

Potential Research Opportunities in Wellington Park

Adapted from the Wellington Park Management Plan 2005, Appendix E



Geodiversity

1. The geoconservation values of the Park could be assessed and inventoried in greater detail than has been possible in the time frame allowed for the preparation of this Plan, using the methodology of Sharples (1993). The inventory would be updated accordingly.
2. The current condition and integrity of features of geoconservation value identified in the Inventory could be assessed to identify the impact of existing land uses, and rehabilitation be undertaken where this is possible and appropriate.
3. Regular monitoring of the condition of identified earth features of geoconservation value (particularly in regard to erosion, landslips and water quality) could be undertaken to identify the ongoing impact of existing uses and new developments. Where necessary activities would be regulated or modified accordingly to reduce or eliminate the impact.
4. Scientific study of periglacial processes on the Wellington Range could be encouraged. The proximity of the Range to Hobart, and the fact that periglaciation has occurred without the additional effects of true glaciation, makes the Wellington Range ideal for detailed study of periglacial processes, and will lead to a better understanding of the geoconservation values of the Range. Mapping of dolerite and mudstone colluvium (recommended separately below) would ideally form a component of such studies which would be of direct use from a management perspective.
5. Scientific study and dating of peat and marsh sediments at Dead Island and elsewhere on the Range. The potential scientific significance of these features has been outlined in the Inventory.

6. Study of the Lost World boulder caves. As the most extensive 'pseudo-karst' boulder cave system known in Tasmania, these caves are of particular interest from a geodiversity values perspective. Important research topics include the process of pseudo-karst formation (interstitial erosion) and the endemic fauna.

7. A professional assessment of the North West Bay River landslips and surrounding areas could be undertaken to assess the level of ongoing risk of slope instability, and to identify any necessary remedial works to reduce or eliminate future landslips and to allow revegetation of the bared slopes to occur. Such remedial works would be undertaken.

8. A professional assessment of landslip potential resulting from existing developments in the Park within the catchment of watercourses flowing into urban areas (especially Glenorchy) and into water reservoirs could be undertaken by a suitably qualified and experienced professional. Where a significant current risk is judged to exist, remedial works would be designed and undertaken to reduce the level of risk.

9. Since the distribution of the poorly-mapped dolerite colluvium on the Wellington Range is relevant to a variety of land management issues (particularly landslip risk assessment, but also erosion risk assessment, biogeography, groundwater hydrology and archaeology), field mapping of the colluvium and its soils could be undertaken.

10. The extent of existing soil erosion in the Park could be documented by means of a comprehensive program of mapping soil erosion extent, types and causes throughout the Park [some notation of erosion on tracks was made by Carpenter (1991)]. Particular attention should be paid to 4WD tracks on Permian mudstone soils, clayey soils on mudstone beds within the Triassic sandstone sequence (Ice Brook Land System), high altitude 4WD tracks, and dolerite and peat soils on the alpine tops in general. A recording scheme adapted from Hawes (1992) may be appropriate.

11. On the basis of the systematic assessment of erosion problems throughout the Park, recommended in the above prescription, major existing erosion problems could be identified, their causes sought, and appropriate monitoring, rehabilitation and prevention measures determined, given priority and undertaken. These may include

reducing rabbit populations in the summit areas, re-routing, closing and rehabilitating certain tracks, constructing proper drainage for tracks in use, and covering exposed soil surfaces in cuttings with matting, vegetation, rocks or retaining walls as appropriate.

12. Mapping of mudstone colluvium. Reconnaissance field observations have revealed the presence on the lower slopes of the Mountain of thick mantles of colluvium (slope deposits) consisting of fragments of mudstone in a clayey matrix. These mantles have not previously been mapped, but they show deep gully erosion related to concentration of surface water run-off along vehicular tracks, and may also be potentially prone to slipping on steeper slopes. It is important that their distribution be better known.

13. Existing water quality problems within the Park, and their causes, could be surveyed and identified. Appropriate remedial policies and works would be designed and implemented.

14. Regular monitoring of surface water quality could be undertaken at collection points, and groundwater quality could be regularly monitored near potential sources of contamination.

15. The substrates beneath existing waste disposal sites and septic toilets (eg, at Myrtle Forest) could be professionally assessed for potential groundwater contamination, and the facilities removed or modified as necessary if pollution is found to be occurring.

16. As the largest disturbance to a natural hydrological system in the Park, the hydrological and geomorphic effects on downstream areas of the existing diversion of the North West Bay River at the Pipeline intake could be studied and assessed.

Flora

The vegetation gradients straddled by the Wellington Range provide great opportunities for research which is enhanced by their accessibility. The existence of comprehensive baseline studies is a resource in its own right, enabling future

monitoring of the flora. Several research recommendations have been made in this report, to enable managers to address vegetation conservation and management issues.

The following have a high priority:

1. Vegetation Map. Mapping could be prepared at a scale of 1:10 000 using a synusia-based mapping system, as has been undertaken by Johnson (1994) for parts of Wellington Park managed by Hobart City Council. Vegetation maps could also show distributions and locations of species and communities of conservation significance. The highest priority is documentation of the vegetation of the western area of the Park, the least botanically documented part of the Park.
2. Plant Species of High Conservation Significance. Studies into the ecology and conservation management of species and plant communities of high conservation significance that would assist with specialised management of these species. The extent and ecology of *Euphrasia gibbsiae* ssp. *wellingtonensis* and *Brachyglottis brunonis* are of particular interest.
3. Disease Assessment. Assessment of the extent and potential extent of disease (notably *Phytophthora cinnamomi*, the *Phytophthora*-like pathogen and myrtle wilt) in Wellington Park, and the formulation of local hygiene measures.
4. Exotic Species Assessment. Assessment of the range and density of exotic species in Mountain Park, and the formulation of priority for control measures.
5. Historic changes. Research could be undertaken to determine the extent to which plant species and plant communities have disappeared which were recorded historically on the Mountain. (Refer to Section 3.1.2 of the Inventory.)
6. Revegetation of Disturbed Alpine Areas. Research into suitable local species and practices for revegetating disturbed alpine sites could be encouraged.
7. External funds (eg. from Save the Bush) could be sought for appropriate projects on management of exotic species and potentially threatening pathogens in Wellington Park.

Fauna

1. Facilitate research into the impact of wildfires on the scrubtit and changes in the distribution of the species since Sharland's study in 1954.
2. Encourage the use of Wellington Park as a scientific benchmark site by promoting investigations assessing historical changes to invertebrate populations, particularly in relation to the effects of successive severe wildfires, and by the setting up of permanent monitoring sites.
3. Facilitate research into rare and threatened species, particularly those invertebrates such as *Roblinella agnewi* and freshwater hydrobiid snails which may be restricted to Wellington Park.
4. Facilitate fauna surveys of the western areas of Wellington Park.
5. Monitor damage being done by rabbits in the upper altitudinal zone through the use of a series of exclusion plots and investigate and implement suitable methods for their control.
6. Investigate the diet of feral cats in the alpine and subalpine zone to see whether important species, such as the southern snow skink, ground parrot and endemic primitive invertebrates, are being eaten and undertake control measures in these areas if appropriate.
7. Investigate the threat posed to native species by the introduced freshwater snail *Potamopyrgus* and disturbance factors which need to be controlled to ensure any threat is minimised.
8. Documentation of Terrestrial Invertebrate Communities. There are estimated to be over 5 000 species of invertebrates on the Mountain. Comprehensive surveys are therefore needed to obtain further information on the distribution and significance of invertebrate species and the impact of land management practices (particularly fire) on them.

9. Broad-Toothed Rat. The recording by Morris (1969) of a broad-toothed rat on the Mountain is unconfirmed. Although its presence in the Park seems unlikely, it would be worthwhile checking for the presence of the species in possible habitat at Snake Plains and in marshland on the plateau.

10. Monitor the presence of European wasps in the higher altitude areas and undertake localised control measures if appropriate.

Cultural Values

1. Archaeology - Aboriginal. Further systematic survey work within the areas of archaeological sensitivity by a professional archaeologist in the company of a representative of a member of the Aboriginal community is recommended in order to increase understanding of the nature of Aboriginal sites in the Park.

2. Archaeology - Post Contact sites. Further systematic survey work and recording of all sites, by a professional archaeologist would increase understanding of the nature and condition of post contact sites in the Park.

3. Hut Ruins and other sites. A study of all known and possible hut ruins and recreation facilities constructed before the 1967 fire. A study of all other sites, including logging and extraction sites could be undertaken.

4. The Springs Area and associated sites study including further historical research and survey.

5. A historical study and survey of sites and landscapes important for providing cultural linkages with areas outside the Park (eg. Lachlan, Molesworth and Crabtree).

6. Identify sites connected with prison labour, particularly the Stockade.

7. The following are areas of research applicable to management and interpretation of the cultural significance of the Mountain:

- Management of the Mountain. Mt Wellington Park was the first declared Park in Tasmania. As indicated, the history of the formal management of Mt Wellington is now nearing 90 years since the first Mountain Park Act. A study of the Park's management would indicate the strengths and weaknesses of the previous years, from which much can be learnt for future planning.
- Social History- Tracks, Huts and Rangers A thematic analysis of the evolution of tracks and huts, their builders and members will reveal much about the history of Mt Wellington and the social life of Hobart and Tasmania.
- Reshaping the Mountain. Since settlement, the Mountain has been moulded to meet the needs and aspirations of settlers. Construction of tramways, tracks and roads with related facilities has altered the appearance and perceptions of the Mountain. Some of these works were performed by a conscripted work-force.
- Visitors and Mountain Dwellers . The Mountain has been visited by all social groups. At Fern Tree, before World War I 'Strawberry Feasts' entertained the affluent. Hobart hairdressers and Cascade Company staff built huts on the Mountain face. Out of necessity, the Mountain was home to others. A study of the varied social groups who used the Mountain reveals much of Hobart's past.
- Springs Hotel Site. A study of this site would provide historical/interpretive material, and document the site's building and environmental history.
- Women on the Mountain. From Jane Franklin to Lucy Pitman, a World War I nurse who managed The Springs Hotel from 1927, women have been associated with the Mountain. The role of women on the Mountain, including the Pitmans, and the wives of rangers needs investigation.
- The Pinnacle Road. Construction of the road during the Depression gave employment to Tasmanian men. Interviews with surviving workers, and documentation of their efforts.

- The Prisoners Stockade. In 1886, men from the Hobart Penitentiary worked on track clearance on the Mountain. On the Mountain they were housed in a Stockade. Documentation of these men and their labour, identification and interpretation of the Stockade would add detail to the Mountain's history. Where appropriate, oral histories related to these and other historic themes should be compiled.

Tourism and Recreation

1. Undertake surveys of visitor expectations, needs and attitudes to the development and management of visitor facilities and services in the Park.
2. Investigate the feasibility of a by-pass route to Pillinger Drive from Strickland Avenue as recommended in the 1981 Management Plan (Lands 1981). Other local traffic controlling measures to help reduce traffic problems on Pillinger Drive could also be investigated along with well constructed footpaths on Pillinger Drive and parts of the Huon Highway to improve pedestrian access and safety.
3. Re-assess traffic volume information, signs and on-site controls relating to access during snow periods, with a view to reducing confusion and traffic congestion.
4. Regular traffic counts on Pinnacle Road and Pillinger Drive could be undertaken to obtain more reliable data on traffic volumes and times of use.
5. Undertake a more detailed assessment of the existing trail and track system, appropriate techniques for track construction and determine priorities for upgrading and maintenance. Reference could be made to Blamey (1987), Kidd and Clark (1987), Elton 1992, Forest Practices Code (1993) in constructing new tracks.

Fire Management

1. Research could be undertaken to examine:

- the environmental impact of fuel reduction burning to complement and extend work already undertaken by Fensham (1992), Sutton (1985) and Corbett (1981); and
- fire behaviour, fuel accumulation and fire weather research to determine the requirement for, and effectiveness of, fuel reduction burning programs and to assist in suppression planning.