

Australia ICOMOS Conference 2007

Conference Session: Over Exposed Or Blown Away!...Architecture in the Extreme

Paper Title: The Timber Phoenix: Bushfires and Vernacular Architecture

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Introduction

Bushfires are an essential component of the human history of occupation of Australia. As well as loss and destruction, fire has been harnessed by humans to shape the physical and ecological environment to their advantage (KNP PoM 2006). Adapting to fire is also something that is required if we are to conserve our vernacular heritage in fire prone environments.

To address the conference themes and questions asked by this session, this paper examines the impact of bushfires and other fire threats on the historic mountain huts in Kosciuszko National Park (KNP) over time, as well as the current fire planning, prevention and protection and post fire strategies employed. These hut structures tenaciously inhabit some of the most remote and harsh environments in Australia; one minute hit with snow loads, the next, with fire storms. The landscape that provided the resources that created and or sustained the huts, and which also underpins their heritage significance, also provides the threat to burn it all away.

Of additional relevance to this conference, climate change is understood to be affecting the pattern and frequency of bushfires. A recent CSIRO study concluded that at most study sites [in southeastern Australia] an increase of fire-weather risk is likely, with the combined frequencies of days with high to very high fire danger likely to increase between 4-25% in 2020 and 15-70% by 2050 (Hennessy 2005). Other reports conclude that thunderstorms are likely to increase in tropical Australia resulting in greater bushfire risks (Bushfires CRC Fire Note No.4). Climate change is also resulting in a drier environment where bushfires, when they occur, have a bigger impact.

Importantly for heritage conservation practice this paper also addresses how current Australia ICOMOS *Burra Charter* methodology has assisted in dealing with situations where there is a total loss of fabric. The application of this methodology underpins a paradigm shift in approaches to the conception and management of these hut landscapes of national significance; an approach that is founded on *whole of landscape* and *living landscape* concepts.

According to the Macquarie Dictionary (2001) the Phoenix is a mythical bird of great beauty, the only one of its kind, fabled to live 500 or 600 years in the Arabian wilderness, to burn itself on a funeral pile, and to rise from its ashes in the freshness of youth and live through another cycle of years. In the Kosciuszko National Park wilderness where the timber slab

huts are found to have strong intangible values associated with their place in the landscape they can arise, Phoenix like, from the ashes as part of a living landscape.

The Huts of Kosciuszko National Park

Together with adjoining national parks of Victoria and the ACT on the Great Dividing Range, Kosciuszko National Park is a landscape of national heritage significance. It is over 690,000 hectares in size and includes a large range of elevations, creating distinctive landscapes ranging from dry open forests on the lower slopes to alpine herbfields at higher elevations. Winter snows are typical over a large area of the Park and the landscape provides evidence of Pleistocene glacial activity (KNP PoM 2006).

Kosciuszko National Park contains evidence of human occupation spanning thousands of years with many of the routes inscribed in the landscape first established by Indigenous peoples who created a network of pathways linking camps, sites rich in natural resources, and ceremonial sites (KNP PoM 2006). These paths were later used by pastoralists who moved stock to natural mountain grasses in summer. The location of remaining shepherds' huts at the edges of the natural 'cold air drainage' grass plains are an indelible marker of human use of the landscape. The huts reflect other historic land uses and themes including mining, wild horse (brumby) running, scientific research and recreation (skiing and bushwalking). More recently, huts were built as part of building the nationally important Snowy Mountains Hydro-Electric Scheme. Some of the huts have direct associations with Aboriginal people who built them or stayed in them while shepherding sheep and cattle (GML 2005).

At the time of the creation of KNP in 1967 there were about 100 huts with about twice that number of ruins and archaeological sites of former huts. There are currently 65 intact huts and standing ruins remaining. The huts are available to park users for emergency shelter and are maintained by the NSW National Parks and Wildlife Service with the assistance of volunteer caretakers (primarily the Kosciuszko Huts Association) (see Figure 1).

Not only do many of the huts form important 'way points' on old or ancient paths and routes but the actual location of many huts reflect the patterns and forces at work in the landscape and through which the landscape history and sense of place can be described and interpreted (Ashley 2002).

Hut Management and Fire Prior to 2003

In the early days of Park management the primacy of natural values management meant that hut loss in fires was not seen as a major issue. Later, conclusions that significance resided solely in the fabric of huts affected discussion of what to do following fire. Interpretation of the pre 1999 Burra Charter definition of reconstruction 'not being the majority of fabric' resulted in what was termed locally 'the 50% rule'; if more than 50% of fabric was lost, then reconstruction could not occur (GML 2005).

The Bushfires of 2003 and 2006

The loss of 19 huts destroyed or badly damaged when wildfire swept through southeastern Australia in January 2003 threw into stark relief the reality that without recourse to the opportunity to rebuild, all of the huts would ultimately be lost. Something had to give.

These bushfires had a devastating impact on southeastern Australia (see Figure2). The firestorms that engulfed suburban Canberra on 18 January 2003 resulted in the deaths of four people, 500 homes destroyed and severe damage to 70% of the nature parks, forests and pastures in the ACT (ACT Government 2006). In this same series of fires over 50 huts were lost or badly damaged within the Alpine National Park in Victoria and a number in Namadgi National Park south of Canberra, including the early and significant Mount Franklin ski chalet (GML 2005).

A huge effort went into protecting the huts in KNP in 2003 in recognition of their significance. With the best will and good luck many huts were saved. Some were unlucky; the highly significant timber log Pretty Plain Hut was bombed with retardant several times only to find the area under the narrow eaves was missed and fire embers landed there and burnt down the hut.

If this was not enough, the bushfires returned to Victoria at the end of 2006 resulting in the loss of approximately 14 more mountain huts (VHCHA). The fire jumped the border and also threatened a number of huts in KNP (Bowden 2007).

The KNP Huts Conservation Strategy

The Kosciuszko National Park Huts Conservation Strategy, October 2005, prepared by the author with a team from Godden Mackay Logan and Context for NSW Department of Environment and Conservation (now Department of Environment and Climate Change) was asked to respond to these losses, as well as feed into a revised Plan of Management for the Park. The Conservation Strategy included intensive consultation with key stakeholders, including associated Indigenous and non indigenous communities, to identify the social significance of the huts.

The conservation strategies developed were driven by the concept and assessment of significance. It was clear that the usual values of historic, aesthetic and social, by themselves were not adequate to describe the huts values in the landscape. A cultural landscape value was described that combined use patterns and paths over time and a sense of place in the landscape. The intangible social values are linked to tangible aspects in the landscape, such as historic paths and routes, and result in a sense of place or *genius loci*.

The conservation strategies were based on the following principles:

- the recognition of the huts as central to the landscape history of KNP, including the history that post dates its formation;

- the retention and recovery of significance associated with social significance and ongoing cultural landscape patterns of use that were severed as a result of the bushfires of 2003;
- a more holistic approach to the management of the interface between cultural values and natural values;
- harnessing the energy, skills and commitment that arises from strong community associations with the huts as a collection and individually, and the recognition of ongoing caretaker contributions in the future management of the huts;
- the need to reduce threats but accept risks as core elements in priority setting; and
- the need for a communication and education strategy to connect to the broad Australian community in promoting the significance of the huts and the role of the community as a whole in their conservation.

The KNP Huts Conservation Strategy offers a methodology that has at its core 'whole of landscape' and 'living landscape' approaches that value and seek to conserve the physical, historical and social settings of huts within a dynamic environment. This is a paradigm shift in the conception of time in the management of heritage assets within Kosciuszko National Park where social and cultural landscape values are seen as a link between the past, present and the future.

The Huts Conservation Strategy responded to fire threats in two principal ways. Firstly strategies were developed to assist the planning and prevention of bushfires and other fires and to protect huts when fires do occur. A second set of strategies were developed to assist in making decisions following fires about whether to reconstruct damaged huts, rebuild destroyed huts, or to commemorate but not rebuild other huts destroyed. These two broad approaches are dealt with in the following sections.

Fire Planning, Prevention and Protection Strategies

The KNP Huts Conservation Strategy contained a number of fire planning, prevention and protection strategies. These strategies are also reflected in the overall Fire Management Plan for KNP.

The threat from bushfire to the mountain huts comes from natural causes such as lightning strikes as well as from accidental human causes (fuel reduction burns or cigarettes) or from deliberate cases of arson. Another major threat is from accidental fires inside huts resulting from poorly managed or overly large fires (a big risk for inexperienced hut users).

Fire planning strategies include hut specific planning and monitoring. The recommended planning includes an archival record and an assessment of heritage curtilages of all huts and a recording of features within that curtilage on the DECC Historic and Aboriginal Heritage Information Management System databases (AHIMS and HHIMS) and on GIS maps. These features can include Aboriginal and historic archaeological relics, cultural

plantings, significant natural vegetation, yards and chimneys. The planning is identified in Heritage Action Statements (works focused, short Conservation Management Plans) prepared for each hut that includes risk assessments for fires and other extreme events. This information is updated after annual inspections. A fire plan should be located inside each hut and in the front of hut log books. Fire plans should identify what to do in the event of internal fires, refuge areas and provide safety information if hut visitors are caught in a bushfire. This planning is also cross referenced to the overall KNP Fire Management Plan for which hut protection is a key strategy.

The fire prevention strategies are aimed at identifying and minimising risk based on known facts while also minimising threats to significance. Regular inspections identify the need for managing the fuel load by reduction burns and thinning or clearing non significant vegetation in the immediate vicinity of huts. Each fireplace, chimney, hearth and surrounds should be checked regularly as part of a cyclic maintenance program.

For the prevention of fires inside huts, strategies include a minimal firewood collection policy and the regular checking to reduce the amount available wood fuel to burn in the vicinity of the hut. In some cases the size of fireplaces and even the replacement of the fireplaces with a slow combustion/pot belly stove is considered. However, the significance of the fireplace is considered in any changes made by recognizing: that open fires are a historically important element of the character of huts and contribute to significance; the relative significance of each fireplace and its components within the huts collection, and that change is minimized and is reversible. In association with the fire plan for each hut, water buckets and fire extinguishers are being introduced.

Protection strategies during fires are co-coordinated by a Fire Planning Unit. Protection for the huts, like other assets, can involve back burning operations to provide a clear space around the hut to starve the fire of fuel as well as using bulldozers to create a control line around huts and other features (Figure 3). During these operations an Aboriginal sites officer may move in front of the bulldozer identifying sites that should be avoided.

The relative significance of huts and personnel safety issues associated with the location of the hut is a determinant in the deployment of fire fighting resources during fires. Fire fighting techniques can include the use of chemical fire retardants (such as the 'pink custard like' Phoscheck Retardant) applied along the control line or even on the hut fabric itself. This retardant can be applied in advance of the fire. This technique worked on Gooandra Hut in 2003 but as noted above did not work on Pretty Plain Hut.

During fires small teams can be dropped in by helicopter to prepare the site in advance of the fire front. In the 2006 fires that jumped the state border, Tin Mines and Cascade Huts were wrapped in aluminum building construction foil to resist radiant heat (see Figure 6) (Bowden 2007). This technique has been used by the Parks Service in the USA and also trialed by the Victorian Parks Service (Bowden 2007). Luckily in this case, the fire did not reach the huts. Where fire fighters need to be withdrawn for safety reasons then controlled

burning within the fire line may be undertaken prior to withdrawal. During fires foam can be dropped on or near huts from helicopters to help smother the fire.

Post Fire Conservation Strategies

Post fire strategies identified in the Huts Conservation Strategy for huts destroyed or damaged in fires or other events are determined primarily on the basis of the nature of the significance of the hut. This was a key outcome of a Huts Conservation Strategy stakeholder policy workshop. A key factor in the decision making process developed was the revised Burra Charter definition that:

Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects (Article 1.2).

The revised definition of reconstruction that “In rare cases, reconstruction may also be appropriate as part of a use or practice that retains the cultural significance of the place” was also helpful to connect reconstruction and the retention of cultural significance, in particular, social significance.

The Huts Conservation Strategy identified that if the majority of fabric remained then reconstruction (completion of the whole by the introduction of new material) may be appropriate. In the case of a number of damaged river stone huts, sufficient wall fabric remained to provide for their repair (GML 2005).

In the case of huts destroyed, the Huts Conservation Strategy found that while social significance may disappear over time if significant associations between people and a place are not nurtured, these significant associations will not immediately be lost if fabric is destroyed. The presence of social significance together with a strong cultural landscape value became threshold criterion for considering rebuilding. This resulted in a recommendation for rebuilding six of the huts destroyed in 2003 (see Figure 4) and another one destroyed prior to that date together and the reconstruction of another four damaged in 2003, as discussed above (see Figure 5).

The Huts Conservation Strategy also identified opportunities for ongoing community participation. The rebuilding will deliberately involve people with associations with each place and will take the time needed to increase participation.

In addition to significance and fabric retained, other constraints such as location in a fire prone area are considered before a proposal decision is made and a formal environmental assessment undertaken.

If the hut destroyed did not meet the identified significance criteria, then some form of commemoration would be appropriate. In all cases (reconstruction, rebuilding or commemoration) both site and off site interpretation is recommended.

Post Fire Implementation of the Huts Conservation Strategy

Following the completion of the KNP Huts Conservation Strategy, guidelines have been prepared for any huts proposed for rebuilding, following the application of the criteria discussed above (GML 2007). The DECC has undertaken consultation with the Kosciuszko Huts Association and other groups and individuals associated with specific huts. The guidelines on the rebuilding of huts include the following principles:

- The nature of significance of the original hut is important in the design of the rebuilding. The identified social value may contain aspects to do with the aesthetic values of the hut and a sense of its place in the landscape. Rebuilding lost elements that contributed to the original hut's values can provide some link or resonance with the original hut, and can therefore assist an interpretation of the original hut, but does not replicate those values. A recreation would also falsify the historic record.
- The approach to the design and siting of rebuilt huts should be decided on the merits of each situation, connecting significance and other issues such as available financial and human resources and remoteness, and should provide for input from both specialists and associated communities.
- A design response that reflects aspects of both traditional and contemporary design provides a 'living landscape' message that may answer the need to continue traditions in the use of materials from or near the place and the need to reflect a sense of renewal. A slavish recreation would miss the opportunity to express this sense of renewal and to respond to the opportunity to improve longevity etc.
- In most cases the appropriate design outcome will be one that reflects or interprets the values of the original hut while introducing new design elements or materials to assist safety and reduce required maintenance (eg BCA, fire protection, resilient materials).
- There are likely to be a range of answers—at one end of the range those that strongly reflect a number of aspects of the original hut, particularly where the rarity of the original hut's building materials was part of its associational value, to the other end of the spectrum that is a more generic response that reflects, for example, a 'typical' corrugated iron hut.
- Materials should be chosen to reflect resources available for the long term conservation and maintenance of the hut—in particular for footings so that moisture damage is limited, and for roof structures so that water is shed away from the exterior. The building code requirements of new buildings in fire-prone areas may influence the nature of the hut design and provide another reason for a flexible design response.
- The design must involve those with close associations; the significance and the decision to rebuild was based on this concept.
- The design decision making process should be documented.

- The rebuilt hut should be located at or near the locus of the route/paths that the original hut was located on as this is a key part of the hut's significance and the rationale for the rebuilding.
- The preferred approach is to build near, but not on, the previous hut site, as this allows for an interpretation of the original building and its site, and its retention as an archaeological site. The siting should take into account existing vegetation types, natural heritage values, environmental issues such as water contamination, and fire risk from location and vegetation fuel loads. An archaeological survey should be made of potential archaeological issues for proposed sites.
- Orientation is very important in the location of huts, especially if orientation was a specific part of significance.

The most appropriate methodology for determining the design of the rebuilt hut is akin to the Burra Charter conservation planning process where conservation policy is developed by first identifying significance and constraints that arise from that significance and then the various other constraints and opportunities are identified and considered.

- What factors about the significance of the lost hut were key to the decision to rebuild the hut and how were they demonstrated? This would include the key social and cultural landscape values.
- What other elements of significance, such as historic or aesthetic values, contributed to its social or cultural landscape value that could inform the design or warrant interpretation?
- What other functional, regulatory or stakeholder issues may influence the design outcome?

Discussion in regard to the first hut proposed to be rebuilt, Broken Dam Hut, has focused attention on what aspects of the original hut added to its social values (location, gable form, materials (weatherboards and shingle roof) and its timber log foundation). Although details have not been finalised, it is likely that a number of design changes will be made so the rebuilt hut is practical, safe and can be maintained, while not losing its essential vernacular 'rough and ready' character.

Findings for Historic Huts and Bushfires

There is evidence that climate change is affecting the pattern and nature of electrical storms and increasing the frequency of bushfires.

There have been changes in the manner that agencies plan to prevent bushfires destroying historic resources such as huts and in techniques for protecting them during fires. A sound understanding of the heritage significance of huts, their associated objects and places is an essential aspect of preparedness. The KNP Huts Conservation Strategy, October 2005, identifies conservation strategies relating to fire planning, prevention and protection.

Heritage significance is a key aspect of fire risk planning and assist in making decision during bushfires.

While the retention of existing huts is a key management objective, where huts are lost during bushfires and other fire events, then the KNP Huts Conservation Strategy provide a series of significance based decision making criteria as to whether huts could be rebuilt (subject to environmental assessments) or commemorated in some manner.

NSW DECC is currently implementing the design guidelines discussed in this paper and is aiming to begin rebuilding this coming summer (2007/2008).

Findings Relevant to This Conference Session

In Australia, vernacular rural heritage places and climatic extremes have a symbiotic relationship and heritage practice must and has responded to the challenge posed by these climatic extremes. In the case described here it is the underlying relationship between huts and the landscape that has itself provided an answer to what to do when huts are destroyed. This paper highlights the importance of intangible values connected to place in the landscape; particularly in relation to our fragile vernacular built environment.

Findings for Heritage Conservation Practice

Prior to the most recent revision of the Australia ICOMOS Burra Charter its use by park management agencies correctly focused on the retention of original fabric. However, an unplanned consequence of an interpretation that significance resided only in fabric would be the eventual loss through bushfires of all mountain huts on public lands – the only place where many Australians can experience this unusual building type.

The 1999 revision of the Burra Charter has provided a strong nexus between social significance and conservation policy: the retention of significant use, meanings and associations has practical implications for management. This may provide for rebuilding based on the continued short to medium term existence of social values following destruction in fires. While broad scale reconstruction remains a major concern/issue, the selective use of reconstruction where it has been demonstrated to retain cultural significance is justified as outlined in this paper.

Conclusions

Climate change is thought to be increasing the frequency and strength of natural events such as bushfires and is likely to be affecting the pattern and frequency of bushfires through the increase in dry electrical storms and lightning strikes. The NSW DECC and other land management agencies have developed both prevention and protection strategies and identified heritage places such as historic huts are targeted for specific protection. Patterns of prevention and protection have changed over time: there is now more of a focus on targeted protection of properties such as huts. Nevertheless, despite the best will and technology historic huts numbers have dwindled in the three mainland states with mountain

huts. The KNP Huts Conservation Strategy included strategies for planning, prevention and protection prior to fires and also provided new methodologies based on cultural landscape and social significance that provides for rebuilding of huts lost in fires. Like the mythical Phoenix it is the 'mythical' powers associated with the huts (that is, their intangible heritage values) that provide the impetus for a rebirth from the ashes.

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Figure 1 Wheeler's Hut and other historic huts in Kosciuszko National Park provide not only emergency shelter but also an interpretation of landscape history. (Geoff Ashley)



Figure 2 The fire front of January 2003 near Broken Cart KNP. (Steve Cathcart DECC)



Figure 3 A fire break saved this hut in 2003. (Steve Cathcart DECC)



Figure 4 Delaney's Hut destroyed in 2003 will be rebuilt following the KNP Huts Conservation Strategy (DECC)



Figure 5 Dr Forbes Hut after the fires in 2003; it will be reconstructed. (Geoff Ashley)



Figure 6 Tin Mines Hut wrapped in building foil ahead of the 2006 bushfires; luckily in this case it rained and the foil was not tested. (Dan Nicholls DECC)