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## ENDORSEMENTS

This recovery plan has been prepared in accordance with the Code of Practice for Fire Management on Public Land (the Code), (DSE, 2006a). The Code applies to all public land in the State of Victoria. The purpose of the Code is to promote the effective and integrated management of fire and fire related activities on public land. The Code lays down the minimum state-wide standards for fire management on public land in Victoria.

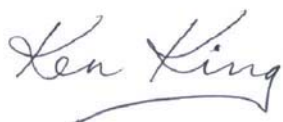
Recovery after wildfire is specifically addressed in the Code, which describes measures that will be taken, where practicable, to assist the recovery of both firefighters and the ecosystem from the adverse impacts of wildfire and the fire suppression operation on public land.

This Great Divide Fire Recovery Plan is an integral component of the overall Multi-agency Recovery Strategy for the Great Divide Fires of December 2006 and January/February 2007. The plan aims to assist the process of post fire recovery. It details the actions that are considered necessary to undertake the recovery of both infrastructure and environmental values from the impact of wildfire and fire suppression. It also outlines a range of immediate and longer term measures to address the amelioration of deleterious impacts of the wildfire on natural and historic and indigenous cultural sites and to renew, replace or review the service of built assets damaged by the wildfire.

The plan recognises that the fire affected area is the 'Country' of the Taungerung, Gunai-Kurnai, Kurnai, Dhudroa, Wurundjeri, Monero-Ngarigu, Jaimathmathang and Mitambuta peoples. The Department of Sustainability and Environment (DSE) and Parks Victoria (PV) acknowledge the above Indigenous communities as the traditional owners of the affected 'Country'.

The recovery actions and priorities in this plan are approved for implementation.

### Endorsed by:



**Ken King**  
Executive Director - Land & Fire Management  
Department of Sustainability and Environment

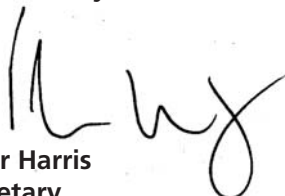


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Department of Sustainability and Environment



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Chief Executive  
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# EXECUTIVE SUMMARY

During the summer of 2006/2007, Victoria experienced one of the worst bushfire seasons on record. The Great Divide Fire burnt more than 1.2 million hectares over a 69 day period, the vast majority of which was public land (1.19 million hectares). Fires of such magnitude and their associated longer term impacts can greatly affect communities, many of which were already dealing with the worst drought in Victoria's recorded history.

The 2007 Ministerial Taskforce Report on Bushfire Recovery outlined a \$138 million response and recovery package and set out both immediate and long term actions to help fire affected communities rebuild their lives. This report committed \$31.06 million of funding to support recovery costs on public land.

Direct contact with communities has formed much of the government's response, and this Great Divide Fire Recovery Plan details the actions to be undertaken to assist community, environmental, heritage and industry recovery in the fire affected regions. The plan covers the Boulder Creek, Coopers Creek, Great Divide North Complex, Great Divide South Complex, Hermit Mountain, Tawonga Gap and Tatong fires.

Initiatives (being a total of \$31.060 million) announced in this report include:

- Restoring visitor services - \$12.400 million
- Restoring natural values, including catchment and river health - \$10.59 million
- Restoring forest values - \$5.800 million
- Indigenous and post-settlement cultural heritage - \$1.010 million
- Fire severity mapping and assessment - \$1.265 million

To ensure that fire recovery properly meets the needs of fire affected communities, the recovery initiatives announced in this plan will be implemented by government departments and agencies, who will work with local and regional recovery committees. Importantly, this plan details initiatives to ensure that communities maintain involvement in the recovery process.

This plan also reports on rehabilitation activities that have been undertaken to minimise the adverse effects of wildlife and fire suppression activities, in accordance with the Code. Rehabilitation of routine suppression disturbance is part of the normal fire program costs and is in addition to those announced by the Ministerial Taskforce.

# 1. INTRODUCTION

A combination of topography, vegetation and climate make Victoria one of the most bushfire prone areas on earth. Within the state's relatively brief documented 160 year history, it has experienced a number of severe bushfire seasons that have resulted in considerable loss of life and extensive property damage.

As Victoria approached the 2006/07 summer, severe drought resulting from several years of less than average annual rainfall had left the state's forests and woodlands particularly vulnerable to bushfire.

On 1 December 2006, lightning from dry electrical storms swept across Victoria's Gippsland, Alpine and North East regions and ignited more than 50 fires. In the 69 day fire fighting campaign that followed, DSE (as the lead agency), was supported by thousands of personnel from State Government agencies, the Country Fire Authority, Shires, community organisations, private companies, and interstate and overseas land management and rural fire agencies. This successful co-operative campaign led to the containment of the fires, which burnt over 1.1 million hectares, or almost 5% of Victoria and 15% of the state's total area of public land, (refer Figure 2).

The scale and intensity of these fires have significant implications for biodiversity, water resources, regional communities, indigenous and post-settlement cultural values, industry and public infrastructure within the fire affected area. Appropriate actions to assist the recovery of these values will support the recovery of the region as a whole.

## 1.1 STRATEGIES, OBJECTIVES AND SCOPE OF THE PLAN

The plan covers the Boulder Creek, Great Divide North, Great Divide South, Hermit Mountain, Tawonga Gap and Tatong fires. The plan is intended to provide guidance for government agencies and to other interested parties within the more detailed planning for the fire affected area over the three year recovery program. It outlines a range of immediate and longer term measures to address the amelioration of deleterious impacts of the wildfire on natural and historic and indigenous cultural sites and to renew, replace or review the service of built assets damaged by the wildfire. In addition, the Department of Sustainability and Environment and Parks Victoria are insured through the Victorian Managed Insurance Authority (VMIA) and this will contribute towards the replacement of some of the assets.

Section 3 describes the rehabilitation measures that were undertaken to assist recovery from fire suppression operations. This section meets the obligations under the Code of Fire Practice with respect to a formal Rehabilitation Plan.

Section 4 describes the key actions to be undertaken for the timely post fire recovery of the range of values and uses within the fire affected areas.

Seven themes are used throughout this plan, reflecting the focus areas for fire recovery:

- Visitor services;
- Natural values, including catchment and river health;
- Forest values;
- Indigenous and post-settlement heritage;
- Fire severity mapping and assessment;
- Supporting community and tourism; and
- Communications and community engagement.

## RECOVERY AND REHABILITATION

**Recovery** is the post-emergency phase that establishes the processes of assisting individuals and communities to manage the re-establishment of those elements of society necessary for their well-being.

This process involves co-operation between all levels of government, non-government organisations, community agencies and the private sector in consideration of the environmental, economic, social and built environment impacts.

**Rehabilitation** includes measures that are undertaken, where practicable, to assist the recovery of the ecosystem from the adverse impacts of wildfire and fire suppression. Routine rehabilitation of fire suppression disturbance is to be undertaken as soon as practicable following commencement of firefighting operations.

The key objectives of the Fire Recovery Plan are:

- To ensure staff and visitor safety, conserve natural and cultural values and protect water quality;
- To plan and implement all fire recovery activities within approved management directions for public land, as set out in the Park/Forest Management Plans;
- To recognise the rights and aspirations of traditional owners and their primacy to speak for 'Country';
- To restore emergency access and where possible enhance risk mitigation and capacity for future emergency management;
- To minimise disruption to public access and the full range of commercial operations and authorised uses that depend on the park/forest;
- To ensure efficient allocation and use of resources invested in the fire recovery effort; and
- To promote awareness within the wider community of the recovery program, its objectives and outcomes.

## 1.2 GOVERNANCE

This plan has been prepared in accordance with the Code of Practice for Fire Management on Public Land, (DSE 2006). The Code applies to all public land in the State of Victoria. The purpose of the Code is to *'promote the effective and integrated management of fire and fire related activities on public land'*. The Code lays down minimum state-wide standards for fire management on public land in Victoria.

This plan acknowledges that planning and implementation of works will be carried out in accordance with all other relevant legislation. The requirements of this legislation, guidelines and Codes of Practice that apply to the management of public land are addressed in Appendix 1.

Fire recovery is presently being managed through the following governance structure. The development of the Great Divide Fire plan is tenure blind, but each element of the plan is reportable by land tenure, DSE Region and Parks Victoria district. This structure will be reviewed and adjusted as necessary.

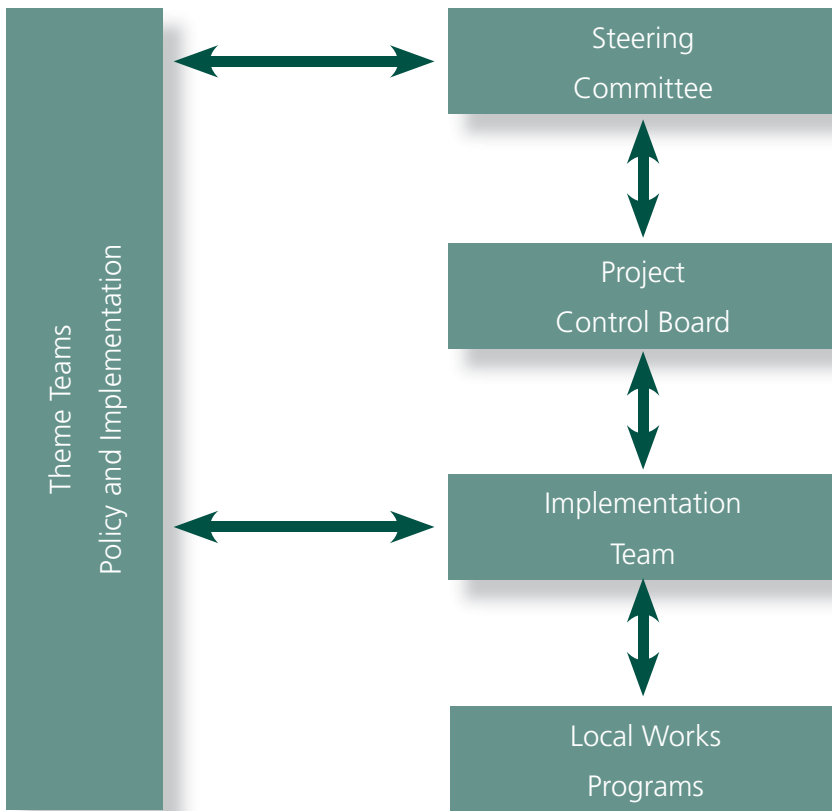


Figure 1. Great Divide Fire Recovery Plan Structural Arrangements.

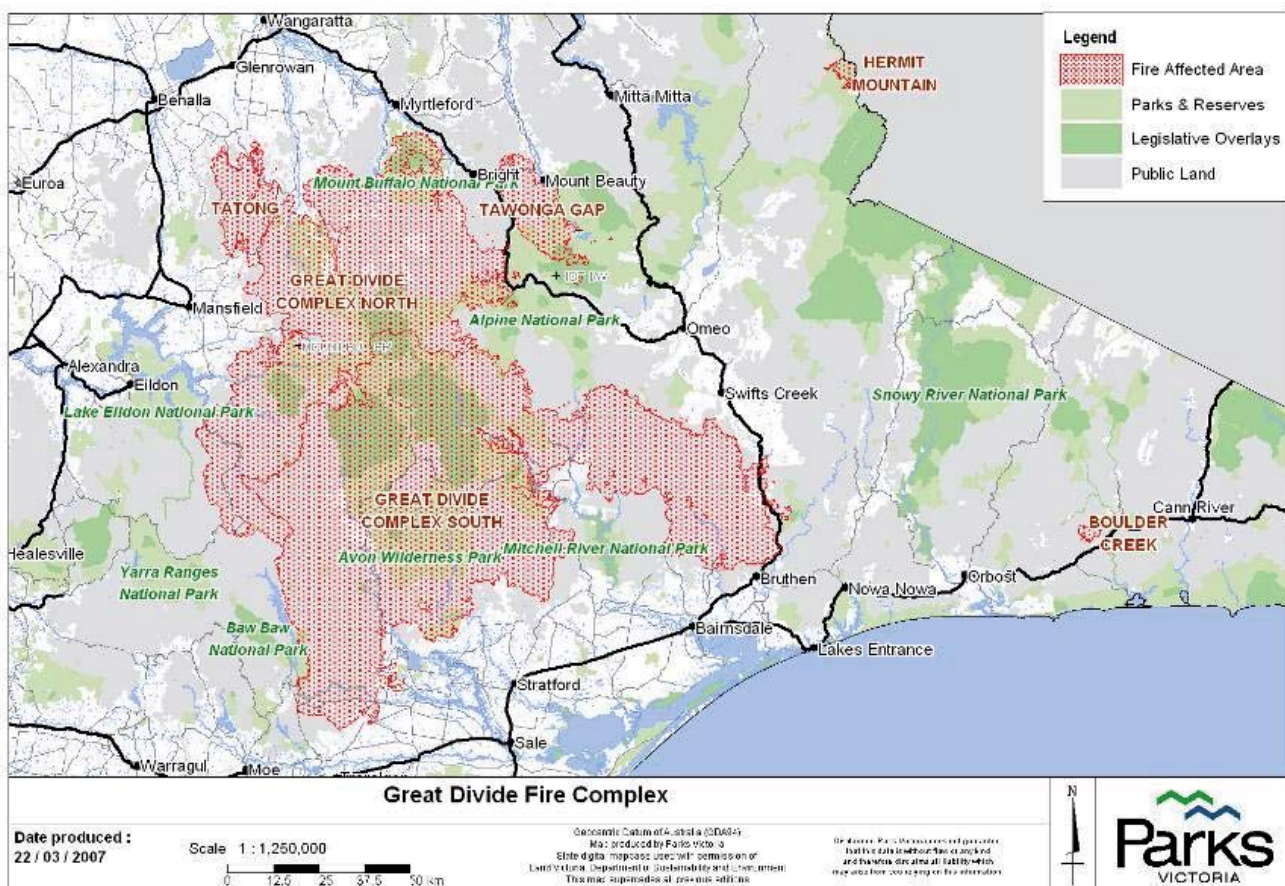


Figure 2. Map of the Extent of the Great Divide Fire

## 2. FIRE REHABILITATION

Extensive rehabilitation has already been undertaken in the fire affected area in accordance with the Code. The Code applies to all public land in the State of Victoria. It specifically addresses immediate and short-term rehabilitation of disturbance resulting from recent firefighting operations, such as control lines and stream crossings.

Fire agencies pursue aggressive fire suppression strategies in an endeavour to control fires quickly and to minimise overall impacts on people and the environment.

In very large fires, (such as those which occurred in eastern Victoria during the summer of 06/07), the impact of fire suppression operations, particular large, heavy plant, can be extensive. At the peak of fire suppression operations there were 290 items of heavy plant working, often throughout the day and night, for over 60 days.

When a large area of forest has been severely burnt, or where soil has been exposed by heavy machinery, there is a high risk of soil erosion from subsequent rainfall events. This is due to the vegetation being removed by the fire, and the soil being hydrophobic due to prolonged drought.

DSE and its partner land management agencies actively implement soil conservation works at the earliest opportunity. Some works may commence during the fire control effort, and considerable effort is undertaken immediately after the fire is declared Under Control.

This routine rehabilitation of fire suppression disturbance is implemented under approved guidelines. Completion of the works at the earliest possible time, preferably before the next major rain event, is the primary objective. This work has been funded as part of the fire event, and planning and management were implemented through the Incident Management Teams and local rehabilitation teams.

The onground works include the construction of fire control lines, temporary fire access tracks, temporary streams crossings, fire control lines on private land, and contingency or fallback lines.

The rehabilitation works undertaken to mitigate the impacts of suppression activity during the 2006/07 wildfires were identified as a task that would exceed the life of the Incident Management Teams. Four rehabilitation teams were established to undertake this large task, two within the North East Region at the Ovens and Mansfield Fire Districts, and two in Gippsland, for the Erica/Heyfield and Bairnsdale/Swifts Creek Fire Districts.

Within the rehabilitation teams the highest priority for assessment and rehabilitation works was given to areas of private land, public/private interface areas and critical catchment issues. These areas were identified through feedback from community meetings, consultation with water authorities and Catchment Management Authorities (CMAs) and the interpretation of GIS data. The rehabilitation and assessment of public land commenced when work in these high priority areas were complete.

The planning of rehabilitation works on public land was at all times undertaken in consultation with the relevant land manager and fire management officers regarding the potential suitability of any of the constructed control lines to become 'Strategic Breaks'. These discussions determined if control lines were to be fully or partially rehabilitated. Control lines that were deemed to have value as strategic breaks would have minimal works completed to control erosion/water quality and/or access issues addressed. The partially rehabilitated control lines will now be incorporated into the Fire Operations Planning Process for 2007/08.

## 3. FIRE RECOVERY

This Great Divide Fire Recovery Plan has been developed in accordance with the Code, and applies to public land in the State of Victoria. The plan outlines a range of immediate and longer term measures to address the amelioration of deleterious impacts of the wildfire on natural and historic and indigenous cultural sites and to renew, replace or review the service of built assets damaged by the wildfire. Where projects have been proposed but not funded through the Recovery process, their implementation will form part of the Department of Sustainability and Environment and Parks Victoria's normal business processes.

### AN ASSET AND RISK BASED APPROACH TO FIRE RECOVERY

The fire affected area contains a large number of ecological, indigenous, heritage and visitor assets, and a systematic approach has been employed to determine the priorities for fire recovery. The number and type of ecological, indigenous, heritage and visitor assets that occur within the fire affected area have been assessed using spatial analyses and local knowledge. The likely impact of the fire on these assets has been identified where possible, using fire severity mapping, knowledge of the response of these assets to fire, previous research and extensive post fire on-ground assessments.

A risk assessment approach has been employed to assess the risk to ecological, indigenous, heritage and visitor assets and visitor safety that may have changed as a consequence of the fire. This approach has several features that contribute to effective decision making, including:

- A basis for comparing, ranking and prioritising risks for further assessment and management. This approach is particularly useful when dealing with multiple values and threats across large geographic areas such as the Great Divide Fire.
- Explicit assessment of the level of uncertainty, or degree of confidence, in the assessment. Uncertainty estimates are especially important when dealing with multiple stressors and limited data and knowledge of outcomes.
- New information can be included in the risk assessment to improve and streamline future decision making. This is consistent with adaptive management principles.

The risk assessment approach helps prioritise hazards and assets for further assessment and management. Whether an identified risk is treated or not, and to what extent, requires careful consideration of the operation and technical feasibility of reducing the risk, costs and cost effectiveness, legal requirements, effectiveness of management actions in reducing the environmental impact and the impact of management actions on other value groups. In many cases, this may include a more detailed risk assessment.





### 3.1 VISITOR SERVICES - (\$12.4 MILLION)

The Great Divide Fire Area includes several iconic recreation sites such as Mt Buffalo, Howqua Hills, Wonnangatta Valley, Mt Baw Baw, Mt Stirling and the Walhalla and Grant Historic Areas. The fire area also contains an extensive distribution of built assets. The infrastructure includes a diverse road network, walking trails, bridges, huts and other visitor facilities such as toilets, shelters, camping and day use areas. Determining the full extent of the loss/damage caused by fire is an ongoing priority, which is guided by a prioritised re-opening strategy that was developed in consultation with key stakeholders. Risk identification and management also forms part of the process.

#### 3.1.1 ENSURING VISITOR SAFETY WHILST RAPIDLY RESTORING ACCESS

Land management authorities involved with the fire recovery effort are extremely mindful of the need to restore access to fire affected areas as soon as possible, so as to assist with regional economic and social recovery. Agencies are also equally conscious of the need to provide for public safety and welfare. Some of the safety issues associated with post fire environments include the presence of hazardous trees, elevated risk of land slips, damaged road and trail surfaces, presence of hazardous materials such as asbestos and CCA (Copper Chromium Arsenate) ash from treated pine, damaged or absent bridges, signs or structures and an increased propensity for flash flooding after rain. These risks are managed through temporary access closures and notifications, a strict regime of hazard assessment and control, and a formalised re-opening process.

#### 3.1.2 ACCESS RE-OPENING STRATEGY

The prioritisation of public land access re-opening efforts is governed by a comprehensive re-opening strategy, which has been developed in consultation with relevant agency representatives and key community stakeholders. Infrastructure and field assessment (including risk assessment) are undertaken in accordance with recognised priorities with the aim of achieving access to recreation sites, roads, tracks and walking tracks by specified deadlines such as Easter and other holiday periods. The area re-opening strategy can be located on the Parks Victoria website ([www.parks.vic.gov.au](http://www.parks.vic.gov.au)) and the information is regularly updated. Access information is also communicated via the media prior to key holiday periods.

#### 3.1.3 RE-OPENING VISITOR SITES TO THE PUBLIC

Access to the fire area is being progressively re-opened based on damage assessments. Standards and procedures for damage assessments, repairs and control of risks were quickly developed and circulated to DSE and Parks Victoria recovery teams in mid January 2007. The standards and procedures apply to all public land roads. A number of risks need to be considered in the re-opening process including blockages caused by fallen timber and landslips, damaged bridges, culverts and signage and the ongoing risks to road and track users posed by dangerous trees, flash flooding, unsafe structures such as lookouts and contamination from burnt materials such as CCA treated timber, and asbestos in huts and other buildings.

A re-opening strategy was developed in early February, listing roads and tracks (vehicle, walking and riding) in the fire area by geographic areas with an estimated date of re-opening. Access for licensed activities such as salvage logging and mining were scheduled under a separate process. The re-opening dates reflect the following key recreation and tourism periods - Labour Day long weekend, Easter, Melbourne Cup Day weekend. Consultation sessions were held in mid February with recreation and tourism stakeholders in Mansfield, Bright, Traralgon and Bairnsdale to agree on priorities. The agreed strategy has been placed on ParkWeb ([www.parkweb.vic.gov.au](http://www.parkweb.vic.gov.au)) and is updated as work is completed.

Conditional access for Licensed Tour Operators (LTOs) has been provided where roads and tracks have been made safe but signage and facility repair is not yet adequate for full public access. Re opening is progressing well, and by the end of April 2007 most visitor sites had been reopened to the public. 4WD Victoria has assisted Parks Victoria's normal workforce by mobilising club volunteers on weekends, working to approved OHS procedures.

### 3.1.4 ADDRESSING THREATS TO VISITOR SAFETY – SPECIALIST ADVICE AND ASSESSMENT

The contribution of specialists (such as environmental hygienists for the management of hazardous materials, and engineers for the assessment of burnt structures such as bridges, roads and elevated structures), will play an important role in the proper analysis of the post fire environment and appropriate management responses. The full extent of the damage will not be known until late 2007, due to the loss of bridges and trees fallen over roads preventing access to assess the damage.

**Tree hazard assessment:** The management of post fire tree risk is a large and complex task which is governed by detailed guidelines. The process requires identification and treatment of all trees that represent a clear and present danger to visitors, with more intensive assessment by arborists at higher risk locations such as high use visitor sites, higher use roads and locations where visitors are stationary for extended periods of time. This approach is consistent with the likelihood versus consequence principle of risk management, (AS/NZS, 2004).

**Roads and associated infrastructure:** Approximately 7,000 km of roads and 37 car parks are located in the fire affected area. Associated with these assets were an estimated 344 bridges, 800 roadside signs and numerous culverts. In the case of road surfaces, the direct impact of fires has often been limited other than where heavy vehicle movements, increased traffic and road widening for fire breaks has occurred. The issues associated with roads and drainage often arise after the fire event, when slopes stripped of all ground cover display hydrophobic tendencies and produce rapid water runoff after rainfall. The increased water velocity often mobilises soils and debris, which are deposited in road drainage systems (culverts and table drains).



The combination of blocked culverts and high sediment loads in watercourses can sometimes lead to serious road damage. For example, the culverts along the Tamboritha Road became blocked by silt and vegetation after an early storm event, which resulted in sections of the road becoming undermined and silt being deposited on the road surface. The Tamboritha Road was closed immediately after the occurrence and an engineer inspected the damage. The road was declared safe after significant remedial actions were undertaken. However an increased level of road maintenance, including cleaning of culverts and maintenance of drains, will be required for a number of years if serious road damage and associated environmental impacts are to be avoided.

Many bridges on roads in the fire area were constructed from timber. The Australian standards now require timber bridges to be replaced with concrete structures. In addition, many crossings within the road network were constructed during the early post war period using a technique known as 'log fill crossings'. This construction method usually involved filling minor to mid size water courses using logs sourced locally. The logs were laid parallel with the stream flow and acted like a culvert and were capable of supporting vehicles and machinery. Whilst many of these crossings were at/or approaching the end of their useful life, the fire is reported to have destroyed or hastened the demise of these structures. In some cases the location of a log fill has only been detected after the fire due to road collapse or failure of drainage under the road. Log fills were also used to fill in gullies during road construction.

In the case of more contemporary pipe culverts, it is critical that these be cleaned and maintained on a regular basis following the fire. There is, and will continue to be, significant sediment movement after the fire until such time as vegetation re-establishes. This is expected to increase maintenance fourfold, especially immediately after rain. If they become blocked, water can quickly undermine the pipe or remove it completely, leading to sometimes serious road/track damage. Road side signs often provide essential traffic safety advice, distance and/or orientation information. Thorough replacement of all required signage is a high priority project and absence of required safety signs on roads and tracks will necessitate closure until rectified.

**Walking tracks:** An estimated 680 km of walking track and 126 trail access structures (railings, steps, boardwalks, bridges, etc), 300 signs and numerous drainage structures are located in the fire affected area. The issues associated with walking tracks are not dissimilar to roads. Post fire maintenance and drainage is essential if medium to long term loss and damage are to be avoided. Reconstruction of associated elevated structures, steps, safety rails, lookout structures, toilets, signs and other facilities also form part of the recovery process. Difficulties with access and logistics can sometimes mean completion of reconstruction efforts may take a number of years.

**Lookouts and elevated structures:** Lookouts and elevated structures may be a destination or form part of an existing facility such as a road, walking track, camping or day visitor site. The impacts of fire can in some cases require extensive clean up operations (eg toxic CCA residue removal) and technical or geotechnical inspection.

**Buildings and other structures:** Built asset databases indicate that approximately 67 huts and heritage buildings, 1 office building, 1 large roofed accommodation facility, 20 shelters, 112 toilets, over 100 fences, gates, bollards or horse yards, 12 lookouts, 408 seats, tables or fireplaces, 320 general signs, 16 service utilities such as water tanks and 4 emergency structures (ie fire towers) were located in the fire area. Determining and recording the extent of loss or damage is an ongoing priority as this data will enable a progressively well planned, refined and prioritised reconstruction phase. The loss of the Cresta Valley Lodge at Mt Buffalo has led to major stakeholder consultation and a complete review of all commercial operations at Mt Buffalo by a designated project officer. Rebuilding options will be considered as part of this consultative process.

**Maintenance:** As mentioned above, the need to focus on the maintenance of roads, tracks and trails will be paramount until the post fire environment stabilises through regeneration processes.

**Hazardous materials:** CCA ash from treated pine, asbestos, polychlorinated biphenyls (PCBs) from light fittings, lead from paint and synthetic mineral fibre are a number of hazardous materials often associated with burnt structures. Proper clean up of hazardous material before sites are reopened to visitors is a critical component of the recovery effort, as is the need to ensure that employees, contractors and volunteers are not exposed as part of their activities. These risks are managed through proper formulation of Job Safety Analysis and awareness initiatives. In the case of asbestos clean up, only licensed contractors may be used, and in accordance with relevant legislation an independent appropriately qualified hygienist is required to issue a formal site clearance certificate prior to site reoccupation.

**Water quality:** The primary assessment process requires an evaluation of risks to human and animal health from possible water contamination. Factors to be considered include chemical, biological and sediment contamination. Chemical contamination from the hazardous substances mentioned above needs to be considered. Water storages (eg tanks) at huts and other visitor sites need to be checked to ensure smoke, ash and other fire contaminants have not affected water quality. Biological contamination may arise as a consequence of water bodies or catchments becoming stagnated after human disruption or by the presence of dead animals. Erosion and sedimentation may lead to water becoming unsuitable for human and animal consumption.

## **OBJECTIVES AND STRATEGIES**

### **Restore visitor access**

- Provide public access to visitor sites by 30 June 2007 and to the walking track network by 30 June 2009.
- Re-establish Permanent Road Network by 30 June 2009.
- Communicate the reopening strategy to general community, key stakeholders and relevant government authorities by the 31 December 2007.

### **Repair or replace recreational and tourist built assets**

- Strategic review of asset replacement completed with wiser placement and design of infrastructure where applicable, and in a collaborative fashion by 31 December 2007.
- Assets replaced fit for purpose, consistent with sustainability principles and fully compliant with relevant standards by 30 June 2009.

## 3.2 NATURAL VALUES - (\$10.585 MILLION)

Government agencies recognise that maintaining environmental services and biodiversity is fundamental to the quality of life and economic well-being of fire affected communities. Protecting and rehabilitating fragile ecosystems and species that have been placed under additional threat by the bushfires is a major priority of ecological fire recovery. Whilst fire is a natural occurrence, particular attention will be paid to managing the post fire risks and potential negative consequences for biodiversity.

Fire is a natural event in many of the wildlife habitats of south-eastern Australia and most species have adaptations that enable them to recover after fire. Fire is important in renewing natural cycles that support the health of flora and fauna populations. The bush has already commenced its natural recovery processes including resprouting from rootstocks and stems, and seed germination. Thus most of the native vegetation burnt in the Great Divide fires will recover and areas be repopulated by native wildlife. This recovery will occur over many years and will be observed keenly, and assisted where appropriate, by the general and scientific communities.

However, some vegetation types and species can be at risk from fire, particularly where the fire regime is of a frequency, intensity or season not typically experienced in the past and to which species are adapted. Fire is a major disturbance that can provide opportunities for introduced species to invade, and can exacerbate other threats such as erosion, which leads to siltation of rivers thereby affecting aquatic species. Some species may be at increased risk due to their already precarious situation before the fires (eg low population levels), and the post fire effects of disturbance in altering predator/competitor relationships and other environmental factors. However, this is not always the case as some species respond very positively to fire.

This plan has been developed using an asset and risk assessment framework that utilises the available spatial data and expert and local knowledge to identify priorities for management. That is, high value assets at high risk will receive priority for management. Consideration has also been given to the potential risks associated with new and emerging threats and to the urgency of recovery action. Actions to address urgent issues have already, or will be, undertaken as soon as it is safe to do so. For example, a population of Barred Galaxias was transferred to captivity as a backup to the wild population prior to sediment and ash affecting their stream habitat.

Natural values are intrinsically part of Victoria's traditional owners cultural heritage and their obligations to speak for and care for 'Country' will be recognised in how agencies manage these values and establish relationships with traditional owners and Indigenous communities in the management of natural values.

### 3.2.1 PROTECTING FRAGILE ECOSYSTEMS AND RARE OR THREATENED SPECIES

The State Government has announced funding of \$830,000 to protect vulnerable ecosystems and rare and threatened species.



### 3.2.2 ECOLOGICAL VEGETATION CLASSES

Native vegetation in Victoria has been classified into Ecological Vegetation Classes (EVCs). Of the approximate 300 EVCs described in Victoria, 58 occur within the fire affected area, and 42 of these have conservation significance within the bioregion. A number of vegetation communities listed under the *Flora and Fauna Guarantee* (FFG) Act also occur within the fire affected area.

The frequency, intensity, seasonality and type (eg crown versus ground) of fires will affect the response of native vegetation communities. Many of the vegetation communities in the fire affected area are reasonably fire tolerant (eg Grassy Woodland) and will persist after fire. However, other vegetation communities (eg Wet Forest) are more sensitive to fire and the recovery of these will depend on the frequency and intensity of fire, which varies throughout the fire area due to the patchy distribution of past fires and fire behaviour at particular sites.

Spatial analyses of ecological values in the fire affected area were undertaken on 22 January 2007. An analysis of EVCs that appear to have been burnt outside their tolerable fire interval has also been conducted using fire history data and knowledge of the natural history of different species and vegetation types. Preliminary analyses indicate that large areas of vegetation in the fire area have been burnt more frequently than their tolerable fire interval. Some vegetation communities such as dry foothill forests have recently reached their minimum inter fire period, but other vegetation such as damp wet forests and high altitude forests and woodlands have yet to reach their minimum inter fire period. This has implications for fire management, including prescribed burning, in the future.

Knowledge of the spatial distribution of vegetation in the fire affected area, its fire history, provision of ecosystem services and known response to fire informed the development of priority vegetation communities. This process identified several priority vegetation communities, including the Sub-alpine Treeless Mosaic EVC that includes a number of vegetation communities listed under the FFG Act. In particular, Alpine bogs are considered to be a priority for their provision of habitat for rare and threatened fauna and flora species, fire history, and importance for the delivery of ecosystem services such as maintenance of flow and water quality. Other priority vegetation communities include EVCs dominated or co-dominated by fire-sensitive species such as Alpine Ash or Mountain Ash, riparian vegetation communities and Snow Gum Woodlands and forests on the Mt Buffalo plateau.

### 3.2.3 FLORA

Analysis of data entered in the Victorian Flora Information System since 1970 indicates that the fire affected area contains at least 2091 flora species, of which 324 species have conservation significance. This includes 15 species listed under the *Environment Protection and Biodiversity Conservation* (EPBC) Act and 29 species listed under the FFG Act. Many flora species within the fire affected area have not been adversely affected by the fire. However, the post fire recovery of flora species is dependent on the frequency and intensity of fires across the landscape and threatening processes post fire. Natural succession will result in an array of native species being present immediately after the fire, which will decline in abundance as other species re-establish over time.

Analyses based on the geographic extent of these populations within the fire affected area, their conservation significance and fire response (where known) has been used to develop a priority list of flora for further investigation and risk mitigation. This includes bryophyte species, ferns, orchids, shrubs and trees.

### 3.2.4 FAUNA

Analysis of data entered in the Victorian Wildlife database since 1970 suggests that the fire affected area contains at least 448 birds, amphibians, reptiles, mammals, aquatic and terrestrial invertebrates and fish. This includes 20 species that are listed under the EPBC Act and 59 species listed under the FFG Act. The fire area encompasses important populations, from a national and state-wide perspective, including the Mountain Pygmy Possum, Long-footed Potoroo, Spotted Tree Frog and aquatic invertebrates and reptiles. In other instances a proportion of the habitat of other threatened fauna has been affected, such as the Alpine Spiny Crayfish.

Whilst many of the threatened species are birds, which is partly a consequence of greater survey effort and higher detectability relative to other fauna groups, the fire area is fortunately not the centre of distribution for many of these species.

Non-threatened species for which much of their distribution lies within the fire affected area include the Common Wombat. Analyses based on the extent of known fauna populations within the fire affected area and their conservation significance has been used to develop a priority list of fauna for further investigation and management.

Not all fauna known to occur in the fire affected area will have been negatively affected by the fire; for example, many species only occur in the area sporadically (eg Freckled Duck), and other animals may have been protected by physical barriers such as rocks, or retreated to areas that were only patchily burnt. However, some species that rely on habitats and food sources with restricted distributions, and particularly stream-dependent fauna, are likely to have been adversely effected.

### 3.2.5 WEEDS AND PEST ANIMALS

The State Government has announced funding of \$3 million for better pest control in parks and forests. Management of weeds and pest animals on public land and at the interface with private land can contribute indirectly to recovery of adjacent landholders and communities. Management of pest plants and animals will also focus on managing invasive and fire sensitive weeds and protecting high value assets from pest plant and animals.

Ecological values will be protected by targeting those pest animals that pose the highest level of risk. Where possible, management will be integrated into existing pest control programs that are of an appropriate scale and duration. An example is the protection being provided to the Long-footed Potoroo population at Boulder Creek by immediate extension of the Southern Ark Program to include the fire area. In other cases targeted control programs will assist native species to recover. The Department of Primary Industries (DPI) received an additional \$1 million for the management of wild dogs and foxes along the interface of private and public land.

### 3.2.6 THREATS TO POST-FIRE RECOVERY OF NATURAL VALUES

Fire is a natural part of the Australian environment, but several threatening processes may affect the ability of these natural values to recover to their pre-fire condition. Identifying these threats and assessing their associated risk helps determine priorities for on-ground works. GIS spatial analyses and expert knowledge have been used to inform a risk assessment workshop, which has identified several key threatening processes to be addressed. Some of these threats will act in isolation, while other threats, such as climate change and the prevailing drought in south-eastern Australia, may interact to exacerbate the impact. While there is limited scope to manage some threats, such as loss of habitat and food resources for fauna, there is scope to ameliorate other potential threats such as increased predation by pest animals and degradation caused by fire suppression activities.

**Increase or establishment of new and existing weeds and pathogens:** Experience has shown that weeds and pests can thrive in post fire environments. For example, following the 2003 fires Grey Willow seedlings appeared in their thousands in alpine mossbeds. Weeds may be spread by winds associated with the fire, by water and animal movements and through human activities. Weeds may invade and establish following a fire due to the reduced competition and the increased nutrient and light conditions that favour colonisation. Some weeds will flourish initially due to their life history strategies but then decline as the original native vegetation re-establishes its influence.

Interim guidelines and procedures for managing the environmental impacts of weeds on public land outline the key priorities for dealing with weeds. These guidelines give highest priority to new and emerging species, including 'sleeper' weeds. An asset-based approach to established weeds is taken. Thus it will be necessary to undertake surveillance to identify new weed occurrences and to target known new and emerging species. Important areas for biodiversity conservation will be a focus for management to prevent the impacts of established weeds.

**Increased grazing and trampling pressure by pest animals:** Following the fire, there may also be increased grazing and trampling pressure on fragile alpine and sub-alpine vegetation communities from rabbits, feral goats, deer, horses and wild pigs. Areas above 1,200 metres and on steep slopes are particularly vulnerable to trampling pressure.

**Cattle grazing in licensed areas:** An extensive body of research has suggested that grazing in alpine and sub-alpine areas has resulted in a loss of vegetation cover, change in the floristic structure of vegetation and degradation of sensitive alpine bog communities. The impacts of cattle in licensed areas may increase post fire as a consequence of decreased vegetation cover and increased access.

**Increased fire frequency and geographic extent:** The fire history of vegetation prior to European settlement across much of the fire affected area is poorly understood. Recently, scientists have used knowledge of the life history of plants and the effects of fire to estimate maximum and minimum fire periods. Preliminary spatial analyses suggest that greater than 50% of vegetation communities in the fire affected area have burnt more frequently than recommended by provisional guidelines. Fire frequency may increase in future as a consequence of climate change, resulting in long-term changes to the structure and diversity of vegetation, and replacement by more fire-tolerant plant species. The large geographic extent of the fire has resulted in a change in age class diversity of some vegetation across the landscape; for example, 49% of the area of Victoria's Alpine Ash (*Eucalyptus delegatensis*) and Mountain Ash (*E. regnans*) vegetation (233,424 ha) has been burnt in the last four years. These species require 15-20 years to mature and reproduce, and a fire during this maturation period may result in local extinction of these species. This in turn has implications for maintaining genetic diversity of species.

**Increased erosion and sedimentation:** Three agents are involved in erosion in the fire affected area: frost heave, wind and water. The extent to which soils are eroded depends on the stocking rate of livestock, intensity of rainfall, soil moisture content, rate of infiltration, vegetation cover and type, rainfall intensity and slope. Soils in montane forests are more permeable and less prone to erosion than in the higher sub-alpine zone, and recently burnt snow gum communities and snowgrass communities are the worse affected. In particular, vegetation communities such as the FFG listed Alpine Marsh Marigold (*Caltha introloba*) Herbland and Alpine Bogs are likely to be particularly impacted by sedimentation.



**Habitat fragmentation, change in habitat availability and loss of food resources:**

While some fauna species may benefit in the short to mid term from changes caused by fires (eg the Flame Robin responds favourably to more open vegetation structure), others such as small ground dwelling mammals and arboreal marsupials may take longer to recover from loss of habitat and food resources. Decreased population sizes may also result in loss of genetic diversity, particularly for threatened species.

**Increased fire frequency:** Some populations of threatened fauna eg the Spotted Tree Frog and Long-footed Potoroo have been burnt in both 2003 and 2006/2007. These populations may not have had sufficient time to recover before the next fire.

**Increased predation by pest animals:** Pest animals may extend their range into the fire area and have increased access as a consequence of the loss of vegetation cover and control line construction. For example, Long-footed Potoroos that gained shelter from foxes in dense understorey habitat may now be exposed to predation. Small ground dwelling mammals, birds, reptiles, amphibians and livestock on adjoining private land may face increased predation by foxes, wild dogs and cats following wildfire. Predators may have increased access to native populations of fauna as a consequence of control line construction and short-term loss of understorey vegetation cover and logs. Predator control will be focused at sites where species are most threatened (eg Mountain Pygmy Possum and the Long-footed Potoroo) and along the public/private land interface to protect stock on private land. Pest animals may also affect native fauna by competing for habitat and food resources.

**Visitor access:** The loss of cover following fire may increase the impacts of horse riding, motor vehicle and motor bike access on small ground dwelling mammals, amphibians, and reptiles.

**OBJECTIVES AND STRATEGIES****Protect high value biodiversity assets from high to extreme risks (mitigate risks)**

- Removal of fauna populations at risk of local extinction from threatened habitat by 30 June 2007.
- Reduce immediate negative impacts on high value fauna through predator control by 30 June 2007.
- Reduce immediate negative impacts on high value flora through reduced competition with introduced species by 30 June 2007.
- Reduce immediate negative impacts on high value ecosystems by 30 June 2009.

**Improve understanding of the impact of fire on biodiversity (monitor risks)**

- Impacts of fires on key populations and/or habitat of flora and aquatic organisms, amphibians, mammals and reptiles assessed by 30 June 2007.

**Minimise the risk associated with predators and grazers on high value fauna and flora**

- Reduce immediate negative impacts on high value fauna and flora through pest animal control by 30 June 2009.

**Minimise the risk associated with new and emerging and established weeds**

- Identify key priorities for dealing with weeds, and prioritise high value habitats and vegetation communities for weed control by June 30 2009.

**Minimise pest plants and animals along the public/private land interface**

- Work in partnership with adjacent landholders to undertake predator control and to identify and control weed sources on public land by June 30 2009.

### 3.2.7 PROTECTION OF CATCHMENTS AND WATERWAYS

The State Government has announced funding of \$6.76 million over three years for the protection of catchments and waterways. This funding will be allocated to the four affected Catchment Management Authorities (CMAs) on the basis of need, taking into account the fire-affected area within each CMA's region. The CMA regions affected are West Gippsland (31.3%), North-East (25.4%), East Gippsland (28.4%) and Goulburn Broken (14.9%).

The fire affected area is important for the provision of water for agriculture and domestic use. For example, Lake Glenmaggie supplies water to the Macalister Irrigation District and is the source of urban water supplies for several surrounding towns. The Ryans Creek catchment supplies the township of Benalla. In addition, large areas of the Thomson River and Ovens River catchments were burnt during the 06/07 fires. The fire affected area also contains a number of high priority river reaches and important habitats for aquatic plants and animals, including heritage rivers. The Great Divide Complex Fire area is also important for the maintenance of flow for downstream aquatic environments such as the Gippsland Lakes and Mitchell and Lower Ovens Heritage areas. A lot of the east Gippsland and north east catchments were also burnt in the 2003 bushfires.

In the short to medium term, the loss of vegetation from the steep slopes of the mountains and ridges of the Great Divide will result in increased run-off and flooding of waterways. We have already seen evidence of this in the flash flooding of Licola from Target Creek and damage to the Tamboritha Road through flash flooding in tributaries of the Wellington River. As in previous fires, this flash flooding has been exacerbated by the build up of debris (fallen trees, partly-burnt timber) and sediment from the erosion of exposed soils, such as those experienced in the Buckland River catchment in the north east.

The recovery of our catchments and waterways is highly dependent on the location, volume and intensity of rainfall over the next twelve months. If rainfall is relatively gentle, then regeneration of currently bare ground will help to hold soil in place. More intense rainfall, particularly in areas where the fires burnt with greater intensity, will lead to significant erosion and increased problems downstream. Given the extent of the fires and the nature of the country that was burnt, there is little that can be done to manage problems at their source. Rather, there will be a continuing need over the next three years to respond to issues following rainfall events in the Great Dividing Range.

The main impacts on catchments and waterways are:

**Altered flow regimes and water yields:** in the shorter term, the loss of vegetation will result in increased runoff into waterways. Soils are naturally hydrophobic and this can be influenced by fire intensity and the amount of destruction of the surface litter layer. In the medium term, as vegetation slowly re-establishes, there will be a decline in water yield as more water is taken up by the younger and more rapidly growing plants. Given the extent of the 2006/07 bushfires, this medium-term reduction in water yield can be expected to have significant impacts on downstream environments and users of major streams, including the Gippsland Lakes, and water users such as irrigators in the Macalister Irrigation Area.

**Increased erosion:** The loss of vegetation cover and the subsequent exposure of bare earth, coupled with the construction of control lines, will continue to result in increased soil erosion, particularly where slopes are steep and revegetation is slow. In some instances, the natural hydrophobicity of the soil can be destroyed by the heat of the fire to a certain sub-surface level, but then retains its hydrophobicity. This can potentially result in mass movement of the surface soil layer as the surface soil becomes saturated with water, and the water cannot penetrate the sub-surface hydrophobic soil.

The lack of vegetative cover will also increase run-off rates from rainfall, increasing the erosive potential of even small rainfall events. Significant amounts of topsoil and the seedbanks they contain will be eroded from the slopes of the Great Dividing Range and deposited in waterways and on downstream floodplains. In the short-term, water quality will be very poor, as evidenced by the water supply problems to towns like Bright, Wangaratta, Benalla, Licola, Coongulla, Maffra, Dargo and Bairnsdale. In some areas, significant geomorphological changes are occurring, with whole gullies being stripped back to bedrock.

There will also be an increase in instream erosion, as sediment and debris accumulations redirect flows into stream banks and initiate headward erosion events. This erosion will necessitate control measures such as rock beaching and the construction of grade control structures in critical areas.

**Increased debris:** Leaves, twigs, branches and trees have been carried into waterways and are moving downstream. This poses a risk to water quality as the litter decomposes, which results in depletion of oxygen levels and increased risk of fish kills. Where instream debris builds up, there is a major risk to infrastructure such as bridges, and increased potential for stream avulsions (breakaway streams forming new courses) and stream bed instabilities. By deflecting flows into streambanks, debris build-ups also lead to increased instream erosion.

**Increased sediment:** Increased erosion leads to large amounts of sediment being deposited in waterways and on floodplains. Sedimentation reduces habitat for fish, aquatic invertebrates and amphibians and interferes with the breeding behaviour of a number of species. Sedimentation can also lead to changes in stream form through filling of pools and redirection of flows. High levels of sediment also impact on the quality of water for both urban and rural water supplies. There will be a continuing need to cart urban water supplies to some towns, particularly after heavy rainfall in the catchments.

**Degraded water quality:** In addition to sediment, water quality issues such as depleted oxygen levels and increased nutrients will cause major problems to downstream receiving environments. Oxygen depletion, caused mainly by the decomposition of vegetative matter, can cause fish kills and adversely impact other fauna. Increased levels of nutrients can lead to algal blooms in downstream receiving environments such as the Gippsland Lakes and, as recently experienced, in waterways such as the Mitchell River. Other water quality parameters, such as pH, will also be affected.

**Destroyed fencing and revegetation works:** Significant areas of fenced revegetation works were destroyed by the fires on public and private land. This included riparian fencing and revegetation undertaken by the CMAs, as well as Landcare and other revegetation works on private land. Part of the funding will be used to replace destroyed or damaged environmental revegetation works.

**Increased weeds:** Fire (and soil disturbance from suppression activities) creates niches in the landscape in which weeds can prosper and extend their range. This applies across the whole landscape but is a particular problem along waterways, which provide regular moisture and an environment amenable to weed growth.

In particular, it can be expected that common riparian weeds, such as blackberries and willows, will fill the void left by the fires. However, and to our advantage, the fires have made access to most of our waterways possible for the first time in decades, meaning that, with a concerted effort, many of these weeds can be eliminated from significant reaches of waterways. Weed control activities will be undertaken in close consultation with relevant land managers, including DSE, PV and private landowners.

Activities to manage these impacts commenced soon after the fires were declared controlled and will continue as required over the next two to three years.

## **OBJECTIVES AND STRATEGIES**

### **Repair or replace CMA assets**

- Commence rebuilding critically damaged CMA assets by 30 June 2007.

### **Protect CMA assets and local supply off-takes**

- Remove or relocate burnt trees/debris from critical locations in waterways to protect CMA assets and local supply off-takes from 2007 to June 2009.

### **Monitor water quality**

- Undertake additional monitoring for water quality, including dissolved oxygen, turbidity, flow and sediment loads (2007 – 30 June 2009).

### **Protect river health from sediment**

- Undertake sediment management in critical areas between 2007 and 2009.

### **Minimise weed re-establishment and invasion of new areas in high value waterways**

- Undertake weed management activities in high value waterways as documented in the CMA regional river health strategies between July 2007 and July 2009.

### 3.3 FOREST VALUES - (\$5.8 MILLION)

The Great Divide Fire burnt large areas of commercially viable timber species such as Alpine Ash and Mountain Ash. Extraction of this timber from State forests provides employment opportunities and economic benefits to both regional and Victorian communities.

The Great Divide Fire has impacted on the availability and quality of these timber resources, which has created issues for timber salvage, future sustainability of timber extraction, minor forest produce and silviculture. In particular, the Benalla Mansfield Central, Central Gippsland, North-East and Tambo Forest Management Areas have been significantly impacted by the Great Divide Fire.

#### 3.3.1 FACILITATE SALVAGE OF FIRE KILLED TIMBER BY VICFORESTS

In order to determine sustainable harvest levels for legal harvesting to occur, sustainability criteria and an allocation is provided to VicForests (VF) in a gazetted Allocation Order.

A revised Allocation Order will be prepared for public land within the Great Divide Fire and associated wildfires area, which will reflect both the need to salvage and the future impact of the fire on available timber resources. Reviews of the Allocation Order will be prepared in March 2007 and again in June 2009.

#### 3.3.2 ENSURE IMMATURE FIRE KILLED ASH REGENERATION (IFKAR) WITHIN DSE AND VICFORESTS MANAGED AREAS OF STATE FOREST WITH INSUFFICIENT SEED

Ash forest is easily killed by fire. It is estimated that there are 20,000 ha of ash forest that could potentially be salvaged, which has a standing volume of ~ 2 million m<sup>3</sup> of sawlog and ~ 4 million m<sup>3</sup> of residual log. This is approximately 4-5 years supply for industry. Salvage operations occur immediately after the fire and continue for 1½ to 3 years to minimise degradation of the ash sawlog and impact on the regenerating forest.

Salvage prescriptions will be required to ensure that harvesting occurs within the Code of Practice for Timber Production 2007 and that environmental values are adequately protected. VicForests received \$1 million for roading to support the extraction of salvage timber following the fires. All salvage operations will be scheduled, managed and supervised by VicForests.

#### 3.3.3 REVIEW OF FUTURE TIMBER SUPPLIES

The future availability of timber following salvage operations will be reviewed. Detailed mapping of fire severity combined with an assessment of the impact of the fire on timber volume and subsequent regeneration will be undertaken to determine the long term impact of the fires on timber supply.

#### 3.3.4 PRODUCTION OF MINOR FOREST PRODUCTS

Many local communities rely on State forests for a supply of minor timber produce such as firewood, poles, and posts for fencing for private and commercial use. The availability of minor forest products at the public land - private land interface has been greatly reduced by the Great Divide Fire and supplies may be limited for years to come. For example, in the short term fencing materials are in high demand as landowners rebuild fences destroyed in the fires. Native forest timber species are one source of supply. No direct funding was allocated by the Ministerial Taskforce for minor forest produce, and these matters will be addressed through normal DSE business management.

### 3.3.5 SILVICULTURE

Some timber species such as Alpine Ash and Mountain Ash take 15-20 years to mature and produce seed, and a fire interval less than this period may result in local extinction of these species. Less than 2% of the total area of vegetation that includes these plants has been burnt more frequently than the recommended minimum inter-fire interval. In areas that are frequently burnt, Alpine Ash and Mountain Ash will be unlikely to naturally regenerate. However, 49% of the total area of vegetation containing Alpine Ash and Mountain Ash occurred within the fire boundary. If these plants are burnt before the plants have had time to mature (15-20 years) there is likely to be a large reduction in the area available for harvest. Assessment of recently burnt areas will be conducted and supplementary aerial sowing and other site preparation may be required.

#### OBJECTIVES AND STRATEGIES

##### Facilitate salvage of fire killed timber by VicForests

- Revision of resource allocation datasets and information by March 2007.
- Implement arrangements with VicForests to approve areas for salvage harvesting of ash timber in State Forests from March 2007 – June 2009.

##### Ensure Immature Fire Killed Ash Regeneration (IFKAR) within DSE and VF managed areas of State forest with insufficient seed

- In 2006/07 conduct assessments, prepare plans and conduct regeneration operations on up to 15,000 ha of Alpine and Mountain Ash forests on State Forest.
- In 2007/08 plan and undertake regeneration works in areas of Alpine and Mountain Ash unsuitable for sowing in 2006/07, and conduct assessments, prepare plans and regeneration operations of up to 8,800 ha of mixed species forests on State forest. In 2008/09 complete regeneration operations on any remaining areas.

##### Production of minor forest produce

- Revise availability and sources of minor forest produce in the short term (06/07) and long term (07/08).

### 3.3.6 CATTLE GRAZING

The staged resumption of grazing to licence areas is important to facilitate this ongoing forest use, support local communities and protect forest values. Grazing licences exist in areas of forest affected by Great Divide Complex and associated fires.

The key issue for grazing and fire recovery is ensuring ecosystems have recovered from the impacts of wildfire such that grazing by cattle can occur on a sustainable basis with minimal negative impacts on flora, fauna, soils, water quality and commercial timber species.

The impact of fire and subsequent recovery on licence areas is related to factors such as the fire intensity, topography, rainfall, vegetation types and soil type. Therefore, an assessment of each licence affected by fire will be required to determine fire impacts and recovery status. Licences subject to high intensity fire and/or containing sensitive vegetation types may require no grazing for multiple seasons before the licence has sufficiently recovered. Therefore an ongoing assessment program is required for some years after fire.

A robust assessment process is required to objectively assess the fire recovery of licences and feed into a decision making process that can be understood by stakeholders. A process was implemented for fire recovery following 2003 Alpine Fires. It is proposed that subsequent to a review based on the experience gained post-2003 fires, this process will form the basis of the approach for 2006/07 Recovery.

#### OBJECTIVES AND STRATEGIES

##### **Facilitate the resumption of sustainable grazing of State forest affected by fire**

- Impact of fire on grazing licences assessed, including available biomass, sensitive species and communities and the impact of the resumption of grazing on values 30 June 2009.

### 3.4 FIRE SEVERITY MAPPING - (\$1.265 MILLION)

Major fires like the 2006/2007 Great Divide Fire cause dramatic change to the natural environment. To successfully manage a rehabilitation and recovery program, information is needed in order to understand the extent and severity of the disturbance caused by the fires.

During the course of the fire, fire behaviour and intensity varied depending on a range of conditions, such as wind, temperature, relative humidity, forest type, fuel loads, drought effect and topography. This created a mosaic of fire damage, so that the environmental effects and asset losses varied across the fire area.

This situation, therefore provides a complex set of circumstances on which to base bushfire recovery activities and future planning. Fire severity mapping was done to aid monitoring and land management. Satellite imagery and aerial fire severity analyses provides essential information to study and assess environmental effects and asset losses, and assist planning for bushfire recovery operations.

Fire severity mapping is a three stage process:

**Stage one:** As soon as the fire is contained and as weather permits, fire severity imagery is captured using the Landsat Satellite (Figures 3 and 4). This satellite imagery provides 30 m pixel resolution and provides a broad overview of the fire affected area and enables initial planning of fire recovery to begin. Acquisition of the Landsat satellite imagery and initial assessment of fire severity has already been completed.

**Stage two:** Higher resolution Spot 5 satellite imagery (2.5 m pixel resolution) is acquired which is used to undertake fire severity analyses. Digital imagery is subsequently collected by aircraft (35cm resolution; Figure 5) to validate the fire severity analysis. Ground truthing of the fire severity analysis is then undertaken to improve the accuracy of the final analysis, and involves the assessment of >100 sites across the fire affected area. Ground truthing is currently underway. This high resolution digital photography will also be used by regional staff for quick desktop assessments of damage to catchment, built and biophysical assets where access is limited due to distance, damage and safety issues.

**Stage three:** The final stage of fire severity mapping is the production of maps for use on the ground and in planning. Three types of maps are typically produced: 1) Overview Maps of each fire at 1:10,000 scale, 2) Fire Severity Maps at 1:25,000 scale, and 3) Image Maps at 1:2,500 scale. These will be made available via the Fire Recovery Web Page on FireWeb. Fire severity mapping will be completed by August 2007.

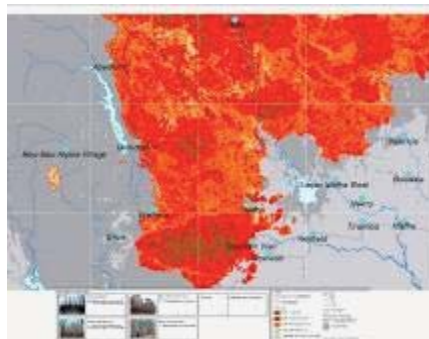


Figure 5



## OBJECTIVES AND STRATEGIES

### Provide fire imagery for key stakeholder use

- Systematic assessment of the fire boundary and fire intensity across the fire affected area and provision of imagery to land managers to aid recovery planning and damage assessment by 30 June 2007.

### Improve data collection in the field to support a consolidated data source for bushfire recovery

- Pilot trial of hand-held data collection and backend data management and viewing systems by 30 July 2007.

## 3.5 INDIGENOUS AND POST-SETTLEMENT RELATIONSHIPS AND HERITAGE - (\$1.01 MILLION)

### 3.5.1 INDIGENOUS CULTURAL RELATIONSHIPS AND HERITAGE

Through their rich culture, indigenous Australians have been intrinsically connected to this continent for tens of thousands of years, including the area now known as Victoria and the state's parks, reserves and other Crown land. Parks Victoria and the Department of Sustainability and Environment recognise this connection and acknowledge the traditional owners of these areas affected by the fires and further recognise their right to primacy to speak for 'Country'.

The fire affected area is part of 'Country' of the Taungerung, Gunai-Kurnai, Kurnai, Dhudroa, Wurundjeri, Monero-Ngarigu, Jaimathmathang and Mitambuta peoples. Parks Victoria and DSE also recognise and acknowledge the links and contributions from other indigenous communities and individuals and those maintaining a custodial cultural role.

The Bangerang Aboriginal Cultural Co-operative, Camp Jungai Co-operative Ltd, Moogji Aboriginal Council East Gippsland Incorporated, Wurundjeri Tribe Land Compensation Cultural Heritage Council Incorporated, Gippsland and East Gippsland Aboriginal Corporation and Mungabbarina Aboriginal Co-operative have scheduled responsibilities under the current *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Commonwealth) for protection of cultural heritage in different parts of the fire affected area. This may change due to the new Victorian legislation (*Aboriginal Heritage Act, Victoria*) due to come into affect late May - June 2007.

Indigenous cultural heritage includes a broad range of places and values. It is critical to recognise that not all sites and places are physical and that many places are part of people's spiritual beliefs and connections to 'Country'. Connection is to the whole of environment, including landscape, landform, flora, fauna and indigenous peoples may have totemic associations, spiritual connections and cultural obligations to care for 'Country'.

Connection extends well beyond the values associated with pre-contact cultural sites such as artefact scatters and scarred trees. It encompasses the notion of speaking for, caring for, and healing of 'Country', (PV, 2006). Bound into this connection is an interest in ensuring that cultural knowledge helps to shape land management programs including fire recovery, (PV, 2006).

There are 288 known registered indigenous cultural sites that occur within the fire affected area. These sites comprise grindings, indigenous places, sub-surface scatters, scar trees, mounds and artefact scatters. In the 2003 Alpine Fires some 350 sites and places of significance were recorded, including cultural sites covering many hectares and 100s of metres long. It is likely that this will occur as a result of the recovery work required following the 2006/2007 fires.

Impacts of the fire on indigenous cultural stone-related artefacts include splitting and crazing, with artefact scatters susceptible to post fire erosion and scarred trees to burning. Containment lines constructed for fire suppression may also have disturbed sites.

All post fire recovery works, including environmental and assets, tree risk assessments, road, track and fire break restoration works have the potential to disturb and/or damage sites and places and must be carried out in accord with traditional owner guidance and recommendations and relevant legislation, including the *Native Title Act* 1993 requirements, particularly the Future Acts Regime. All projects must be assessed in accordance with Future Acts Regime and in compliance with Parks Victoria's framework, particularly relating to native title consultations and notifications.

It is highly likely that there are many unrecorded sites throughout the fire affected area. These sites are more likely to occur in given circumstances relating to topographic and specific landscape features and where natural resources occur. These include areas near water such as river flats, terraces and spurs leading to rivers, that were used as major camp areas, and prominent ridges and spurs that may be part of travelling routes. Saddles along ridges and high points with views are also probable locations.

It is unlikely sites will be situated on steep slopes, however care needs to be taken. It must be recognised that not all sites and places will be readily visible, some may only be observed from above due to their scale and size, while others may be men's or women's places and therefore not observed. The latter point clearly indicates the need to ensure gender balance in cultural heritage teams.

The high degree of visibility created by the fire has created a unique opportunity for traditional owners and other members of the indigenous community to advise PV & DSE on their 'Country' and reconnect with the sites and places they wish to have recorded for future management.

A post-fire survey could both assess the impacts on indigenous sites from fire and fire suppression activities and include recommendations for site protection, rehabilitation, interpretation (if desirable) and ongoing management in partnership with PV & DSE. Any post-fire survey should initially focus on known sites, containment lines, predicted sensitive zones and zones where other works (ie environmental or visitor/assets are being carried out) to ensure the minimisation of any impacts and take advantage of opportunities to better understand, recognise and respect the rich ancient yet living indigenous cultural heritage of this 'Country'. Post-fire surveys will ensure that sites can be better managed and protected in the future and increase our understanding of how indigenous people lived in a shared way with 'Country'.

A range of practices to minimise disturbance to cultural sites is outlined in the *Indigenous Partnership Strategy and Action Plan*, (PV, 2005).

## **OBJECTIVES AND STRATEGIES**

### **Recognition of traditional owners and their elders**

- Working partnerships established between with traditional owners, their elders and management agencies and input into all aspects of fire recovery provided by 30 June 2008.

### **Foster relationships and knowledge exchange**

- Good communication and exchange of ideas and values between traditional owners, PV, DSE, AAV and other indigenous communities for implementing the whole of fire recovery program by 30 June 2008

### **Protect indigenous sites and places**

- Identification of indigenous archaeological sites and places by 30 June 2008 and establishment of protection and management measures.

### **3.5.2 Post-settlement cultural heritage**

The fire affected area contains a large number of sites and places associated with early European exploration, mining, settlement, agriculture and sawmilling. As links to Victoria's gold rush era, early settlement and high country grazing, these sites are a vital part of the state's cultural heritage.

To date, 245 recorded historic places have been recorded within the fire affected area, and many new sites have been unearthed from under the scrub due to the fires. Historic places affected by the fires include huts, mines, timber tramways, bridle trails and miners walking tracks, bridges, arboreta, sawmill and township sites and graves and cemeteries. Seven sites within the fire affected area are considered to be of National or State Heritage Significance.

Eight huts were burnt during the fire, but other historic places are thought to have suffered little impact. A number of the more easily accessible sites are important visitor attractions in a region that relies heavily on tourism for its economic sustainability.

The Victorian Government has provided \$360,000 to assist with the reconstruction of high country huts, in partnership with community groups such as the Victorian High Country Huts Association. This includes \$300,000 that was allocated as part of the tourism recovery package for the rebuilding of tourist icon Craig's Hut and walking track, which were constructed as a set for the movie *The Man from Snowy River*.

The risk to heritage places from fire depends on the nature of the fabric, the type of place and its setting. Places with timber elements are at significant risk of damage from burning and sheet erosion post fire. Heritage places are also at increased risk from vandalism and fossicking from 'treasure hunters'.

The intrinsic value of heritage places is in their ability to tell the story of our past. As such, their authenticity is of critical importance, even when incomplete. Where severely damaged or destroyed, there is generally limited value in their reconstruction, however whatever remains still has the ability to inform us greatly about our heritage. The risks following wildfire are therefore further loss of original fabric and setting due to instability of the objects or the surrounding environment, and the attraction of pilfering of movable objects by fossickers due to increased exposure and access.

Apart from the handful of huts lost in the fires, the vast bulk of heritage features involved in the fire area comprises of remnants of the mining and forestry industries, largely in the form of archaeological sites. Typical features include machinery remnants, mine shafts and adits, and other modified landforms.

Conservation activity at such sites would include stabilisation of fabric at risk of further collapse or movement, clearing them of mud and other debris resultant from fire suppression activity or post fire flood washout, removal of threatening trees, and in certain instances some reassembly of dislodged components. In a number of instances the provision of markers or protective devices at places such as newly exposed mine shafts may be required, as well as signage aimed at protecting the sites from pilfering or further wilful damage.

Such conservation works needed to restore or ensure the future protection of historic values would require surveys of the sites and preparation of conservation prescriptions by heritage professionals to determine the specific requirements in each case for recovery.

Historic sites previously obscured or made inaccessible by vegetation may have been exposed by the fire. The high degree of visibility created by the fire presents an opportunity to document these previously unrecorded historic sites, assess their significance and make recommendations for ongoing management. This work is relatively urgent, as blackberries, broom, thistles and other weeds will soon return and cover the sites. A separate survey of historic huts in the Baw Baw area that survived the fire is desirable, in order to allow comparative heritage value to be established across the public land estate. DSE and PV will support these strategies through normal business processes where time and funding permit.



## OBJECTIVES AND STRATEGIES

### Repair or replace high country huts

- Build existing partnerships with interested community organisations to repair and rebuild high value huts.

### Assessment of fire impact on known post-settlement sites

- Surveys of nationally and state significant sites based on cultural sensitivity mapping and disturbances.

### Improve knowledge of post-settlement occupation and use

- Heritage surveys of priority cultural landscapes exposed by the fire.

### Protect priority post-settlement sites

- Heritage Action Plans prepared and conservation works implemented for priority post-settlement sites.

## 3.6 COMMUNICATION AND COMMUNITY ENGAGEMENT

When communities are faced with natural disasters such as the Great Divide Fire, the impacts can be significant and the effects long lasting. These communities need support to manage their recovery, to respond to immediate needs and to address the long term issues. Community recovery is primarily the responsibility of the Department of Human Services, and is managed through the Municipal Recovery Managers. DSE and Parks Victoria will assist this process through the provision of fire and environmental information.

Wildfire has the potential to irreparably damage the relationships of the local and broader community with their parks, forests and natural environment as well as impacting on trust and relationships with park and forest management agencies.

Following the Victorian Bushfire Inquiry in 2003, DSE established a Community Engagement about Fire on Public Land Strategy. This strategy highlights the need to consult and collaborate with communities on decisions and future directions post fire. The strategy also outlines the need to educate the community about fire in the environment and to increase their capacity to understand and contribute to fire management planning decisions.

The size and complexity of issues relating to the Great Divide Fire and the connection to broader environmental matters such as climate change represents a unique opportunity to prioritise and deliberately engage the community in learning about the rehabilitation and recovery of the environment and implications for the future.



Community engagement has already occurred during the recovery period as part of the re-opening strategy, including community meetings, meetings with the huts roundtable group and ongoing discussions with the Indigenous Reference Group. For example, the impact of these fires provides significant opportunities for traditional owners and other indigenous communities to get back on 'Country' and work in partnerships with agencies and the broader community in healing and caring for 'Country'.

The key priorities will be communication between government agencies, local communities and key stakeholders, to provide information about fire and fire recovery and to create opportunities for interaction between government agencies and communities. Community engagement is a core business component of government agencies, and as such is a critical component of priority recovery projects. There are a number of regional resources available to assist and support staff to implement the actions required to ensure that good community engagement practice is incorporated in all rehabilitation and recovery activities.

## **OBJECTIVES AND STRATEGIES**

### **Maintain and foster relationships**

- Maintain and foster relationships between parks and forest staff and local communities by 30 June 2009.
- Promote the role of the community in fire recovery by 30 June 2009.

### **Engage stakeholders in recovery processes, achievements and activities**

- Support recovery teams to manage community relationships and engagement activities (2007-2009).
- Support recovery teams to manage stakeholder relationships and engagement activities (2007-2009).

### **Communities adjust to the new landscape**

- Measure community attitude to Fire and Public Land management by 30 June 2009.

### 3.7 COMMUNITY AND TOURISM

The tourism industry is a key sector in the economy of North East Victoria and Gippsland and provides significant employment and economic benefits to local communities of the region. The Great Divide Fires occurred during the peak summer visitation periods. The effect on tourism operators was felt across the area. It is estimated that millions of dollars of revenue was lost as tourists chose to take their holidays in other destinations or cancel existing bookings.

The wildfires also impacted on tourism outside the areas burnt. Fire effects, such as persistent, dense smoke and restricted access from road closures, led people to avoid travel to traditional locations such as the Gippsland Lakes. There has also been a significant flow-on effect with lost revenue to other businesses, particularly in the retail sector.

Licensed tour operators (LTOs) who rely upon National Parks and State forest areas were unable to operate their businesses during this period. The loss of natural attractions that these operators depend on is likely to have a significant impact on the income in the short term. Both DSE and Parks Victoria responded to provide assistance by employing LTOs after the fire to assist with recovery and re-opening areas.

The broader community that does not operate traditional tourism businesses but nevertheless gains income from tourists within their communities include petrol stations, supermarkets, newsagents, camping shops, boarding kennels etc. These businesses have also felt the reduction in visitor numbers to their townships.

Many popular visitor sites in parks and forest were damaged or impacted on through the fire. The tourism industry has had input into re-opening these areas through workshops and feedback forums. Local tourism bodies have been formed for bushfire recovery in the North East and Gippsland. PV and DSE staff are working with these groups to provide information and be part of the broader tourism recovery process.

Local communities need support to revive their townships and attract people back to the region to support their communities. 'Destination Gippsland' and 'North East Tourism' received \$1.75 million and \$1.9 million respectively for fire recovery, which is primarily assigned to post-fire tourism marketing. The tourism recovery strategy outlined here looks at short and long term goals to provide immediate assistance and to assist in building the tourism potential of affected communities. DSE and PV will support tourism through normal business processes.

#### **OBJECTIVES AND STRATEGIES**

##### **Promote the local tourism industry**

- Work with state-wide and local tourism bodies to promote park and forest re-openings through advertising and media throughout the fire recovery process (2007-2009).
- Promote local destinations at key events through PV/DSE attendance throughout fire recovery (2007-2009).

##### **Support fire-affected communities to undertake local events**

- Develop and support local community events by providing display materials, stands and in-kind marketing support (2007-2009).
- Assist tourism marketing bodies to identify events and activities (eg Destination Gippsland) that can be supported through Bushfire Recovery Funding (2007-2009).

## 4. IMPLEMENTATION

To ensure that the recovery priorities for each asset or value are implemented, panels of specialists in each area have been given the responsibility for ensuring the planning, implementation and reporting on projects is managed. In many cases these specialists have been drawn from a range of organisations, including DSE, PV, DPI and CMAs. To ensure governance and integration across projects, the Regional Recovery Steering Committee oversees the implementation within each part of the fire complex. In many cases, projects have been given to discrete organisations to manage across all categories of public land, but reporting is still via the Steering Committee.

Depending on the values and the projects, implementation will range from on-ground works delivered within specific geographic areas, to monitoring and assessment across the broader fire complex.

Many of the Recovery Projects will be implemented in a Whole of Public Land Program. This will ensure optimum efficiencies are obtained and the most effective program will be delivered.

Based on the funding allocated to each project, implementation will occur across the 2006/07 to 2008/09 business years, with the majority of work occurring from 2007/08.



## 5. REPORTING AND REVIEW

The Department of Sustainability and Environment, Parks Victoria and Catchment Management Authorities will report on the implementation of actions of this plan undertaken to rehabilitate the disturbance from fire rehabilitation and fire recovery. The actions will be assessed at three levels:

- Efficiency of implementation of the actions in the plan including completion of the actions within the agreed timelines;
- Effectiveness of actions in managing fire-exacerbated threats using established monitoring programs designed to measure performance; and
- Outcomes for values at key sites.

This reporting framework will identify whether there are ongoing issues or emerging threatening processes (eg weed invasion) that may need to be addressed by follow up programs.

Reporting will be completed by December, March and June each year and the Project Control Board will review outcomes in autumn each year.

## 6. REFERENCES

AS/NZS 4360 (2004). *Risk Management*. Standards Association of Australia, New South Wales.

DSE (2006a). *Code of Practice for Fire Management on Public Land, Revision No 1, February 2006*. Department of Sustainability and Environment, Melbourne.

DSE (2006b). *Fire Management Manual 9.1 Recovery*. Department of Sustainability and Environment, Melbourne.

PV (2006). *Grampians National Park Fire Recovery Plan*. Parks Victoria, Melbourne.

PV (2005). *Indigenous Partnerships Strategy and Action Plan, July 2005*. Parks Victoria, Melbourne.

# APPENDICES

## APPENDIX 1 KEY LEGISLATION AND POLICY WITH SPECIFIC PROVISIONS RELATED TO FIRE

<b>Acts</b>	<ul style="list-style-type: none"> <li>● <i>Native Title Act 1993</i></li> <li>● <i>Forests Act 1958</i></li> <li>● <i>National Parks Act 1975</i></li> <li>● <i>Reference Areas Act 1978</i></li> <li>● <i>Heritage Rivers Act 1992</i></li> <li>● <i>Catchment and Land Protection Act 1994</i></li> <li>● <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (up to 28 May 07)</i></li> <li>● <i>Archaeological &amp; Aboriginal Relics Preservation Act 1972 (up to 28 May 07)</i></li> <li>● <i>Aboriginal Heritage Act 2006</i></li> <li>● <i>Flora and Fauna Guarantee Act 1988</i></li> </ul>
<b>Codes</b>	<ul style="list-style-type: none"> <li>● <i>Code of Practice for Fire Management on Public Land 2006</i></li> <li>● <i>Code of Practice for Timber Production 2007</i></li> </ul>
<b>Strategies</b>	<ul style="list-style-type: none"> <li>● <i>Parks Victoria's Indigenous Partnerships Strategy and Action Plan 2005</i></li> </ul>
<b>Plans</b>	<ul style="list-style-type: none"> <li>● <i>Alpine National Park Management Plans (Wonnagatta-Moroka, Cobberas-Tingaringy, Dartmouth &amp; Bogong Units) 1992</i></li> <li>● <i>Forest Management Plan for the North East 2001</i></li> <li>● <i>Forest Management Plan for Gippsland 2004</i></li> <li>● <i>Central Highlands Forest Management Plan 1998</i></li> <li>● <i>East Gippsland FMA – Forest Management Plan 1995</i></li> <li>● <i>Gippsland Regional Fire Protection Plan 1999</i></li> </ul>
<b>Supporting Commonwealth Legislation</b>	<ul style="list-style-type: none"> <li>● <i>Environment Protection and Biodiversity Conservation Act 1999</i></li> </ul>

## APPENDIX 2 OBJECTIVES AND PROJECTS

Appendix 2 reflects the Ministerial Bushfire Taskforce funding allocation to bushfire recovery themes. The funding split across DSE (North East and Gippsland) and PV is shown. The funding split for protection of catchments and waterways is across the CMAs (North East CMA, West Gippsland CMA, East Gippsland CMA and Goulburn Broken CMA).

Objectives	Strategy (SMART Rule)	Project (Place Based) and Project Number (#)	Budget 06/07	Budget 07/08	Budget 08/09
<b>1. Visitor services - (\$12.4 Million)</b>					
<b>Total funding (black): PV; DSE NE; DSE Gippsland.</b>					
Restore visitor access	Provide public access to visitor sites by 30 June 2007 and to the walking track network by 30 June 2009	<ul style="list-style-type: none"> <li>Clear vehicle roads and walking tracks of fallen debris, assess and mitigate dangerous trees and other risks in accordance with the priority of the reopening strategy.</li> <li>Assess the condition of walking tracks and visitor sites in accordance with specified standards and guidelines, including insurance requirements and in accordance with the priority of the reopening strategy.</li> </ul>	<p><b>\$200,000</b></p> <p><b>\$500,000</b></p> <p><b>\$300,000</b></p>		
	Re-establish Permanent Road Network by 30 June 2009	<ul style="list-style-type: none"> <li>Repair 15 bridges and 8 log fills by 30 June 2008.</li> <li>Repair 9 bridges and 13 log fills by 30 June 2009.</li> <li>Complete road openings and install road furniture and under road drainage by 30 June 2009.</li> </ul>	<p><b>\$300,000</b></p> <p><b>\$1,000,000</b></p> <p><b>\$565,000</b></p>	<p><b>\$1,035,000</b></p> <p><b>\$1,865,000</b></p> <p><b>\$1,035,000</b></p>	<p><b>\$1,000,000</b></p> <p><b>\$1,100,000</b></p> <p><b>\$1,000,000</b></p>
Repair or replace recreational and tourist Built Assets	Communicate the reopening strategy to general community, key stakeholders and relevant government authorities by 31 December 2007	<ul style="list-style-type: none"> <li>Engage stakeholders regarding priorities for public access and incorporate into Public Land Reopening Strategy by 30 April 2007.</li> <li>Develop and publicise Public Land Reopening Strategy on Parkweb monthly.</li> <li>Continue to update and publicise Public Land Reopening Strategy – responding to new and changing stakeholder expectations.</li> </ul>			
	Strategic review of asset replacement completed with wisser placement and design of infrastructure where applicable, and in a collaborative fashion by 31 December 2007	<ul style="list-style-type: none"> <li>Compile list of damaged and undamaged assets.</li> <li>Review costs associated with asset replacement and prepare lists of assets to be replaced.</li> <li>Compile Visitor Services Recovery Plan – strategic review of Built Assets and recommendations for replacement ('like for like'), upgrades and retirement.</li> <li>Undertake planning and design, and replace assets in accordance with the priorities of the reopening strategy.</li> </ul>	<p>Part of normal business activities</p> <p><b>\$330,000</b></p> <p><b>\$330,000</b></p> <p><b>\$340,000</b></p>	<p><b>\$500,000</b></p> <p><b>\$500,000</b></p> <p><b>\$500,000</b></p>	
		<b>TOTAL</b>	<b>\$2,865,000</b>	<b>\$4,935,000</b>	<b>\$4,600,000</b>
		<b>Parks Victoria</b>	<b>\$665,000</b>	<b>\$1,375,000</b>	<b>\$1,500,000</b>
		<b>DSE Northeast</b>	<b>\$500,000</b>	<b>\$1,365,000</b>	<b>\$1,500,000</b>
		<b>DSE Gippsland</b>	<b>\$1,500,000</b>	<b>\$2,195,000</b>	<b>\$1,600,000</b>

2. Natural values - (\$10.585 Million)

**Total funding (black); PV; DSE NE; DSE Gippsland.**

Protect high value biodiversity assets from high to extreme risks (mitigate risks)	Remove high priority fauna populations at risk of local extinction from threatened habitat by 30 June 2007	<ul style="list-style-type: none"> <li>Remove Spotted Tree Frog individuals from Buffalo Creek (Project #2.1) and Barred and Mountain Galaxias populations from upper Goulburn River (#2.2) and maintain in captivity for later release</li> <li>Revegetation of Mt Pygmy Possum habitat at Mt Buller (#2.3)</li> </ul>	\$30,000	<p>\$30,000</p> <p>\$30,000</p> <p>\$20,000</p>	<p>\$10,000</p>
	Reduce immediate negative impacts on high value ecosystems by 30 June 2009	<ul style="list-style-type: none"> <li>Determine impact of fires on bogs in areas not already assessed (#2.4) and implement structural restoration actions (#2.5)</li> <li>Rehabilitate Threatened EVCs including rainforests, Gippsland Plains Grassy Woodland and threatened plant species recovery (#2.6)</li> </ul>		<p>\$155,000</p> <p>\$10,000</p>	<p>\$130,000</p> <p>\$10,000</p>
Improve understanding of the impact of fire on biodiversity (monitor risks)	Impacts of fires on key populations and/or habitat of flora and aquatic organisms, amphibians, mammals and reptiles assessed by 30 June 2007	<ul style="list-style-type: none"> <li>Purchase cameras for remote sensing and monitor Long Footed Potoroo and associated fauna in the Upper Wonnangatta River, upper Ovens River and Boulder Creek areas (#2.7)</li> <li>Assessment of Leadbeater's Possum habitat at Woods Point and identification of rehabilitation actions required (#2.8)</li> <li>Surveys to relocate plant populations burnt in 06/07 and evaluation of their conservation status and regenerative attributes (#2.9)</li> <li>Undertake surveys of threatened alpine reptiles and amphibians (#2.10) and aquatic invertebrates (#2.11)</li> </ul>	<p>\$25,000</p> <p>\$10,000</p>	<p>\$50,000</p> <p>\$90,000</p> <p>\$20,000</p> <p>\$40,000</p>	<p>\$50,000</p> <p>\$60,000</p> <p>\$20,000</p>
	Assess the impact of fire frequency on vegetation by 30 June 2007	<ul style="list-style-type: none"> <li>Resampling of treeless vegetation at Mt Buffalo that was sampled in 1982 and 2005, and reporting on the number of species in frequently burnt sites (#2.12)</li> </ul>		<p>\$20,000</p>	<p>\$20,000</p>
		<b>SUBTOTAL (threatened species)</b>	<b>\$65,000</b>	<b>\$465,000</b>	<b>\$300,000</b>
		<b>Parks Victoria</b>	<b>\$0</b>	<b>\$175,000</b>	<b>\$150,000</b>
		<b>DSE Northeast</b>	<b>\$65,000</b>	<b>\$120,000</b>	<b>\$80,000</b>
		<b>DSE Gippsland</b>	<b>\$0</b>	<b>\$170,000</b>	<b>\$70,000</b>

Objectives	Strategy (SMART Rule)	Project (Place Based) and Project Number (#)	Budget 06/07	Budget 07/08	Budget 08/09	
<b>2. Natural values - (\$10.585 Million)</b>						
<b>Total funding (black): PV; DSE NE; DSE Gippsland.</b>						
Minimise the risk associated with established and new and emerging weeds	Identify key priorities for dealing with weeds, and prioritise high value habitats and vegetation communities for weed control by June 30 2009	<ul style="list-style-type: none"> <li>Remove willows and other pest weeds from bogs (#2.13)</li> </ul>		\$145,000	\$165,000	
		<ul style="list-style-type: none"> <li>Eradicate new and emerging weeds wherever they occur, including surveillance around the Ovens Valley and Mt Buffalo (#2.14)</li> </ul>		\$50,000 \$20,000	\$70,000 \$20,000	
		<ul style="list-style-type: none"> <li>Prevent establishment of new invasive species along fire breaks etc in identified priority areas (#2.15)</li> </ul>		\$80,000 \$35,000	\$80,000 \$35,000	
		<ul style="list-style-type: none"> <li>Reduce the potential future risk of weed spread and establishment by focussing on fire responsive weeds in the Wonnangatta, Upper Goulburn, Mt Buller and Falls Creek (#2.16)</li> </ul>		\$160,000 \$60,000	\$160,000 \$60,000	
		<ul style="list-style-type: none"> <li>Reduce the threat of established weeds such as Blackberry at Boulder Creek (#2.17)</li> </ul>		\$160,000 \$70,000 \$50,000	\$155,000 \$70,000 \$55,000	
		<ul style="list-style-type: none"> <li>Decrease the impacts of grazing by deer, pigs, goats and feral horses in Benalla and other water supply catchments (#2.18)</li> </ul>		\$40,000 \$40,000	\$35,000 \$40,000	
		<ul style="list-style-type: none"> <li>Undertake rabbit and hare control at Mt Buffalo and Mt Hotham (#2.19)</li> </ul>		\$50,000	\$25,000	
		<ul style="list-style-type: none"> <li>Fox and cat predator control around Mountain Pygmy Possum habitat on the Bogong High Plains to Mt Hotham (#2.20)</li> </ul>		\$35,000	\$35,000	
		<ul style="list-style-type: none"> <li>Fox control in Boulder Creek, East Gippsland to reduce predation of the Long Footed Potoroo and associated fauna (#2.21)</li> </ul>		\$70,000 \$20,000	\$70,000 \$25,000	
		<ul style="list-style-type: none"> <li>Decrease the cover of fire responsive weeds eg English and Cape Broom (#2.22)</li> </ul>		\$15,000 \$20,000 \$30,000	\$15,000 \$20,000 \$30,000	
Minimise pest plants and animals along the public/private land interface	Work in partnership with adjacent landholders to undertake predator control and to identify and control weed sources on public land by June 30 2009	<ul style="list-style-type: none"> <li>Decrease the cover of key weeds along the interface eg Blackberry (#2.23)</li> </ul>		\$30,000 \$50,000 \$75,000	\$30,000 \$50,000 \$75,000	
		<ul style="list-style-type: none"> <li>Decrease the dispersal of Gorse (#2.24)</li> </ul>		\$30,000 \$5,000	\$30,000 \$5,000	
		<ul style="list-style-type: none"> <li>Undertake surveillance and treat new and emerging weeds along interface (#2.25)</li> </ul>		\$10,000 \$50,000 \$40,000	\$10,000 \$50,000 \$40,000	
		<ul style="list-style-type: none"> <li>Manage pig populations and other pest animals along the interface (#2.26)</li> </ul>		\$27,500 \$32,500	\$20,000 \$25,000	
		<b>SUBTOTAL (threatened species)</b>		\$0	\$1,500,000	\$1,500,000
				\$0	\$765,000	\$770,000
				\$0	\$367,500	\$365,000
				\$0	\$367,500	\$365,000

2. Natural values - (\$10.585 Million)

Repair or replace CMA assets	Commence rebuilding critically damaged CMA assets by 30 June 2008	<ul style="list-style-type: none"> <li>Develop a list of burnt assets to be replaced</li> <li>Work in Ryan's Creek and 15 mile creek area to reinstate fencing and revegetation and rebuilding in-stream structures</li> </ul>	<p><b>WG CMA</b> \$92,000</p> <p><b>NE CMA</b> \$152,000</p> <p><b>GB CMA</b> \$50,000</p>	<p><b>WG CMA</b> \$671,257</p> <p><b>NE CMA</b> \$539,585</p> <p><b>EG CMA</b> \$611,957</p> <p><b>GB CMA</b> \$307,201</p>	<p><b>WG CMA</b> \$1,210,865</p> <p><b>NE CMA</b> \$976,345</p> <p><b>EG CMA</b> \$1,106,355</p> <p><b>GB CMA</b> \$556,435</p>
Protect CMA assets and local supply off takes	Remove or relocate burnt trees/debris from critical locations in waterways to protect CMA assets and local supply off takes (2007-June 30 2009)	<ul style="list-style-type: none"> <li>Work with Water Authorities to pre-empt issues at domestic and urban local supply off takes and undertake actions as required</li> </ul>	<p><b>WG CMA</b> \$70,000</p> <p><b>NE CMA</b> \$10,000</p> <p><b>EG CMA</b> \$150,000</p>		
Monitor water quality	Undertake additional monitoring for water quality, including dissolved oxygen, turbidity, flow and sediment loads (2007-2009 and ongoing)	<ul style="list-style-type: none"> <li>Develop a NE monitoring program 06/07</li> <li>Implement the NE monitoring program 06/07</li> <li>Develop the water monitoring program for Gippsland</li> <li>Increase water monitoring. Purchase and installation of additional water monitoring equipment on the Mitchell River at Angusvale, Glenaladale, Thompson River upstream of Cowwarr Weir, Macalister River at Licola, Stringybark, Avon River at Millers Flat, Aberfeldy River at Beardmore by end June 2007</li> </ul>	<p><b>WG CMA</b> \$48,000</p> <p><b>NE CMA</b> \$70,000</p> <p><b>EG CMA</b> \$70,000</p> <p><b>GB CMA</b> \$20,000</p>		
Protect river health from sediment	Undertake sediment management in critical areas between 2007 and 2009	<ul style="list-style-type: none"> <li>Remove sediment from critical locations eg through excavation</li> <li>Capture sediment within waterways or floodplains eg silt fences</li> </ul>	<p><b>WG CMA</b> \$38,000</p> <p><b>EG CMA</b> \$50,000</p>		
Minimise weed re-establishment and invasion of new areas in high value waterways	Undertake weed management activities in high value waterways as documented in the CMA regional river health strategies between July 2007 and July 2009	<ul style="list-style-type: none"> <li>Willow spraying and removal along the Dargo and Tambo Rivers in riparian and channel areas</li> </ul>			
<b>SUBTOTAL (catchments and waterways)</b>			<b>\$775,000</b>	<b>\$2,130,000</b>	<b>\$3,850,000</b>
		<p><b>West Gippsland CMA</b> \$248,000</p> <p><b>North East CMA</b> \$232,000</p> <p><b>East Gippsland CMA</b> \$225,000</p> <p><b>Goulburn Broken CMA</b> \$70,000</p>		<p>\$579,284</p> <p>\$590,205</p> <p>\$397,026</p> <p>\$663,485</p>	<p>\$1,302,838</p> <p>\$925,725</p> <p>\$1,321,286</p> <p>\$300,151</p>

Objectives	Strategy (SMART Rule)	Project (Place Based) and Project Number (#)	Budget 06/07	Budget 07/08	Budget 08/09		
<b>3. FOREST VALUES - (\$5.8 million)</b>							
<b>Total funding (black); PV; DSE NE; DSE Gippsland; DSE Central.</b>							
Facilitate salvage of fire killed timber by VicForests	Revision of resource allocation datasets and information by March 2007	<ul style="list-style-type: none"> <li>Prepare and gazette a revised Allocation Order (AO) to allow salvage of fire killed stands by March 2007</li> <li>Revise modelling using IFPS for post 2009 timber/area allocations by December 2009</li> </ul>	\$150,000				
Ensure Immature Fire Killed Ash Regeneration (FKAR) within DSE and VF managed areas of State Forest with insufficient seed	In 2006/07 conduct assessments, prepare plans and conduct regeneration operations on up to 15,000 ha of Alpine and Mountain Ash forests on State forest	<ul style="list-style-type: none"> <li>Approve new Timber Release Plan by March 2007 in North East and Gippsland regions</li> <li>Approve additional Timber Release Plans for fire affected Fuel Management Areas (FMAs) to facilitate further salvage harvesting by September 2007</li> <li>Develop and implement salvage harvesting prescriptions by March 2007</li> <li>Monitor and review salvage operations/prescriptions prior to next harvesting season by January 2008</li> </ul>					
				<ul style="list-style-type: none"> <li>Assist VicForests with strategic assessment and ground validation of seed crops in burnt ash stands to identify stands likely to naturally regenerate by 30 May 2007</li> </ul>	\$250,000	\$25,000	\$25,000
				<ul style="list-style-type: none"> <li>Conduct aerial and ground assessment of seedbeds across 15,000 ha of FKAR and salvage sites on State Forest to determine priority areas suitable for sowing this winter by 30 June 2007</li> </ul>	\$25,000	\$25,000	
				<ul style="list-style-type: none"> <li>Work collaboratively with VicForests to collect up to 300kg of Alpine Ash seed</li> </ul>	\$115,000		
				<ul style="list-style-type: none"> <li>Aerial seed approximately 3,000 ha of young fire killed ash stands and other key stands by 30 July 2007</li> </ul>	\$115,000	\$40,000	
				<ul style="list-style-type: none"> <li>Monitoring of FKAR and salvage sites and undertake additional works where necessary, including Mixed Species areas not assessed during 2006/07</li> </ul>	\$40,000	\$110,000	\$165,000
				<ul style="list-style-type: none"> <li>Assist VicForests with strategic seed crop assessment to facilitate annual seed collection program</li> </ul>	\$110,000	\$25,000	\$165,000
				<ul style="list-style-type: none"> <li>Site prepare and sow any sites not aerially sown in 2006/07. This will involve planting, mechanical disturbance, and/or sowing.</li> </ul>	\$25,000	\$200,000	\$700,000
				<ul style="list-style-type: none"> <li>Aerial seed suitably treated areas of young fire killed ash stands and other key stands</li> </ul>	\$200,000	\$260,000	\$135,000
				<ul style="list-style-type: none"> <li>Work collaboratively with VicForests to collect seed sufficient for the annual works program</li> </ul>	\$260,000	\$200,000	\$250,000
Production of minor forest produce	Revise availability and sources of minor forest produce in the short term (06/07) and long term (07/08)	<ul style="list-style-type: none"> <li>Develop plan for the production minor forest produce including firewood/posts/poles etc</li> </ul>	Funded through normal business activities				
<b>TOTAL</b>			\$650,000	\$2,650,000	\$2,500,000		
			\$0	\$0	\$0		
Parks Victoria			\$250,000	\$1,000,000	\$1,250,000		
DSE Northeast			\$250,000	\$1,000,000	\$1,250,000		
DSE Gippsland			\$150,000	\$650,000	\$0		
DSE Central					\$0		



4. Fire severity mapping - (\$1.265 Million)

**Total funding (black); PV; DSE NE; DSE Gippsland; DSE Central.**

Restore visitor access	Systematic assessment of the fire boundary and fire intensity across the fire affected area and provision of imagery to land managers to aid recovery planning and damage assessment by 30 June 2007	<ul style="list-style-type: none"> <li>● Landsat Satellite Imagery (30m pixel) obtained and processed to produce broad overview of fire severity</li> <li>● 'Spot 5' satellite Imagery (2.5m pixel) obtained and analysed to produce Fire Severity Class mapping. Digital aerial photography acquired to validate satellite imagery</li> <li>● Production of digital data maps at Planning (1:100,000) and Operational (1:25,000) scales to facilitate on ground management</li> </ul>	\$890,000		
Improve data collection in the field to support a consolidated data source for bushfire recovery	Pilot trial of hand-held data collection and backend data management and viewing systems by 30 July 2007	<ul style="list-style-type: none"> <li>● Purchase of field equipment by 15 June 2007</li> <li>● Development of software for field data collection by 15 June 2007</li> <li>● Undertake field pilot trials of asset information collection in Gippsland and Benalla regions by 30 July 2007</li> <li>● Download and storage of asset information into central existing infrastructure that is available to other organisations for reporting by 30 July 2007</li> </ul>	\$375,000		
		<b>TOTAL</b>	<b>\$1,265,000</b>	<b>\$0</b>	<b>\$0</b>
		<b>Parks Victoria</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
		<b>DSE Northeast</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
		<b>DSE Gippsland</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
		<b>DSE Central</b>	<b>\$1,265.00</b>	<b>\$0</b>	<b>\$0</b>

Objectives

Strategy (SMART Rule)

Project (Place Based) and Project Number (#)

Budget 06/07

Budget 07/08

Budget 08/09

5. Indigenous and post-settlement heritage - (\$1.01 Million)

**Total funding (black); PV; DSE NE; DSE Gippsland.**

Recognition of traditional owners and their elders	Working partnerships established between traditional owners, their elders and management agencies and input into all aspects of fire recovery provided by 30 June 2008	<ul style="list-style-type: none"> <li>Work in partnership with the Taunggerung, Gunai-Kurnai, Kurnai, Dhudroa, Wurundjeri, Monero-Ngarigu, Jaimathmathang and Mitambuta peoples and their elders and agencies</li> <li>Ensure involvement of traditional owners and elders in the Fire Recovery Indigenous Program through the Victorian Alps Indigenous Reference Group</li> </ul>	\$650,000			
Foster relationships and knowledge exchange	Good communication and exchange of ideas and values between traditional owners, PV, DSE, AAV and other Indigenous communities for implementing the whole of fire recovery program by 30 June 2008	<ul style="list-style-type: none"> <li>The Victorian Alps Indigenous Reference Group to provide collaboration and steering of fire recovery Indigenous program</li> </ul>				
Protect Indigenous sites and places	Identification of indigenous archaeological sites and places by 30 June 2008 and establishment of protection and management measures	<ul style="list-style-type: none"> <li>Undertake post-fire indigenous archaeological surveys utilising traditional owners</li> <li>Implement a program of works to protect, maintain and where appropriate interpret indigenous cultural values with traditional owners and scheduled communities/RAPs</li> <li>Indigenous representatives involved in planning and implementation of all site works</li> </ul>				
Repair or replace High Country Huts	Build existing partnerships with interested community organisations to repair and rebuild high value huts	<ul style="list-style-type: none"> <li>Rebuild Craigs Hut at Mount Stirling</li> <li>Rebuild priority huts</li> </ul>	\$300,000	\$20,000	\$20,000 (2009/2010)	
			<b>TOTAL</b>	\$1,265,000	\$970,000	\$40,000
			<b>Parks Victoria</b>	\$0	\$650,000	\$0
			<b>DSE Northeast</b>	\$0	\$320,000	\$40,000
			<b>DSE Gippsland</b>	\$0	\$0	\$0

**6. Communication and community engagement**

<p>Maintain and Foster Relationships</p>	<p>Maintain and Foster relationships between parks and forest staff and local communities by 30 June 2009</p> <p>Promote the role of the community in Fire Recovery by 30 June 2009</p>	<ul style="list-style-type: none"> <li>● DSE and PV staff attend and support community recovery and rehabilitation events</li> <li>● Work with the community to build and maintain partnerships that support broader community recovery</li> <li>● Fire Recovery Officers actively collaborate with Shire Recovery Officers around community recovery opportunities</li> <li>● The community is encouraged to share their experiences through participation in community events</li> <li>● Identify and encourage participation from the Gippsland &amp; NE community and key user groups in recovery and monitoring activities such as wildlife surveys and tree planting field days</li> <li>● Work with the community to build their capacity to engage with fire management on public land</li> </ul>	<p>Community Engagement is an essential component of all Bushfire Recovery Themes. Community Engagement will be supported through all themes and budgets set/adjusted accordingly throughout the recovery process.</p>
<p>Engage stakeholders in recovery processes, achievements and activities</p>	<p>Support recovery teams to manage community relationships and engagement activities</p> <p>Support recovery teams to manage stakeholder relationships and engagement activities</p>	<ul style="list-style-type: none"> <li>● Employment of Fire Recovery Engagement Officers</li> <li>● Produce and disseminate informative recovery stories through Regional Recovery Newsletters, INFORM, Gippsland News and Views, media outlets, Bushy Tales, NE News, Newsflash and Fireweb</li> <li>● Implement the fire education package for schools</li> <li>● Produce FAQs and fact sheets that support appropriate forest use during forest and park rehabilitation and regeneration phases in fire affected areas statewide</li> <li>● Develop and implement an appropriate communications plan for each theme</li> <li>● DSE and PV representatives to participate and report on recovery activities at regional and local stakeholder forums and regional bushfire recovery working groups</li> <li>● Presentations produced to support engagement with key stakeholders and community groups and updated and circulated to key personnel in both regions regularly</li> <li>● Deliver fire recovery information sessions to key stakeholders</li> <li>● Develop and implement an appropriate communications plan for each theme</li> </ul>	
<p>Engage stakeholders in recovery processes, achievements and activities</p> <p>Communities adjust to the new Landscape</p>	<p>Support recovery teams to manage stakeholder relationships and engagement activities</p> <p>Measure community attitude to Fire and Public Land management by 30 June 2009</p>	<ul style="list-style-type: none"> <li>● Survey local residents and State forest and National Park users</li> </ul>	

Objectives		Strategy (SMART Rule)		Project (Place Based) and Project Number (#)		Budget 06/07	Budget 07/08	Budget 08/09
Promote the local tourist industry	Work with statewide and local tourism bodies to promote park and forest re-openings through advertising and media throughout fire recovery (2007-2009)	<ul style="list-style-type: none"> <li>Maintain local tourism capacity through Licensed Tourist Operator Employment Scheme (PV project)</li> <li>Collaborate with Destination Gippsland Inc., North East Tourism, Tourism Victoria, Great Alpine Road Marketing and local tourism bodies in their bushfire recovery strategies</li> </ul>	Funded through other Bushfire Recovery Themes					
	Promote local destinations at key events through PV/DSE attendance throughout fire recovery (2007-2009)	<ul style="list-style-type: none"> <li>Attend Camping and Caravan Show, Boat Show, Wandin 4WD Show etc</li> </ul>	Funded through normal business activities					
Support fire-affected communities to undertake local events	Support local community events by providing display materials, stands and in-kind marketing support (2007-2009)  Assist tourism marketing bodies to identify events and activities (eg Destination Gippsland) that can be supported through Bushfire Recovery Funding (2007-2009)	<ul style="list-style-type: none"> <li>Dargo post fire activities – May 07 festival</li> <li>Check local calendar of events to be developed by community engagement group</li> <li>Mt Buffalo Snow Season marketing and promotion campaign – June 07</li> <li>Produce Fire Recovery brochures and signage (including self drive brochures) for priority areas that include the impact of the fire on sites and key messages about the Great Divide Fires</li> </ul>	Funded through normal business activities					
			\$ 10,000 minimum Funded through Alpine Shire Bushfire recovery funding					
			Funded through other Bushfire Recovery Themes					