Signage Directional signposts at start of track and at junctions with tracks of grade T3 or higher. Junctions with T4 tracks may be unsignposted; otherwise signposts should refer to the main (T2) track only. Interpretative signs may be installed existing structures such as huts. Signs may also be installed for management and safety purposes. Note: Users should be warned that routefinding and progress on T2 tracks may be difficult under extreme conditions such as blizzards, flooding or heavy snow.	Signage Directional signposts at start of track and at junctions with tracks of grade T3 or higher. Junctions with T4 tracks may be unsignposted; otherwise signposts should refer to the main (T3) track only. Signs may be installed for management and safety purposes.	Signage Signage is limited and only for management purposes	Signage Signage generally not provided

* Applies to all trackless areas regardless of zoning.

W1 Wheelchair standard nature trail (AS 2156 Class 1)	W2 (Standard) nature trail (AS 2156 Class 2)	T1 Track grade 1 (AS 2156 Class 3a)	T2 Track grade 2 (AS 2156 Class 3b)	T3 Track grade 3 (AS 2156 Class 4)	T4 Track grade 4 (AS 2156 Class 5)	R Route* (AS 2156 Class 6+)
CAMPsites¹						
		At major camping nodes, campsites for up to 25 tents preferably dispersed in groups of up to five tents. Enclosed toilets to be provided at sites of more than 10 tents, or where necessary for environmental or health purposes.	Campsites for up to 12 tents, preferably dispersed in groups of up to four tents. Toilets to be provided at sites of more than 10 tents, or where necessary for environmental or health purposes.	Campsites for up to 8 tents, preferably dispersed in groups of two to four tents. Toilets of minimal design to be provided where necessary for environmental or health purposes.	Visibly impacted (long-term) sites for up to 4 tents. Toilets of minimal design to be provided only where necessary for environmental purposes.	Formation of campsites to be avoided where possible. Visibly impacted sites for up to four tents, preferably at least partially vegetated, are acceptable where unavoidable or desirable for environmental purposes. No toilets provided unless essential for environmental purposes.
MAXIMUM USAGE						
No restrictions.	No restrictions.	<i>To be defined where required for social, environmental and management purposes.</i>	<i>To be defined where required for social, environmental and management purposes.</i>	<i>To be defined where required for social, environmental and management purposes.</i>	<i>To be defined where required for social, environmental and management purposes.</i>	<i>To be defined where required for social, environmental and management purposes.</i>
RECOMMENDED MAXIMUM PARTY SIZE						
No restrictions.	No restrictions.	Recommended max party size 13. While recognising circumstances for group sizes up to 13 persons for environmental and crowding reasons, party sizes of 6 or fewer will be encouraged.	Recommended max party size 13. While recognising circumstances for group sizes up to 13 persons for environmental and crowding reasons, party sizes of 6 or fewer will be encouraged.	Recommended max party size 8. Party sizes of less than 6 will be encouraged.	Recommended max party size 6. Party sizes of four will be encouraged. Parties of up to 8 acceptable on some T4 tracks in the Central Plateau SRRZ, subject to environmental conditions.	Recommended max party size 6. Party sizes of four will be encouraged. Parties of up to 8 acceptable in some parts of the Central Plateau SRRZ, subject to environmental conditions including pad and track formation.
PUBLICITY						
No restrictions.	No restrictions.	No restrictions - may be included in maps, tourist brochures etc	Generally no restrictions, but some types of publicity may be discouraged if overall usage restrictions are necessary.	Potential publicists (eg magazine editors) will be encouraged to keep publicity low-key. T3 tracks may be included on maps.	All publicity to be discouraged. Not to be included on maps except for internal management purposes. Authors will be encouraged to keep route descriptions vague (eg in accounts of past expeditions). Photographers and publishers will be encouraged not to identify the precise location of photographs taken in areas accessible only by T4 tracks.	All publicity to be discouraged. Routes not to be identified on maps except for internal (ie Service) management purposes. Authors will be encouraged to keep route descriptions vague (eg in accounts of past expeditions). Photographers and publishers will be encouraged not to identify the precise location of photographs taken in trackless areas.
ROUTEGUIDES						
No restrictions.	No restrictions.	May be included in routeguides but routeguide authors will be encouraged to consult with the Service to ensure that published information and advice is compatible with management objectives.	May be included in routeguides but routeguide authors will be encouraged to consult with the Service to ensure that published information and advice is compatible with management objectives.	Routeguides are acceptable but should be sparsely written - routeguide authors will be encouraged to follow Service guidelines.	Inclusion of T4 tracks in routeguides will be strongly discouraged.	Publication of routeguides (including mention of "Routes" in routeguides) to be strongly discouraged. Service user notes will promote a "fan out" policy except where concentration of usage is desirable for environmental purposes.

* Applies to all trackless areas regardless of zoning.

¹ In suitable localities an area might have more than one campsite.

W1 Wheelchair standard nature trail (AS 2156 Class 1)	W2 (Standard) nature trail (AS 2156 Class 2)	T1 Track grade 1 (AS 2156 Class 3a)	T2 Track grade 2 (AS 2156 Class 3b)	T3 Track grade 3 (AS 2156 Class 4)	T4 Track grade 4 (AS 2156 Class 5)	R Route* (AS 2156 Class 6+)
GUIDED TOURS						
Licences are required.	Licences are required.	Permitted but licences are required and numbers of trips may be restricted.	Permitted but licences are required and numbers of trips may be restricted.	Permitted but licences are required and numbers of trips may be restricted. Advertising and publicity should conform to T3 guidelines see 10.2.3.	Licences may be issued on condition that guided parties conform to the recommended party-size limit and to the guidelines relating to the publicity of tracks and destinations (see 10.2.3).	Licences may be issued on the following conditions: guided parties must conform to the recommended party-size limit; guided tour operators must observe the guidelines in relation to the publicity of routes and destinations (see 10.2.3); guided tours must be conducted in such a way as to avoid contributing to unplanned track and campsite formation. In particular, operators will be required to avoid frequent use of any trackless route.

* Applies to all trackless areas regardless of zoning.

Appendix B – LAC Standards

The Bushwalking and Track Review Panel's Endorsed LAC Standards

1.1 RED-LIGHT STANDARDS: CONCEPT AND DEFINITION

Red-light standards define the ultimate LAC thresholds. If and when these thresholds are reached, management actions will be undertaken immediately to return reversible conditions to acceptable limits or, in the case of irreversible impacts, to halt further deterioration as far as possible.

1.2 How existing breaches of red-light standards will be treated

Where red-light standards have already been exceeded, the priority assigned to corrective management actions should be determined by:

- the degree and extent to which standards have been exceeded,
- the rate at which further deterioration is likely to occur,
- the likely environmental consequences of further deterioration (eg damage to rare communities), and
- the prospects for natural or assisted recovery.

The immediate objective should be to halt or at least substantially retard further deterioration. If stable, priority for works can be directed elsewhere or such an area may be noted as an acceptable variance in the short term. The long-term objective should be to restore impacts to within acceptable limits as far as possible.

2. YELLOW-LIGHT STANDARDS: CONCEPT AND DEFINITION

Yellow-light standards are precautionary and are intended as an alert. eg. Rate of change indicates increasing severity of impact with likely breach of a red-light standard within two years. A breach of the yellow-light standard triggers the commencement of a broad-scale monitoring program and possible adoption of precautionary management actions to prevent or slow further deterioration.

Where impacts are likely to be irreversible, precautionary management actions should be undertaken as a matter of course once yellow-light standards are reached.

3. MONITORING

The monitoring program comprises *broadscale* and *canary site* monitoring.

The **broadscale monitoring** program involves taking measurements along each monitoring segment of track and the campsites in a particular area. The broadscale program is initiated when a breach of a standard/s is detected at a canary site.

Canary sites are reference segments of track or reference site/s in the case of campsites. The canary site monitoring program is the same as the broadscale program except that it is focused on reference site sections of track or campsites. Such sites have been identified to provide early warnings and to initiate more detailed monitoring via the broadscale monitoring program should a breach/s of the standards be detected.

Monitoring segments

For monitoring purposes, tracks will be divided into monitoring segments based on environmental stability (as measured by track '*typing*'), track intersections and local conditions. Monitoring segments should be of a suitable length, so that the rapid-sampling technique can be employed in a practical and statistically useful way.

4. CAMPSITES

4.1 Campsite condition

The condition of campsites is described in terms of a five-tier condition class system. The condition classes describe a range of impacts from no to minimal visible impact (Class 1) to heavily degraded (Class 5). More specifically these classes are defined as:

- Class 1** Campsite may be visually distinguishable but have minimal physical damage. Ground vegetation may be flattened but not permanently injured. Minimal disturbance of organic litter.
- Class 2** Campsite obvious. Ground vegetation worn away and/or organic litter pulverised on primary use area (perhaps up to 25% of the site).
- Class 3** Ground vegetation lost and/or organic litter pulverised on most of campsite (say 25-75%). Litter may still be present in many areas. Bare soil exposed in primary use areas, but little or no soil erosion.
- Class 4** Near total loss of vegetation and/or organic litter. Bare soil obvious and extensive (say >75% of site). Some soil erosion may be apparent (eg tree roots exposed on surface).
- Class 5** Bare soil or rock over most of campsite and obvious soil erosion (ie obvious soil loss, exposure of tree roots, coarse particles or bare rock), perhaps over >25% of site.

4.1.1 Designated campsites on Tracks

Designated campsites on Tracks are ideally of no greater impact than Class 2 but Class 3 is accepted.

Red-light standard

Condition Class 4

Yellow-light standard A

Condition Class 3

Yellow-light standard B

Change of condition class

4.1.2 Designated campsites on Routes

Designated campsites on Routes are ideally Class 1.

Red-light standard

Condition Class 3

Yellow-light standard

Condition Class 2

4.1.3 Non-designated campsites on Routes

Non-designated campsites on Routes are ideally Class 1

Red-light standard

Condition Class 2

4.2. Footprint and Capacity of designated campsites

The footprint and capacity (number of tents) of campsites shall be site specific for the Western Arthur Range.

4.3 Occupancy

Red-light standard

- *90% chance of being able to stay in/on a designated campsite (calculated monthly).*

Note

This standard allows for capacity to be exceeded a maximum of 3 nights per month (30 days). The impact of inclement weather has been factored into the standard.

5. SPECIFICATIONS FOR WT (TOTAL WIDTH)

Red-light standard

- *No more than 10% of any monitoring segment to exceed relevant width specification (as defined by track classification) AND*
- *No continuous section of over-width track to exceed 50m in length.*

Note

Where areas of track exceed the standard, consideration should be given to the stability of the site. If stable, priority for works can be directed elsewhere or such an area may be noted as an acceptable variance.

Yellow-light standard

- *Rate of change averaged over the five sites (or as many as appropriate to the context) in a monitoring segment shall not exceed 2.5 cm/year over at least 4 consecutive years; OR*
- *A breach of standard will be registered if rapid sampling indicates that at least 7.5% of a monitoring segment exceeds the relevant specification, and data from fixed sites indicate that width is still increasing.*
- *In situations where widening is considered likely to be irreversible, remedial action **must** be undertaken once the yellow-light limit is reached.*

Note

- *Faster rates of change may be acceptable on sections of track earmarked for extensive stabilisation, providing they are not likely to result in unacceptable levels of impact before such works are undertaken.*
- *A breach of the yellow-light standard would trigger a) implementation of non-restrictive precautionary management actions, and b) commencement of the *broad-scale monitoring program.**

6. SPECIFICATIONS FOR DEPTH

Red-light standard

- *No more than 10% of any monitoring segment to exceed 25 cm AND*
- *No continuous section of over-depth track to exceed 50m in length.*

Note

- Erosion depths exceeding 25cm should be avoided where possible. For T1 – T3 standard tracks, active soil erosion may be tolerated providing it is expected to stabilise (eg on bedrock) or be arrested by future trackwork before the depth exceeds 25cm.
- Where areas of track exceed the standard, consideration should be given to the stability of the site. If stable, priority for works can be directed elsewhere or such an area may be noted as an acceptable variance.

Yellow-light standard

- *Rate averaged over the five sites (or as many as appropriate to the context) in a monitoring segment shall not exceed 1 cm/year over at least 4 consecutive years; OR*
- *A breach of standard will be registered if rapid sampling indicates that at least 7.5% of a monitoring segment exceeds 25 cm, and data from fixed sites indicate that depth is still increasing.*
- *Since erosion is irreversible, preventive action **must** be taken once the yellow-light limit is reached.*
- *Local remedial action should be undertaken if the average rate of change at any fixed site exceeds 2.5 cm/year.*

Note

- Faster rates of change may be acceptable on sections of track earmarked for extensive stabilisation, providing they are not likely to result in unacceptable levels of impact before such works are undertaken.
- A breach of the yellow-light standard would trigger a) implementation of non-restrictive precautionary management actions, and b) commencement of the *broadscale monitoring program*.

7. SPECIFICATIONS FOR SURFACE CONDITION (MUD DEPTH)

Red-light standard

- *No more than 10% of any monitoring segment to exceed 10cm on T2 –T4 tracks AND*
- *No continuous section of over-depth track to exceed 10m in length.*

Note

Mud depths of up to 20cm are acceptable for short distances of up to 10 metres where not associated with track widening or erosion.

8. SPECIFICATIONS FOR DESIGNATED ROUTES

Red-light standard

- *No more than 10% of any monitoring segment to have Width Free of Vegetation (WFV) > 25cm; AND,*
- *Pad¹ development not to exceed 25% of the length of any monitoring segment.*

Yellow-light standard

- *Rate of increase in WFV averaged over the five sites (or as many as appropriate to the context) in a monitoring segment exceeds 1cm/year over at least 4 consecutive years; OR,*
- *Rapid sampling indicates that WFV > 25cm over at least 7.5% of a monitoring segment,*

¹ Any section of an access corridor where trampling has resulted in a continuous strip of visibly impacted vegetation but has not yet resulted in the development of a vegetation-free strip of average width at least 25cm (ie. WFV ≥ 25cm).

and data from fixed sites indicate that width is still increasing; OR,

- *Total length of pad in any monitoring segment of up to 2km in length, is increasing by an average of 5 metres per year over at least 4 consecutive years.*

9. SPECIFICATIONS FOR UNPLANNED (NON DESIGNATED) ROUTES

Red-light standard

- *Total length of pad (regardless of width or depth) > 50m in any area of 500m x 500m (assessed from high-resolution aerial photography or other appropriate technique).*

Note

The 500m x 500m context is intended for situations where pads may develop in several directions, eg on alpine moorlands. Where access corridors are clearly defined (eg narrow ridge crests) a linear context may be more appropriate, eg by identifying 2km monitoring segments and specifying that pad development should not exceed 5%.

Yellow-light standard

- *Total length of pad (regardless of width or depth) > 35m in any area of 500m x 500m;
OR*
- *Rate of pad increasing by an average of 2.5 m/year over at least 4 consecutive years.*

10. STANDARDS FOR THE MANAGEMENT OF HUMAN WASTE IN BACKCOUNTRY AND REMOTE AREAS

Limits of acceptable change standards for the disposal of human waste in backcountry and remote areas are to be developed and integrated into the management of bushwalking and walking tracks. The development of these standards will draw on existing PWS monitoring programs and the results of studies undertaken by researchers at the University of Tasmania. These standards will address aesthetic, as well as environmental and human health factors.