

Assessing the economic value and vulnerability of nature-based tourism in the Ovens and Alpine area of NE Victoria



Fire and Adaptive Research Report no. 94
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Bushfire Co-operative Research Centre

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Acronyms and key terms

(I-O) modelling	Input Output Model
ABS	Australian Bureau of Statistics
CEMP	Community Emergency Management Plan
CFA	Country Fire Authority
Consumption	Household expenditure, government expenditure and inventories of all final goods produced in the region
DEPI	Department of Environment and Primary Industries
DSF	Destination Sustainability Framework
EMV	Emergency Management Victoria
Exports	All final goods that are produced and not consumed in the region
GRP	Gross Regional Product
GSP	Gross State Product
IVS	International Visitor Survey
IPPC	Intergovernmental Panel on Climate Change
LGA	Local Government Areas
NVIVO	A qualitative data analysis (QDA) computer software package by QSR International
NVS	National Visitor Survey
Output	Output is used synonymously with 'production' and refers to the measure of gross revenue of goods and services
SES	State Emergency Service
SLA	Statistical Local Areas
SPSS	Statistical Package for the Social Sciences
Tourism spend	All tourist related spending on final goods produced in the region
TRA	Tourism Research Australia
TSA	Tourism Satellite Accounts
V/R assessment	Vulnerability and Resilience Assessment

BFCRC - Executive Summary

Project background

This report was prepared by Victoria University, Melbourne, for the Cooperative Research Centre for Bushfires Ltd. (BFCRC) with the aim to assess the economic value and vulnerability of the nature-based tourism industry in the Ovens and Alpine area of North East Victoria. Many communities in this region, such as Bright, Harrietville and the Mt Hotham area, derive economic benefit through production, tourism and other nature-based industries from their proximity and links to public land. These communities have been severely affected by major bushfires in 2002/03, 2006/07, 2009 and again in 2013. Impacts have included the tragic loss of life, destruction of property, fire damage to extensive areas of bushland, as well as severe impacts on tourism flows and revenue.

For the purpose of this research, nature-based tourism refers to all tourism activities that are climate dependent and/or rely on a natural setting. Most tourism in the Ovens and Alpine area of North East Victoria is nature based, with bushwalking and cycling in the summer, alpine skiing in the winter, as well as wine and food tourism throughout the year. Bushfires pose a significant threat to tourism flows and revenue from such activities, not only because of the direct impacts of a bushfire event, but also because fire can quickly destroy the natural assets on which this type of tourism depends. With a specific focus on the township of Harrietville as the case study, this project aimed to assess the nature (scope, distribution) and value of nature-based tourism to communities located in and around Harrietville, to assess its vulnerability to bushfire as well as to identify options for increasing its resilience. The research was driven by two main objectives:

Establish a framework for determining the characteristics, value and vulnerability to bushfire of nature-based tourism.

Define and map the characteristics, value and vulnerability to bushfire of nature-based tourism for Harrietville and selected communities in the Ovens-Alpine area.

Methodology

The two research objectives were addressed by a mixed methods approach that involved three integrated research activities: An assessment of the tourism profile and economic value of tourism in the Alpine Shire and Harrietville; an estimate of the economic impact of a bushfire in the Victorian Alpine Region; and a vulnerability/resilience (V/R) assessment of tourism in Harrietville.

These three research activities were based on the analysis of both secondary and primary data. Specific methods included an analysis of visitor and business data from the International Visitor Survey (IVS) and the National Visitor Survey (NVS) obtained from the Australian Bureau of Statistics and Tourism Research Australia, community consultations, a visitor survey of Harrietville, Input Output (I/O) economic analysis, and in-depth interviews with tourism stakeholders in Harrietville.

Results

The key findings and outcomes of the research are presented here in this executive summary to give a broad overview, while the full report presents the research activities and findings in more detail. The following report also details the framework applied in undertaking an economic valuation of tourism in small rural areas and a vulnerability/resilience assessment to bushfire risk. The intention is that this framework can be applied in other tourism destinations facing similar climate related risks and threats.

The value and character of tourism in Harrietville

The findings of the Harrietville visitor survey identified a cohort of visitors that is well educated, middle class and who come largely from metropolitan Melbourne. The survey results also suggest that the visitor population is relatively mature, experienced and familiar with both Harrietville and the North East. They appear to make a major contribution to the tourism economy in the region. Axiomatically, these results confirm the perceived value of Harrietville and the North East to the respondents. They visit for several reasons, but such reasons are endemic, most notably for opportunities to undertake both passive and active recreation in the wilderness, typically in groups, with family and friends.

Based on the activities undertaken by visitors and visitor 'spend', there is a dynamic and entrepreneurial tourism sector in Harrietville that capitalises on visitor traffic in ways that 'value add' to the nature-based recreation undertaken in the region. The visitor survey indicates that on average, each visitor spends approximately \$184 per day. Based on an analysis of IVS and NVS data together with an analysis of census data it was estimated that in 2013 tourists spent \$6.3 million when visiting Harrietville.

Visitors are primarily aware of fires that have affected Harrietville and that there is a risk of fire over the summer period. The dominant response to perceived fire risk is to visit an alternative destination highlighting the importance of accurate information about fire in order to maximise visitation when it is actually safe to do so. Given that the most popular activities of visitors include bushwalking, fishing and picnicking in fire-prone areas surrounding the township, this lack of awareness represents a risk to visitors but also highlights the vulnerability of visitation when fire risk is present.

Estimating the Economic Impact of a Bushfire on the Victorian Alpine Region

Based on estimated visitor spending in Harrietville and the region, an input-output analysis was undertaken to estimate the possible economic impact of fire. The results indicate that a bushfire:

- May result in a decline between \$m 18.5 to \$m 55.4 in output for the Alpine region;
- May result in a decline between 107 to 321 total jobs for the Alpine region; and
- For a visitor spend of \$6.3m in Harrietville a decline in output from a bushfire may range between \$510,000 and \$1,530,000.

V/R Assessment of Tourism in Harrietville

The V/R assessment for Harrietville was conducted using the modified Destination Sustainability Framework (DSF). Originally developed by Calgaro (2010) and Calgaro, Lloyd, and Dominey-Howes (2014), the DSF was modified to include aspects of the tourism system model (Gunn, 1994; Leiper, 2004) as well as the climate adaptation portfolio for the tourism and recreation sector by Scott, de Freitas, and Matzarakis (2009)¹. Based on this framework, Harrietville's tourism system was analysed to identify the external risks, the constraining factors increasing vulnerability, the enabling factors increasing resilience and the implications for policy and strategy.

External risks for Harrietville's tourism system

In addition to the overall bushfire risk, the identified external risks for Harrietville's tourism system included factors such as sensationalised media coverage, disruptions caused by fire-fighting operations, as well as road and track closures. Other important risks (related to but not directly triggered by bushfires) were identified as heat waves, unreliable snow seasons, preventative control burns, as well as the underlying progression of climate change.

Key constraining factors increasing vulnerability in Harrietville

Key factors identified as increasing Harrietville's vulnerability include:

- A strong economic dependence on nature-based tourism and tourism transit with limited options for diversification;
- A sensitive destination image threatened by sensationalised media coverage of fire events;
- Fragmented governance processes which have resulted in poor communication with all tourism system stakeholders and decisions that have not met the expectations of the local community and tourism industry;
- Barriers to building development due to a lack of sewerage infrastructure;

¹ The modification of DSF for tourism vulnerability and resilience assessment in the context of climate change was made to be applied in an AusAID Australian Development Research Award Project Pacific Tourism – Climate Adaptation Project (PT-CAP) (ADRA0800029). The key research team that contributed to the development of the modified DSF include Dr Emma Calgaro, Dr Louise Munk Klint, Dr Min Jiang, Professor Terry Delacy, and Professor Dale Dominey-Howes.

- Limited internet connectivity affecting business marketing and communications;
- Environmental change caused by the increase in the frequency, intensity and timing of fires with particular effects on obligate seeders such as Alpine Ash with consequences for the entire ecosystem;
- The social and emotional effects of living in a bushfire-risk area;
- Weaknesses in bushfire preparedness of both businesses and visitors; and,
- Lack of communication between stakeholders during emergency and recovery.

Key enabling factors increasing resilience in Harrietville

- Harrietville can be characterised as a politically savvy, committed and organised town that is tenacious and well resourced;
- Recent and successful focus on community strengthening initiatives enhance community engagement in planning, and strengthen relationships between all tourism stakeholders;
- Low seasonality and year-round visitation increasing resilience and assisting with recovery to bushfire events;
- Diversification within the nature-based market and strong repeat visitation;
- A regional tourism marketing and strategy strengthening the tourism product and image as well as providing a voice for tourism in critical situations;
- Emergency responses that are widely recognised as highly successful in the protection of life and property; and,
- Adaptations in policy and planning with the aim to improve relationships, communication and engagement for bushfire planning, emergency management and recovery.

Implications for policy and strategies

The V/R assessment for Harrietville's tourism system highlighted fourteen key implications for resilience building in policy and strategy. These priorities are intended as a response specifically to the vulnerabilities identified in Harrietville but also as an example for small tourism destinations more broadly. These priorities are categorised within the five areas of: policy and planning; awareness raising and communications; business management; infrastructure development; and, evaluation and monitoring. In summary they include:

POLICY AND PLANNING

The development of a community tourism development plan

This assessment identifies opportunities to minimise economic vulnerability through tourism development and there have been gaps and opportunities for the development of visitor services identified by business operators and the community. Capturing these opportunities, however, has implications for the town's size and character and raises questions about the type and mix of developments that might be encouraged. These questions could be usefully considered by local operators and community members as part of a community tourism planning process.

Strengthen Harrietville's destination image as a year-round destination

An important resilience characteristic of tourism in Harrietville is that the township is relatively less sensitive to tourism seasonality even though it does experience variations in visitation throughout the year. This seasonality in visitation could be reduced, however, with strategies such as the development and promotion of new walking trails, and services for cyclists, and encouraging the development of back-packer accommodation. The implementation of these strategies has the potential to contribute to higher visitation in order to strengthen annual tourism revenues beyond the summer period when bushfire risk is likely to threaten visitation.

Strengthen Harrietville's image as a fire prepared destination

While Harrietville receives a large number of repeat visitors who tend to come back regardless of potential fire risk, an image as a fire prepared destination is crucial for Harrietville to attract new visitors and retain repeat visitors who are increasingly concerned about the bushfire risk. Specific marketing campaigns may be developed to promote Harrietville as a resilient destination to fire risk, and collective approaches to promotion may be explored by working with the regional tourism board North East Tourism.

Improve disaster preparedness and further build capacity in emergency responses by community, and industry levels

Although the community and tourism businesses in Harrietville demonstrated general awareness of fire risk, the assessment suggests that community complacency in relation to fire planning needs to be better addressed. This requires the community and tourism businesses to take the initiative, for example, to attend information events offered by government, to use the resources available for them, and to take actions to plan for the increased risks resulting from a changing climate. At the same time, government needs to be innovative and proactive in engaging the community and tourism businesses in fire planning and management.

Develop mechanisms for better use of local knowledge in bushfire preparedness and management

The importance of local knowledge in natural resource management, disaster management and emergency management is well reported in the literature (Mercer, Dominey-Howes, Kelman, & Lloyd, 2007). Current research in disaster risk reduction also recognises the challenges in how local, traditional, and indigenous knowledge and scientific knowledge can be effectively combined to reduce vulnerability to environmental hazards (Mercer et al., 2007). The vulnerability/resilience assessment of Harrietville reveals that the local tourism community faces such challenges. Policy and planning for fire preparedness, management and risk minimisation could usefully incorporate input from tourism operators and visitors in order to better understand areas of high tourism value and to prioritise strategies in alignment with the tourism economy. While it has been stronger focus by all stakeholders on incorporating local knowledge in policy development, there is an opportunity for 'a constant process of collaboration and exchange' (Mercer et al., 2007, p. 253), to facilitate effective communication and develop mutual respect among all stakeholders, and to enable them to learn from each other. To this end, communication again lies at the centre of building resilience.

AWARENESS RAISING AND COMMUNICATIONS

Improve fire awareness and preparedness of visitors

The assessment also reveals weakness in bushfire awareness and preparedness by visitors, which needs greater emphasis in future capacity building efforts. The visitor survey data showed that more than half of the visitors surveyed are not aware of any information about what to do in case of a bushfire in Harrietville. This brought to light the need to provide awareness programmes on risk and emergency responses for tourists. There is a particular need for effective and targeted communication and awareness with four visitor types. These include:

- visitors staying in holiday homes where it is difficult to obtain hands-on assistance and timely information in emergency compared to those staying with tourism operators;
- first time visitors who show low awareness of the incidence of fire and measures to prepare for fire;
- campers in the State and National parks, particularly those who are international visitors;
- a small segment (14%) of 'habitual' visitors who were also unaware of fire risk

Continue to improve communication between public and private sectors and between government agencies

Stakeholders across government, industry and community have made remarkable progress in improving communication for better emergency management for Harrietville. Support given to the establishment of the Harrietville Community Forum, and the Alpine Shire Resilience Committee for example, has contributed to building considerable good will between the community and government agencies and has directed efforts towards a collaborative planning process.

Continued government support for sustaining the community/inter-agency forums is a high priority for future planning and minimising the social and economic impacts of fire on the community.

Refine communications and consultation in relation to road closure

When road closure becomes necessary for safety reasons, improvements are necessary to ensure that road signage is not misleading and provides adequate and accurate information about closure including details of closure points and opening times. This is particularly necessary to minimise the time periods in which visitors are unnecessarily deterred.

Media representations of fire

Strengthen communications with media to minimise misleading or unnecessarily sensationalised representations of fire. For example, the 2013 fires were named as 'the Harrietville Fire' when in fact the fire originated in Smoko and travelled around Harrietville. This name has contributed to a misleading impression of Harrietville as being damaged by fire when in fact the township was not burnt. In terms of encouraging visitation, it is a priority to ensure that media reporting of fire is both geographically accurate and sensitive to its impact on visitor impressions. Alternative names could be found that are descriptive yet don't unnecessarily tarnish visitor perceptions of the area.

Post-fire communications strategy

One element of tourism planning should incorporate the development of a post-fire communications strategy that would accurately inform visitors about accessibility of the town and the local area and encourage return visitation when safe to do so.

STRUCTURAL ISSUES

Address infrastructure barriers – internet connectivity and sewerage

Following from a tourism planning process, prioritise and address infrastructure barriers that are currently limiting tourism development. These include the development of a mains sewerage system as well as improvements in internet connectivity.

BUSINESS MANAGEMENT

Support business planning by tourism operators

While tourism businesses in Harrietville have been financially impacted by fires, these impacts have not led to business closures and have largely been absorbed and accepted as part of life living in the mountains. Future fires, however, may diminish the capacity to absorb these financial shocks. An important resilience measure is to support and encourage business planning to better plan and prepare for the financial impacts of fire given the likelihood that fires in the area will increase in frequency and intensity.

RESEARCH

Evaluation

Following from above, the establishment of the Alpine Shire Resilience committee and the Harrietville Community Forum have both been widely applauded as being highly successful in improving communications, good will, and planning coordination between agencies, community and industry. Future support of these forums would usefully include an evaluation component in order to capture and transfer learnings from the implementation of the forums as well as to identify how the forums might continuously improve and be sustainable over the longer term.

Development of a 'Small tourism destination valuation and fire risk adaptation tool kit'

Harrietville is one of many small destinations that generally lack the range of resources to develop a tourism adaptation strategy. It is suggested that Victorian Government agencies develop a "Small tourism destination valuation and fire risk adaptation tool kit" to assist similar small tourism destinations to Harrietville develop adaptation strategies to risk and hence build their resilience to future bushfires. This tool kit would describe a framework and methodology to evaluate tourism value, assess vulnerability and resilience and to develop adaptation strategies.

Replication

The project has considerable potential for replication and each of the methodologies implemented as part of a mixed method approach could be implemented as individual strategies that could inform various aspects of resilience building in small tourism destinations.

Conclusion

The research for this report has clearly highlighted the enormous importance of tourism to the livelihoods of Harrietville residents and the risk bushfire poses to these livelihoods. It has further highlighted the crucial importance of local tourism industry and wider community to greatly enhance their adaptation to risk most importantly bushfire risk. To this end, we propose a series of strategies to effectively adapt to the economic impacts of fire and to build resilience into the future. One of these strategies is to transfer the learnings from this project to other small destinations through the development of resources that will enable other small destination communities to develop a tourism adaptation plan.



Section One: Introduction, Background and Overview.

1.1 Introduction

This report presents the background, findings and implications of research undertaken by a project team from Victoria University for the Co-operative Research Centre for Bushfires Ltd. (Bushfire CRC) acting on behalf of Victoria's Department of Environment and Primary Industries (DEPI). Undertaken from January – September 2014, the aim of the project was to assess the economic value and vulnerability of the nature-based tourism industry in the Alpine Region with a specific focus on the township of Harrietville. The project was guided by two main objectives that were to:

- Establish a framework for determining the characteristics, value and vulnerability of nature-based tourism.
- Define and map (spatially and temporally) characteristics, value and vulnerability of nature-based tourism for Harrietville and selected communities in the Ovens-Alpine area.

The report is structured in four parts. This section provides the background, context, an overview of relevant literature, methodology and limitations of the project. Part Two reports on the tourism profile and economic value of tourism in the Alpine Shire and in Harrietville based on primary and secondary visitor data that informs an input/output analysis reported in Part Three. Part Four describes the tourism system operating in Harrietville and provides a 'vulnerability/resilience' analysis of the tourism economy in Harrietville. Part Five identifies the policy and strategic implications of the research and makes recommendations aimed at resilience building.

1.2 Background

Like much of Victoria, the North East region of Victoria has been negatively and severely impacted by bushfires on a number of occasions. The most recent events (2002/03, 2006/07, 2009 and 2013) caused loss of life, property and livestock as well as destruction of extensive protected areas. One of the impacts has been disruption of the tourism industry which is a major economic driver in the region and one that is sympathetic to the extant agricultural, lifestyle and environmental values of the area.

Whilst nature-based tourism typically conjures up images of people in pristine locations (such as protected areas) and engaging in adventurous activities (such as white-water rafting) for the purposes of this research, the term is employed to include all tourism activities that rely on a natural setting, as opposed to an urban setting. As such, given the region's reliance on wine and food tourism, sightseeing, alpine skiing in the winter and bushwalking and cycling in the summer, the entire tourism industry in the region is classed as "nature-based tourism".

The North East region of Victoria is located within the Federal Division of Indi and includes the western and northern slopes of the Australian Alps and the major rivers and valleys (King, Ovens, Kiewa) that flow north and north west from these slopes to the Murray River. The area is generally formed as a triangle that fans out from the Falls Creek ski fields in the south east to Wangaratta in the west and Wodonga to the north. The focus of this project is Harrietville which is part of the Alpine Shire and located on the Great Alpine Road at the base of the Mt Hotham and 25 kilometres from Bright. Harrietville is a small village with a resident population of 403 (Easterbrook, 2013). While the township of Harrietville has not itself been burnt, its geographic features, coupled with its reliance on nature-based tourism, makes it particularly vulnerable to the impacts of bushfires affecting the surrounding parks and nature-based tourism infrastructure. Figure 1 shows the location of Harrietville within the context of the Alpine Shire.

Figure 1. Harrietville and the Alpine Shire



The impetus for this project emerged in the context of the most recent bushfire, which started on 21 January 2013 and was ignited through a lightning strike at Smoko, a locality around four kilometres north-east of Harrietville. While the fire was named ‘the Harrietville Fire’, the fire actually travelled around Harrietville to within 100 meters of Mt Hotham and across the Great Alpine Road. The result was that 37,000 hectares of Alpine National Park were burnt over a period of 55 days leading to the tragic death of two firefighters. The fire was also followed by heavy rains, which combined with the after-effects of the fires, caused considerable flooding and water contamination in the township. The combined effects of fire and flood also caused mud slides forcing road closures between Harrietville and Mt Hotham. These events resulted in at least partial road closures to Harrietville for effectively 10 weeks of the first three months of 2013 (Mt Hotham Resort, 2013). Further road closures also took place over the course of November 2013 for road maintenance works. While no property or lives within Harrietville were lost, the town suffered a loss of income from visitors or transit tourists for effectively three months of 2013.

Given that the incidence of bushfire is expected to become increasingly frequent and that the management of the 2013 fire has been contentious, there have since been a number of government and community projects and initiatives aimed at strengthening responses to bushfire prevention and management as well as building community resilience in relation to bushfire. This project is specifically focused on understanding the impacts of fire on the tourism economy as well as to understand Harrietville's vulnerability and resilience as a tourism destination.

1.3 The economic contribution of tourism

As outlined, a key objective of this project is to assess the impact of fire on the tourism economy in NE Victoria and in Harrietville. The following section gives an overview of the scale and character of tourism both in the town and the region in the broader Australian and Victorian context. First, however, we outline how measurements of the economic contribution of tourism are arrived at given tourism's peculiarities as a sector that operates across, rather than within standard industry classifications. As Dwyer and Spurr (2010) explain, tourism does not exist as a distinct industry or sector – rather tourism activity is a part of other industry activities such as transport or retail. Tourism is also distinctive in that it is defined by demand or consumption by tourists rather than supply as is the case with other industries that are measured by supply, such as mining or manufacturing. As such, the economic contribution of the sector requires particular measurement techniques. The primary technique is the construction of Tourism Satellite Accounts (TSA). TSAs extract from the National Accounts the contribution that tourism makes to each other sector of the economy allowing measurement of the true contribution of tourism to GDP or Gross State Product (GSP) in the case of states. This allows comparison with other economic sectors listed in the national accounts.

Calculations of the value of tourism are also inclusive of both direct and indirect contributions. The indirect value of tourism is greater than direct contributions and has a wide indirect flow on effect to other industries. Direct contributions made by tourism primarily refer to the immediate effect of expenditure made by visitors such as sales in the hotel sector. The direct effects include payments for wages and salaries, net taxes and supplies and services. Indirect effects are normally calculated through the use of input-output (I-O) modelling to estimate the flow on effects that result from spending of the tourism industry's receipts on goods and services from other industries such as food supply, agriculture and transport for goods. While the value of tourism is measured as a component GDP, the tourism gross value added (GVA) contribution is considered the most accurate measure of the economic contribution of the industry. This measure includes the total labour income and capital revenue received by the industry and the net taxes that government receives from production.

Underlying all measurements of the economic contribution of tourism are estimates of tourism consumption or 'spend' that for Australia are drawn from the conduct of an International Visitor Survey (IVS) and the National Visitor Survey (NVS). Data for the IVS is gathered by way of an intercept interview conducted continuously in departure lounges at Australian airports and sea ports (n=40,000 p.a.). Data for the IVS is weighted against Department of Immigration arrival and departure statistics. The NVS is conducted by a telephone survey with 120,000 Australian residents who are randomly selected through random digit dialling. Data for the NVS is weighted against Census data to provide population level statistics. Both the IVS and NVS have been collected continuously for 30 years and are the key source of national tourism statistics. The two surveys include a wide range of questions in relation to nature, purpose, logistics and motivations for travel. Importantly, questions include those on spending on travel.

1.4 The Project Team

The research was undertaken by a project team from Victoria University, Melbourne, comprised of a group of researchers selected for their specific expertise from the Tourism and Events Research Group (TERG) and the Victorian Institute of Strategic Economic Studies (VISES).

Project team members included:

- Professor Terry de Lacy (project leader and expertise in sustainable tourism, natural resource and protected area management)
- Dr Joanne Pyke (project manager, research design, data collection, community liaison and reporting)

- Dr Min Jiang (tourism adaptation to climate change, vulnerability/resilience assessment)
- Dr Paul Whitelaw (data management, geo-coding, statistical analysis)
- Professor Roger Jones (bushfire risk assessment)

According to expertise, each of the team members has made various contributions to the data collection and analysis for this project.

1.5 Approach and Method

In light of the project objectives, this project adopts a mixed method approach in order to gather a mix of relevant data to assess the profile and value of tourism in Harrietville and broader region, to assess the impact of fire on the tourism economy and to undertake a vulnerability and resilience analysis of the tourism economy. This included both the collection and analysis of both secondary and primary data.

Specific methods included:

1) Analysis of visitor data from the International Visitor Survey (IVS) and the National Visitor Survey (NVS): In order to assess the economic value of tourism to Harrietville and the region, Census data was obtained from the Australian Bureau of Statistics (ABS) and visitor data from Tourism Research Australia (TRA) for International Visitor Survey (IVS) and National Visitor Survey (NVS) for the last ten years. The ten years of data received has been disaggregated to estimate domestic and international visitation and spend. These estimates were used to inform an IO analysis that is reported in detail in 0.

2) Community Consultation: Each phase of the project was guided and informed by consultation with the Harrietville community and relevant governance officers working at a regional, shire and local level. This included presentations at relevant forums including the Alpine Shire Resilience Committee Meeting and a meeting of the Harrietville Forum, as well as meetings with officers from the Fire Services Commission (Since reformed as Emergency Management Victoria or EMV) the Alpine Shire and the Department of Environment and Primary Industries (DEPI). These discussions were conducted in the early phases of the project in order to inform the relevant community, government and industry networks of the purpose of the project, and to seek advice on the appropriate methods, timing and logistics of gathering data.

3) Harrietville Visitor Survey: One of the key data collection strategies of the project was the conduct of a survey of visitors to Harrietville conducted over the three days of the Easter period, from Friday, 18th April, to Sunday the 20th April 2014. The survey was designed by the project team with reference to relevant literature. Particular reference was made to the design of the National Visitor survey (Tourism Research Australia, 2014) and related tourism research undertaken in Victoria (Sanders, Laing, & Houghton, 2008). The survey included 22 questions that were grouped within three sections: details about the purpose and motivations for visiting Harrietville; understanding of bushfire risks and impacts; and, demographic details. The survey was developed as a self-completed paper-based survey (See Appendix 2 for a copy of the questionnaire). The survey was distributed to, and collected from, visitors by researchers based at key visitor sites throughout the town. This included distribution at each of the cafés, pubs and hotels, the caravan park, the Harrietville Trout Farm, the General Store and throughout the Easter Sunday market. The survey was also supported and facilitated by tourism operators who allowed the distribution of the survey to guests and visitors as well as encouraged visitors to complete and return the surveys. A total of 285 usable surveys were completed and analysed using SPSS. The findings were used to inform a wider 'vulnerability/resilience' analysis of Harrietville as a tourism destination (reported in 0) as well as inform estimates of visitor spend (Reported in 0).

4) In-depth interviews: A total of 25 semi-structured interviews (average 45 minutes in length, mostly face-to face and two telephone interviews) were conducted using a question outline to guide the interviews. A copy of the interview questions is provided in Appendix 3. Interviewees were identified to ensure representation by a cross-section of people connected with the Harrietville tourism system.

These included people engaged in operating private tourism businesses, community members with an interest in the wider social and economic wellbeing of the Harrietville community, relevant governance officers at state, regional and local levels and other peak tourism and event management organisations. The interview data was transcribed and analysed using NVIVO, specialized software for the analysis of qualitative data. The interview data was used to inform the vulnerability and resilience analysis reported in 0.

The selection of methods was guided primarily for practical purposes in that specific data was required to respond to the objectives. For example, it was seen as necessary to gain both a visitor and tourism operator perspective and thus it was necessary to conduct both a survey and in-depth interviews with the tourism sector. A further consideration, however, is that multiple complementary methods (method triangulation) is useful in order to enhance the validity of the results (Phillimore & Goodson, 2004). Overall, the secondary and primary data were used to inform the analysis relevant to the project objectives. The following sections of the report elaborate on the use of the data to explore the value of tourism and vulnerability to fire in Harrietville and the NE region.

1.6 Report Overview

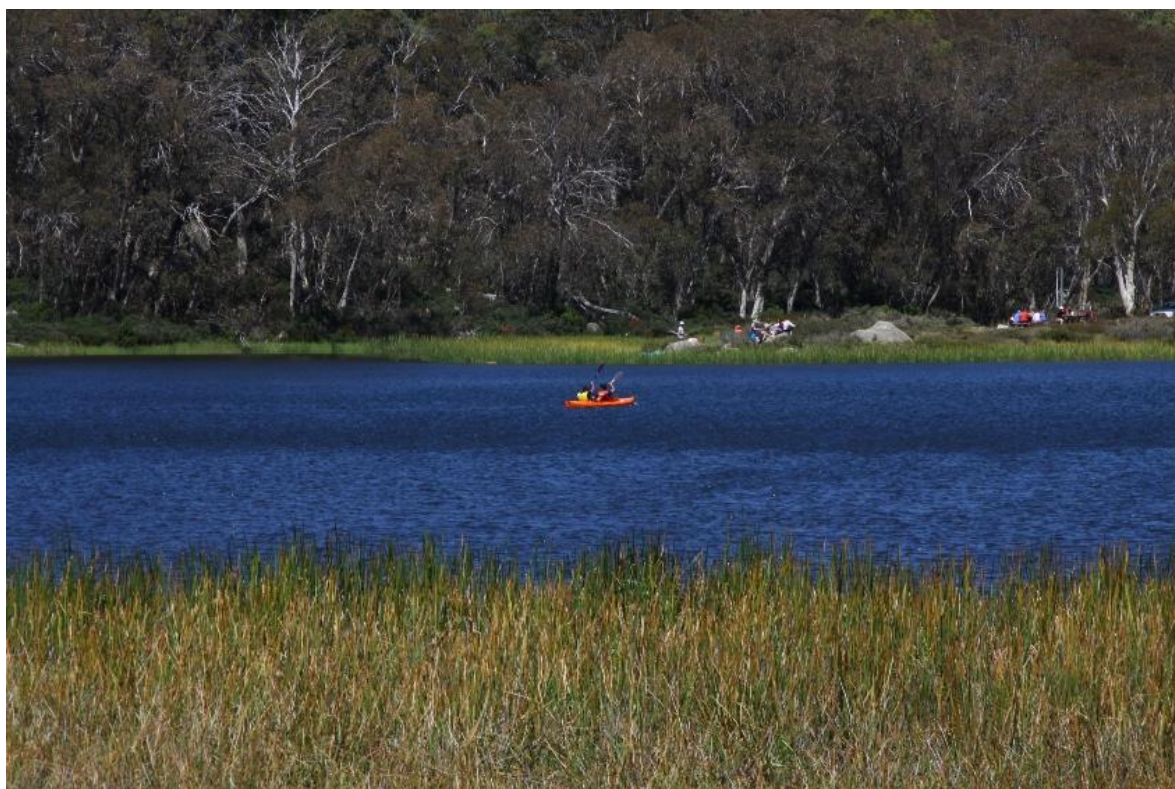
The intention of this section of the report is to explain the background to the project, the project objectives, the tourism context in which the project was undertaken and to explain who has conducted the project and how. The following report is structured to respond to each of the project objectives.

Section Two: This section draws on the visitor survey to describe the visitor characteristics and motivations and to map tourism activity and values in the area. Further, the section draws on national tourism and census data collections to estimate visitor numbers and spending in Harrietville.

Section Three: Drawing on the tourism visitation and spend data developed in Section Two, this section explains the process, assumptions and outcomes of an IO analysis and estimates the impact of a shock (in this case fire) to the tourism system.

Section Four: This section applies a Destination Sustainability Framework (DSF) and draws on all data gathered to critically analyse Harrietville's exposure and resilience to bushfire. In particular, the section explores the key vulnerability and resilience characteristics of the tourism system.

Section Five: This concluding section summarises the project findings and explores the implications for building resilience by the Harrietville tourism economy.



Section Two: The value and character of tourism in Harrietville

2.1 Introduction

As outlined, a key objective of this project is to assess the value of nature-based tourism in NE Victoria and in Harrietville. The purpose of this section is to draw on both secondary and primary data sources to estimate this value but also to outline the scale and character of tourism in the area. Primary data was gathered through the conduct of a Harrietville Visitor Survey described in 0. In particular, the survey included questions about visitor spending in Harrietville as well as the value placed on nature-based tourism opportunities in the area. An analysis of multiple years of National Visitor Survey data (NVS) and International Visitor Survey data (NVS) was done to estimate visitor numbers and visitor spend.

2.2 National, state, regional and local tourism value

Nationally, tourism is recognized as a significant growth industry generating around \$94 billion in spending and more than 900,000 jobs (Kookana & Duc Pham, 2013). In the year ending March 2014, there were 6 million international visitors to Australia and domestic tourists stayed over 300 million nights away from home (TRA, 2013). Growth from international visitors is forecast to continue, particularly through visitation from across Asia and especially from China (Tourism Australia, 2011).

At a state government level, tourism contributes 5.8 per cent to the Victorian Gross State Product (GSP) both directly (\$8.78 billion) and indirectly (\$19.6 billion). Tourism also accounts for 203,000 jobs or 7 per cent of employment in Victoria. Victoria is not as reliant on tourism as other states such as Tasmania (with 9.8% of GSP) or the Northern Territory (9.1%) reflecting a more diversified economy². At the same time, the significance of tourism as an economic driver is becoming increasingly recognized particularly in the context of the decline of the automotive manufacturing industry and other job losses that have a particular impact in Victoria's regional areas. Government strategic planning is focused on tourism growth and key strategies include attracting international growth markets from Asia, increasing the benefits of major and business events, and making investment in tourism infrastructure. A key strategy is to ensure that the benefits of tourism are spread across Victoria's regions and to actively support regional tourism growth (Tourism Australia, 2011).

Given the localised nature of tourism, much of the emphasis of tourism planning is focused at a regional level. Australia has 84 tourism regions with 11 regions across Victoria. The Victorian NE region is known as the 'High Country' encompasses six Local Government Areas (LGAs)³ as well as representation by three Resort management boards including Mt Buller, Falls Creek and Mt Hotham. The region extends roughly in a triangle including the towns of Alexandra and Eildon at its most southern points, across Victoria's main snow fields of Mt Bulla, Hotham and Falls Creek as far as Corryong in the NE, along the Victorian side of the Murray River including Wodonga and Rutherglen. The region also includes key 'food and wine' towns and localities such as Beechworth, Yackandandah, Milawa, and Myrtleford amongst others that are distinctive for their high-quality food and wine experiences (TRA, 2011, p. 18).

Tourism marketing and promotion builds on the region's natural assets and rests on five key product strengths or 'pillars' (Tourism North East, 2013). These include:

1. 1. Snow - Alpine winter experiences;
2. 2. Cycling – road, trail and mountain biking;
3. 3. Food, wine and beer;

² All Victorian economic estimates are taken from data gathered and analysed by Tourism Research Australia (TRA) and published by Tourism Victoria available at <http://www.tourism.vic.gov.au/research/economic-significance.html>.

³ LGAs include: Alpine Shire; Benalla Rural City; Indigo Shire; Mansfield Shire; Rural City of Wangaratta; and, Towong Shire.

4. 4. Nature based experiences –alpine and non-alpine walking, horse riding, water sport, and fishing; and
5. 5. Cultural Heritage.

Harrietville lies within the Alpine Shire which includes a number of the key towns and attractions within the Shire boundaries. While there are parts of the NE Region that have a particular focus on a particular type of tourism attraction, all five pillars are central to the tourism economy in the Alpine Shire. This is due to the Shire including large tracts of national and state parks, iconic touring routes, sites of significant natural and cultural history as well as famous wineries and a number of towns increasingly famous for food, wine and beer experiences such as Milawa, Myrtleford and Bright. Importantly, both Mt Beauty and Harrietville are gateways to Victoria's largest ski resorts of Falls Creek and Mt Hotham.

Visitor research undertaken by the Alpine Shire on Bright and surrounds (Bright, Myrtleford, Mt Beauty and Harrietville), show that visitation to the area is distinctive in a number of ways. These include visitors who are predominantly domestic visitors primarily from Melbourne (43%), other parts of Victoria (22%), New South Wales (21%) and other states. Visitors come for sightseeing, eating out and shopping. The vast majority (91%) have been to the region before and know about the area through previous experience or by word of mouth. The primary group of visitors is families with the largest number of visitors being in the 25-44-year-old age group. The majority of summer visitors stay in caravan parks/camping grounds and the average length of stay was 5 nights (Alpine Shire Council, 2013).

Like the broader region, visitors to the Alpine Shire are dominated by two particular market segments. These include 'Lifestyle Leaders' (40% of all visitors) who are identified as being predominantly couples, who are either pre-children or with older more independent children. This group is educated, independent, well researched and are frequent travellers. They are opinion leaders and seek a range of experiences. The second group is 'habitual' (28% of visitors). This group are family focused, are influenced by family and friends, and seek comfort and familiarity. They commonly stay in camping grounds or holiday houses and travel predominantly in school holidays or long weekends. This group is budget conscious and difficult to influence from a marketing perspective (North East Victoria Tourism Board, 2012, p. 13).

As part of the tourism landscape within the Shire and the region, Harrietville is widely regarded with affection and occupies its own unique position. It is very picturesque, located on the Ovens River and despite being very small (population 403), offers access to a number of attractions including bushwalking trails, river fishing, and four-wheel driving whilst offering a range of accommodation options, restaurants, pubs and cafes within the township. Importantly, it is also a base for skiers at Mt Hotham and Dinner Plain and a key milestone on iconic touring routes. As reported later in the findings, according to the visitors' survey conducted in Harrietville, it is the relaxing and beautiful environment that is attractive to many visitors. As such, visitors to Harrietville comprise a large proportion of 'habituals' who come and stay in Harrietville for an annual holiday as well as being a stop-over for 'lifestyle leaders' who take part in a wide range of leisure activities such as bushwalking, four-wheel driving, cycling amongst others. The town's economy is highly reliant on tourism with most of the town's population, either directly or indirectly, receiving income either through business operations or employment in the accommodation, retail or food and beverage industries.

In summary, Harrietville is a special place for visitors and the broader community and while it is a small hamlet, the town occupies a niche position within the local and regional tourism economy.

2.3 The Harrietville Visitor Survey

This section reports on the results and implications of the Harrietville visitor survey conducted over the Easter weekend 2014 in and round Harrietville. As described earlier, the purpose of the survey was to identify visitor characteristics, motivations for visitation, perceptions of bushfire risk, and money spent on visiting Harrietville. The intention was that the data would be used to inform the key objectives of the project and the findings are drawn upon as evidence to identify the economic value and vulnerability of nature-based tourism in Harrietville and in the region. This section reports more specifically on the survey results.

Respondent Profile

A total of 285 valid survey responses were returned and Table 1 below show the key characteristics of respondents in relation to gender, age, family status, education and income.

Table 1. Harrietville visitor survey responses

Total Respondents (n=285)	
Gender (n = 263)	
Male	43.3%
Female	56.7%
Age (n = 240)	
20 and younger	3.8%
21 to 30	13.3%
31 to 40	20.4%
41 to 50	25.4%
51 to 60	20.8%
61 to 70	14.2%
71 and older	2.1%
Country of birth (n = 261)	
Australia	85.4%
United Kingdom	5.4%
New Zealand	1.1%
Other countries	8.1%
States currently living (n = 258)	
NSW	12.8%
ACT	1.6%
VIC	82.9%
QLD	0.8%
SA	1.6%
Other	0.4%
Household (n = 261)	
Single person	6.9%
Couple with no children or children who have left home	34.9%
Couple with children	44.8%
Single parent with children	3.4%
Extended family	1.1%
Couple or group household of independent adults	7.7%
Other	1.1%
Education level (n = 269)	
Post-graduate degree	26.8%

University degree	32.3%
Non-university trade or technical qualification	17.1%
Secondary school	22.7%
Primary school	1.1%
Annual Income (<i>n</i> = 234)	
Less than \$50,000 per year	26.9%
Between \$50,001 - \$100,000	38.0%
Between \$100,001 - \$150,000	18.8%
Between \$151,000 - \$200,000	8.1%
More than \$200,000	8.1%

As shown above, the survey was completed by more women (57%) than men (43%). The average age was 44 years; the oldest respondent was 78 years and the youngest 18 years. Almost 40 per cent were over 50 years of age with 7 per cent under 25 years.

Slightly more than 80 per cent of respondents were in a domestic relationship, either with children at home (45%) or with children who had left the family home (35%). Almost seven per cent of respondents were single.

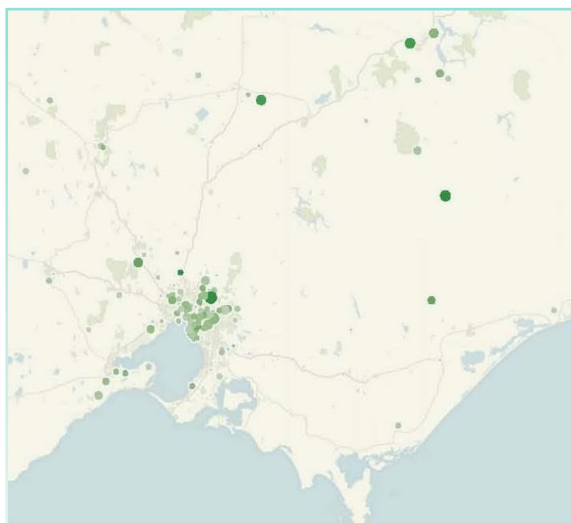
Nearly 60 per cent of respondents had attended university, 18 per cent completed some form of apprenticeship or vocational education and 23 per cent completed no more than secondary school. Nearly 27 per cent of respondents had a post graduate degree. More than a third of respondents (35%) earned over \$100k per annum with fewer than 27 per cent with an income of less than \$50k per annum. Just over eight per cent of respondents earned in excess of \$220k per annum.

Over 85 per cent of respondents were born in Australia with a further eight per cent born in the Anglosphere and two per cent were born in Western Europe. Slightly more than two per cent were from Asia. Just over 15 per cent of respondents speak a language other than English at home; the most common being Chinese, German, Italian and Spanish.

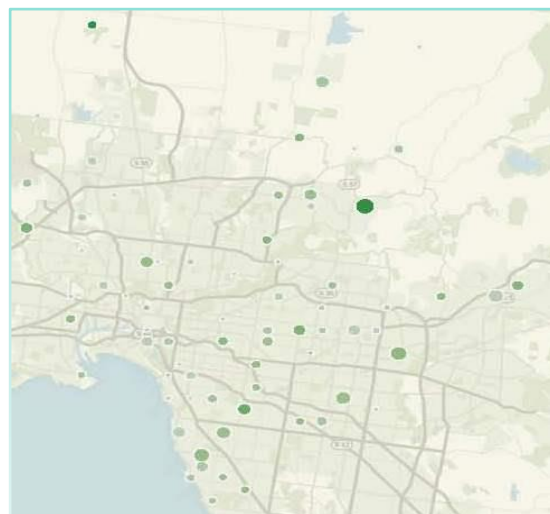
More than 83 per cent of respondents were from Victoria with just on ten per cent from New South Wales. More than half of the respondents (55%) were from metropolitan Melbourne. Figure 2 shows the distribution of visitors by postcode of residence. The darker the colour of the markers represented in the map indicates the greater the number of nights stayed on the trip. The larger the marker, the more visits over time.

Figure 2. Residential Distribution of Victorian Visitors by Postcode

Eastern Victoria



Metropolitan Melbourne



Overall, these results present a picture of a cohort that comprises well educated, comfortable, middle class citizens largely from metropolitan Melbourne. Importantly, despite these high levels of education and comfort, it is a group profile that is consistent with the visitor research undertaken in the wider region and reported above. Such results lend support to the validity of our data.

2.3.1 Visitation Behaviour

Only two per cent of respondents travelled alone. More than 55 per cent travelled in small groups whilst nearly 27 per cent travelled in large groups with nearly 16 per cent travelling as couples. The average group size was eight people.

One respondent had been visiting since 1946 whilst 75 were visiting for the first time. The “average year of first visit” was 1998 with nearly 42 per cent having visited prior to 1999. Of those that have visited previously, 75 per cent had visited three or more times, with 44 per cent having visited six or more times. Table 2.2 below shows that the large majority of respondents were repeat visitors to Harrietville with 67 per cent saying that they had visited Harrietville at least twice previously. Many were frequent visitors with almost one third (32.4%) said that they had visited five or more times previously. This visitation often had a long history with almost half (46%) saying that they first visited Harrietville prior to 2000 with only 20 per cent saying that their first visit was after 2011. Again, this finding resonates with regional tourism planning data that classifies the major visitor types as being ‘habitual’.

Table 2. Frequency of visit and the year of first visit

Frequency of visits	% (n=285)	year of first visit	% (n=186)
This is my first visit	26.4		
once	6.3	1980 and before	14.0
twice	11.6	1981-1990	15.6
three times	9.5	1991-2000	16.1
four times	3.9	2001-2010	34.4
five times	9.9	2011 and after	19.9
more than five times	32.4		100.0
Total	100.0		

Nearly 50 per cent of respondents were making a day trip to Harrietville. Of this group, nearly 53 per cent were staying in Bright, the rest were staying elsewhere in the North East with about 17 per cent staying in the “alpine areas above the snow line” (Mt. Hotham and Dinner Plain) and the balance staying in the towns throughout the valleys, especially Porepunkah.

Almost 30 per cent of respondents were staying for four to seven nights and about 16 per cent were staying for two to three nights. Amongst those staying overnight, the average length of stay was four nights. The largest group of visitors were also camping, either at the caravan park (37%) or in the bush (8%). A similar proportion was staying in hotel/motel accommodation (36%) or in a rented holiday house (15%). Almost one quarter (24%) were staying in a holiday house that they owned or belonged to friends or family.

Table 3. Length of Stay and type of Accommodation in Harrietville

Staying in Harrietville (nights)	% (n=143)	Type of accommodation	% (n=149) *
1	4.2	Camping in the bush	8.1
2	7.7	In Camping Ground / caravan park	36.9
3	23.8	Bed & breakfast	1.3
4	30.1	Hotel/motel /cabin/unit/lodge accommodation	35.6
5	16.1	In a rented holiday house	15.4
6	7.7	In my own/friends/family holiday house	24.2
7	5.6	Other (please describe)	4.7
8 to 10	2.8		
11 to 21	2.1		
Total	100.0		

*Includes respondents reporting that they stayed one or more nights in Harrietville - 149 respondents or 53.6% of 278.

Nearly half (48%) of respondents spent less than \$400 on their holiday with 15 per cent spending more than \$1,000. However, amongst the day trippers, nearly 50 per cent spent less than \$200 whilst amongst the overnight visitors, just over 46% spent between \$400 and \$1,000. These results suggest that the visitor population is relatively mature, experienced and familiar with both Harrietville and the North East.

Motivations for Visiting Harrietville

The respondents were invited to identify a range of reasons for visiting Harrietville. Table 4 below (2.5) displays the reasons and the number of respondents who nominated each reason (multiple nominations were permitted).

Table 4. Reasons for Visiting Harrietville

Reason for visiting Harrietville	Number of responses	Percentage of total responses	Percentage of total respondents (n=285)
Family / friends holiday - habitual	15	4.0	5.3
Food / meal	23	6.2	8.1
Referred by others / day trip	14	3.8	4.9
Stop while passing through	26	7.0	9.1
Visit friends / family	31	8.3	10.9
Accommodation available / Bright /elsewhere	38	10.2	13.3
Friends / family have a holiday house	10	2.7	3.5
Activity - motor cycling, cycling, 4WD, walking	66	17.7	23.2
Beauty / relaxation bush	83	22.3	29.1
Event - market, duck race ⁴	39	10.5	13.7
Easter break / holiday	18	4.8	6.3
Other	9	2.4	3.2
TOTAL	372	100.0	131.5

However, and as might be expected, there were distinct differences in the motivations of first-time visitors with more frequent visitors are different as shown below. For respondents that have visited Harrietville more than five times, the main reason for visiting is to enjoy the beauty and relaxing environment or to visit family or friend as a reunion or regular holiday event. This group also consider visiting to be a habit or 'something we do every year' (12.6%). In contrast, first time visitors to Harrietville do so because they are in transit to areas, such as, Mt Hotham or Dinner Plain, or to do activities in Harrietville such as cycling, bushwalking or picnicking. Some of them come on the recommendation of others (12.3%) as described in

Table 5 below.

⁴ An annual fund-raising event run by the Harrietville Primary School.

Table 5. Comparison of visitation motivations for first time visitors and ‘habituals’

This is my first visit	(n=73)	Visitors - more than five times	(n=87)
Stopped while passing through	15.1%	Beauty / relaxation / bush	28.7%
Activity - motor cycling, cycling, 4WD, walking	13.7%	Visit friends / family	16.1%
Referred by others / day trip	12.3%	Event - market, duck race	12.6%
Accommodation available/non-available in Bright over Easter.	12.3%	Family / friends holiday - habitual	11.5%
Beauty / relaxation / bush	9.6%	Activity - motor cycling, cycling, 4WD, walking	10.3%
Event - market, duck race	9.6%	Stop while passing through	5.7%
Food / meal	6.8%	Friends / family have a holiday house	4.6%
Visit friends / family	5.5%	Accommodation available / bright /elsewhere	3.4%
Other	15.1%	Other	6.9%

The 285 respondents offered 372 reasons for visiting, equal to 1.315 reasons per respondent. The “natural beauty and the bush setting, and the relaxation attached to that” was the most popular reason with a total of 83 nominations. Next were activities such as motor cycling, cycling and FWD along with bush walking with 66 nominations. However, it is worth noting that friends, family and similar connections were treated differently, but when combined, received a total of 56 nominations making it the third most popular reason. These results highlight the dominance of the natural setting (expressed in terms of the bush, natural setting and so on), and the efforts of Harrietville to engage with the tourism industry (market, duck races and so on).

Axiomatically, these results confirm the perceived value of Harrietville and the North East to the respondents. They visit for several reasons, but such reasons are endemic, most notably opportunities to undertake both passive and active recreation in the wilderness, typically in groups, with family and friends.

The respondents were also asked to identify both outdoor and other activities undertaken whilst visiting Harrietville, as presented in the two tables below.

Table 6. Outdoor activities undertaken when visiting Harrietville

“Outdoor” activities undertaken when visiting Harrietville	Number of responses	Percentage of total responses	Percentage of total respondents (n=285)
Bushwalking	164	21.1	57.5
Fishing	72	9.3	25.3
Swimming	44	5.7	15.4
Canoeing	12	1.5	4.2
Other water activities	14	1.8	4.9
Skiing/snowboarding/snow activities	26	3.4	9.1
Fossicking for gold or other minerals	18	2.3	6.3
Four Wheel driving	41	5.3	14.4
Cycling on roads or bicycle paths	82	10.6	28.8
Mountain bike riding	25	3.2	8.8
Picnicking	94	12.1	33.0
Driving tours	93	12.0	32.6
Horse-riding	13	1.7	4.6
Motor-bike touring (on road)	10	1.3	3.5
Trail-bike riding (off road)	18	2.3	6.3
Fitness activities e.g. Running, ski-training	50	6.4	17.5
TOTAL	776	100.0	272.3

Table 7. ‘Other’ activities undertaken when visiting Harrietville

“Other” activities undertaken when visiting Harrietville	Number of responses	Percentage of total responses	Percentage of total respondents (n=285)
Going on organised tours/activities	8	1.1	2.8
Eating out in restaurants/cafe	201	26.8	70.5
Visiting friends/relatives	58	7.7	20.4
The Trout Farm	80	10.7	28.1
The Harrietville Museum	29	3.9	10.2
Granny’s pantry	39	5.2	13.7
The Dredge Hole	77	10.3	27.0
Food tasting	54	7.2	18.9
Markets or other events	137	18.2	48.1
Other	68	9.1	23.9
TOTAL	751	100.0	263.5

It is important to note the symbiotic relationship between the natural setting, wherein visitors participate in both active and passive recreation (as evidenced in Table 6), and the active participation in tourism in and around Harrietville (as evidenced in

Table 7). These results suggest a reasonably dynamic and entrepreneurial tourism sector in Harrietville that is seeking to capitalize on the traffic generated by, and “value add” to, the nature-based recreation undertaken in the region.

The dynamic of the tourism sector and the dispersal of visitor activity in and around Harrietville was measured by inviting respondents to identify three locations on a grid map and nominate three activities undertaken at each of those three locations. The first table below (Table 8) identifies all locations nominated by the respondents. The second table (

Table 9) identifies the activities undertaken by respondents who visited the top five locations in and around Harrietville.

Table 8. Places visited in and around Harrietville

Places visited in and around Harrietville (map grid references)	Number of responses	Percentage of total responses	Percentage of total respondents (n=285)
F1: Along Feathertop Track, well east of township	2	0.4	0.7
G1: Near Blueberry Farm	9	1.9	3.2
H1: Near Tangari Lodge	8	1.7	2.8
J1: Near Tronoh Dredge	33	7.1	11.6
K1: Along Ovens River East & Bon Accord Track	7	1.5	2.5
A2: Near Trout Farm	34	7.3	11.9
C2: Near Hit or Miss Creek	1	0.2	0.4
F2: Near End of Newmans Lane	1	0.2	0.4

G2: Along Ovens River East, Back of Pioneer Park*	91	19.7	31.9
H2: Along Feathertop Track & Bon Accord Track*	58	12.5	20.4
J2: Along Bon Accord Track, south east of township	8	1.7	2.8
K2: Along Ovens River East tributaries, south of township	2	0.4	0.7
C3: Along Cemetery Lane, north west of township	2	0.4	0.7
D3: Along Ovens River, behind Lavender Hue B&B	18	3.9	6.3
G3: Near confluence of Ovens East and West*	22	4.8	7.7
H3: Near Harrietville Camping Ground*	138	29.8	48.4
J3: Near Harrietville Cricket Club Ground	13	2.8	4.6
K3: Between Old Coach Road and Great Alpine Road	8	1.7	2.8
E4: Along tributary creek, well behind Able Mgt. Group.	2	0.4	0.7
J4: Along Ovens River West Branch, near Mill Road	1	0.2	0.4
K4: Along Ovens River West Branch, near Lyrebird Gully	5	1.1	1.8
TOTAL	463	100.0	162.5

* These areas are effectively within the township

Table 9. Locations visited, and activities undertaken

Locations visited, and activities undertaken (not just at those locations)	A2 Near Trout Farm	J1 Near Tronoh Dredge	H2* Near Tangari Lodge	G2* Near Pioneer Park	H3* Near Camping Ground	Total
Bushwalking	4	4	7	8	12	35
Fishing	9	4	4	3	5	25
Swimming	0	10	3	5	5	23
Cycling on roads or bicycle paths	2	3	3	7	12	27
Eating out in restaurants/cafe	20	18	46	69	114	267
The Trout Farm	23	1	4	6	11	45
The Dredge Hole	0	20	1	10	18	49
Special events e.g. Markets or other events	3	2	15	43	25	88

Camping, caravan park, accommodation	7	14	15	32	61	129
Town walking, walking / running on walking track or riverside	7	19	27	25	50	128
Relaxing / park	4	5	16	20	20	65
Shopping for groceries, general stores	2	4	17	14	14	51
TOTAL	81	104	158	242	347	932

These results clearly indicate that the township is the main focus of tourism in the area and that within the township, the provision of tourism and hospitality services is the dominant activity. This is not unusual; however, it does highlight the symbiotic relationship between the natural setting of the hinterland (which does not in and of itself generate revenue) and the provision of visitor services in the township (which does generate revenue). Whilst the bush can survive without the tourists or the township, visitation to the bush is enriched by using the tourism services in Harrietville and, in turn, Harrietville is clearly dependent on the quality of the “bush experience” to attract visitors to the region in the first instance.

2.3.2 Visitor fire awareness, experience and preparedness

The third section of the survey was focussed on visitor perceptions of fire risk in Harrietville and questions were focussed on fire awareness, preparedness and impacts on visitation.

Awareness

Nearly 78 per cent of respondents were aware prior to this visit that the Harrietville area had been affected by fire in recent years. The 22 per cent of respondents who were not aware were significantly different ($\text{sig}=0.05$) to those who were aware, in several areas as evidenced in Table 10.

Table 10. Visitor bushfire awareness

Aspect	Aware of bushfire Percentage (n=222)	Not aware Percentage (n=63)
Total Sample	77.9	22.1
Repeat Visitor	86.3	13.7
First time visitor	52.3	47.7
Day Tripper	71.4	28.6
Overnight Visitor	83.8	16.2
ACT Residents	58.3	41.7
NSW Residents	60.0	40.0
Queensland Residents	50.0	50.0
SA Residents	100.0	0.0

Victorian Residents	80.8	19.2
Over 50	83.0	17.0
35 to 49 years	79.1	20.9
25 to 34 years	60.5	39.5
Up to 24 years	68.8	31.2

The results are relatively unambiguous: those with a longer and more engaged history with the area are much more aware of the recent fires. In particular, older, overnight, repeat, Melbourne based visitors have very high levels of awareness – well past the 80 per cent mark. However, it could be questioned why there remains 15 per cent of this cohort that is not aware of the bushfires?

Concern about fires

A further question addressed the level of concern about bushfire risk during summer. Nearly 60 per cent of respondents were concerned about the impact of bushfires in the summer. However, not surprisingly, there were some significant differences amongst those aware of previous bushfires; 64 per cent were concerned or very concerned compared to 43 per cent of those not aware. In contrast, amongst those not aware, 44 per cent were neither concerned nor unconcerned compared to 22 per cent amongst those who were aware of previous bushfires. This suggests that a pattern of “blithe ignorance” appears to be emerging with those not aware of previous bushfires who seem to not appreciate the threat posed by future bushfires.

Information Sources

Respondents were invited to identify the various information sources from which they learn about bushfires. Table 11 highlights the general media as the dominant source of information.

Table 11. Information sources about bushfire

Information sources to learn about bushfires (multiple responses)	Number of responses	Percentage of total responses	Percentage of total respondents (n=285)
General media	172	53.4	60.4
The visitor centre or other tourism information services	3	0.9	1.1
Friends and family	81	25.2	28.4
The CFA website and other on-line information	34	10.6	11.9
Direct experience	22	6.8	7.7
Other (please describe)	10	3.1	3.5
TOTAL	322	100.0	113.0

The high level of awareness of, and perhaps thus reliance on, the general media, suggests that authorities ought to have well developed media strategies to ensure that visitors are kept away during the dangerous period, but are then brought back once the danger has passed in order to reinvigorate the tourism industry.

Taking Action

Of those planning to visit Harrietville in the summer, nearly 17 per cent were planning to make preparations to deal with the threat. Just on 13 per cent of respondents were aware of previous bushfires AND were making fire contingency plans for their summer visit. Nearly half (48.5%) were both not aware of previous bushfires and not intending to make contingency plans.

Table 12. Awareness and actions of those planning to visit Harrietville

Awareness and actions of those planning to visit Harrietville in the summer	Aware of Information about bushfires (n=115) Percentage of Total	NOT aware of information about bushfires (n=126) Percentage of Total	TOTAL (n=241)
Will make plans (n=40)	12.9	3.7	16.6
Will NOT make plans (n=201)	34.9	48.5	83.4
TOTAL (n=241)	47.7	52.3	100.0

Of those who were aware, and make contingency plans, the plan for nearly 75 per cent of this group was to not visit Harrietville or the North East, while 25 per cent planned to visit an alternate destination in the North East. Only three respondents in the entire study indicated that, in future fire events, they would persist and visit Harrietville – due mainly to their reliance on informal, local knowledge. These results have significant implications for the wider region. They suggest that fire impact is not restricted to the immediate fire affected areas. With 75 per cent altering their plans due to bushfires, not just the immediate area of the fire, but also the wider region, is negatively impacted by fire.

2.3.3 Summary of survey findings

The visitor survey findings reveal key characteristics, motivations, activities and awareness and preparedness for fire. Overall, these results present a picture of a cohort that is well educated, comfortable, middle class citizens largely from metropolitan Melbourne. These results also suggest that the visitor population is relatively mature, experienced and familiar with both Harrietville and the North East. They appear to make a strong contribution to the tourism economy in the region. Axiomatically, these results confirm the perceived value of Harrietville and the North East to the respondents.

They visit for several reasons, but such reasons are endemic, most notably opportunities to undertake both passive and active recreation in the wilderness, typically in groups, with family and friends. Based on the activities undertaken by visitors and visitor 'spend', there is a dynamic and entrepreneurial tourism sector in Harrietville that capitalises on visitor traffic in ways that 'value add' to the nature-based recreation undertaken in the region.

Visitors are primarily aware of fires that have affected Harrietville and that there is a risk of fire over the summer period. The dominant response to perceived fire risk is to visit an alternative destination highlighting the importance of accurate information about fire in order to maximise visitation when it is actually safe to do so. There are also a small but significant proportion of regular visitors who are not aware of fire risk potentially indicating the need for wider communication about fire and its related risks. The purpose of this section has been to report on the overall findings from the visitor survey. The survey data is also used to inform a vulnerability and resilience assessment of the area. The findings of this analysis are reported in 0.



2. 4 Mapping tourism value

2. 4. 1 Estimating visitor numbers and spend in smaller rural destinations

As Dwyer and Spurr (2010) explain, tourism does not exist as a distinct industry or sector – rather tourism activity is a part of other industry activities such as transport or retail. Tourism is also distinctive in that it is defined by demand or consumption by tourists rather than supply as is the case with other industries that are measured by supply, such as mining or manufacturing.

Estimates of tourism value are therefore calculated through tourism consumption or 'spend'. This is done through an estimation of the annual number of tourists visiting a destination as well as an estimation of the average spend of each visitor in that destination.

In Australia, the annual visitation is calculated by the number of international travellers arriving at ports by summing all 'visitor arrival cards' excluding returning Australians. For state, regional and local destinations however, international and domestic (Australian) travellers who cross the 'borders' into a state, region or local area are not directly counted. Hence, indirect methods are necessary. Many methods are used to estimate visitor numbers including accommodation occupancy, event attendance, numbers and related surveys at visitor centres, road counts and specific visitor surveys.

For example, the visitor survey over one holiday weekend we report on above for Harrietville can assist in gaining an indication of average spend per visitor but of course is no help on visitor numbers.

In Australia, a national tourism data collection agency (presently Tourism Research Australia) has undertaken (or coordinated) and analysed an International Visitor Survey (IVS) and the National Visitor Survey (NVS) for more than 30 years. Data for the IVS is gathered by way of an intercept interview conducted continuously in departure lounges at Australian airports and sea ports (n=40,000 p.a.). The NVS is conducted by a telephone survey with 120,000 Australian residents who are randomly selected through random digit dialling. Both surveys include a wide range of questions in relation to nature, purpose, logistics and motivations for travel. Importantly, questions include where they visited and what they spent on travel.

The IVS, combined with the international visitor arrivals calculated from visitor arrival cards, can thus be used to estimate the total spend by international visitors in Australia as a whole. The IVS combined with the NVS can be used to estimate accurately visitor numbers and visitor spend for states as well as for cities and regions (e.g. Melbourne, the Gold Coast) with large visitor numbers as the sample sizes are large for such destinations. However, for regions with small visitor numbers or local areas

and town such as Harrietville such destination's sample sizes are often too small to estimate reliable visitor numbers and related activities and spend. To address this challenge, a data validation exercise was undertaken.

This exercise involves reviewing the 10 years of data for the local place areas in both the IVS and NVS to obtain larger statistically significant samples and correlating that data with the ABS Census for 2001, 2006 and 2011. Within the Census there are measures which can act as reasonable proxies for elements of tourism behaviour. These proxies take two forms: the behaviour of the normal household occupant and, the behaviour of a visitor to the household. In both instances' assessments are made as to the nature of the hosting: hosting guests from the neighbourhood, region, state or interstate. The assessment also includes the nature of the visiting; those visiting from the neighbourhood, in the region, elsewhere in the state or interstate. In essence this incorporation of the three major datasets (IVS, NVS and Census) greatly enhances the quality of the output because it aligns sample-based data (IVS and NVS) with census level data.

2. 4. 2 Visitation and Expenditure in Harrietville

The Harrietville visitor survey suggests domestic visitors spend on average \$184 per day. But this is a select sample over one high impact, high traffic, high value long weekend. To get an estimate of annual spend of tourists (income from tourism) in Harrietville an estimate of annual visitation and confirmation of the survey's estimate on average spend is needed.

To do this, and as described in 2. 4. 1 above, we use data gathered by the TRA that estimates the visitor numbers and visitor spend by both domestic and international tourists. In order to estimate spending in Harrietville, ten years of NVS and IVS data has been disaggregated to estimate domestic and international visitation and spend. Table 13 on the following page shows estimates of visitation numbers and expenditure in Harrietville for 2013.

Table 13. Visitation and Expenditure into Harrietville (2009-2013: 5-year period) IVS and NVS

Domestic Overnight	
Total number of overnight visitors:	157,000
Total visitor nights:	483,000
Average number of nights:	3.07
Average spend per person per day:	\$134.74
2013 visitor nights:	28,000
Total number of day trippers:	95,000

Average spend per person per day:	\$127.51 (62% less than \$100)
Average spend per person per day when outliers removed:	\$76.59
2013-day trippers:	27,000
Total number of overnight visitors:	2,734
Total visitor nights:	6,029
Average number of nights:	2.20
Average spend per person per day:	\$81.02
2013 visitor nights:	3,008

Total Spend 2013

Visitation: 60,008 visitor days/nights

$(28,000 \times \$134.74) + (27,000 \times \$76.59) + (3,008 \times \$81.02) \Rightarrow$

$3,772,720 + 2,067,930 + 243,708 = \mathbf{\$6,284,358}$

Average spend per person per day/night = \$104.72

The 285 respondents to the Harrietville visitor survey of Australian residents indicate spending of \$184 per person per day. The visitors surveyed in this study are fairly typical of those visiting the general north east, although they are better educated with higher incomes than normal. Hence it is reasonable to suggest the \$134.74 per day average spend for domestic overnight visitors estimated from the NVS data is reasonable and gives credibility to the total annual tourism spend estimate in Harrietville of approximately six million dollars.

2. 4. 3 Distribution of the tourists, their activities and spend

One of the key intentions of the Harrietville visitor survey was to generate data that enabled the mapping of the characteristics and value of tourism activities and associated expenditure in order to assess the vulnerability of nature-based tourism to fire and its associated impacts.

As indicated in 2. 4. 2, the direct value of tourism in the Harrietville area is worth approximately \$6.28m. It is not immediately feasible to accurately distribute this across the various precincts of Harrietville. However, using “hot spot” analysis, we can map tourist traffic through the precincts in terms of three key variables; number of nights spent in Harrietville, number of others in the travel party and amount spent on the holiday.

These metrics were calculated for respondents who identified their top three places to visit. The size of the markers in the following maps identify the relative distribution of number of nights spent in the area, the number of visitors and the share of the \$6m spent in Harrietville and thus paint a clear picture of tourism precincts in the area. As a preface, however, we show a street map of Harrietville village to give context to the following maps.

Figure 3. Harrietville Street Map



Figure 4. Visitor Nights



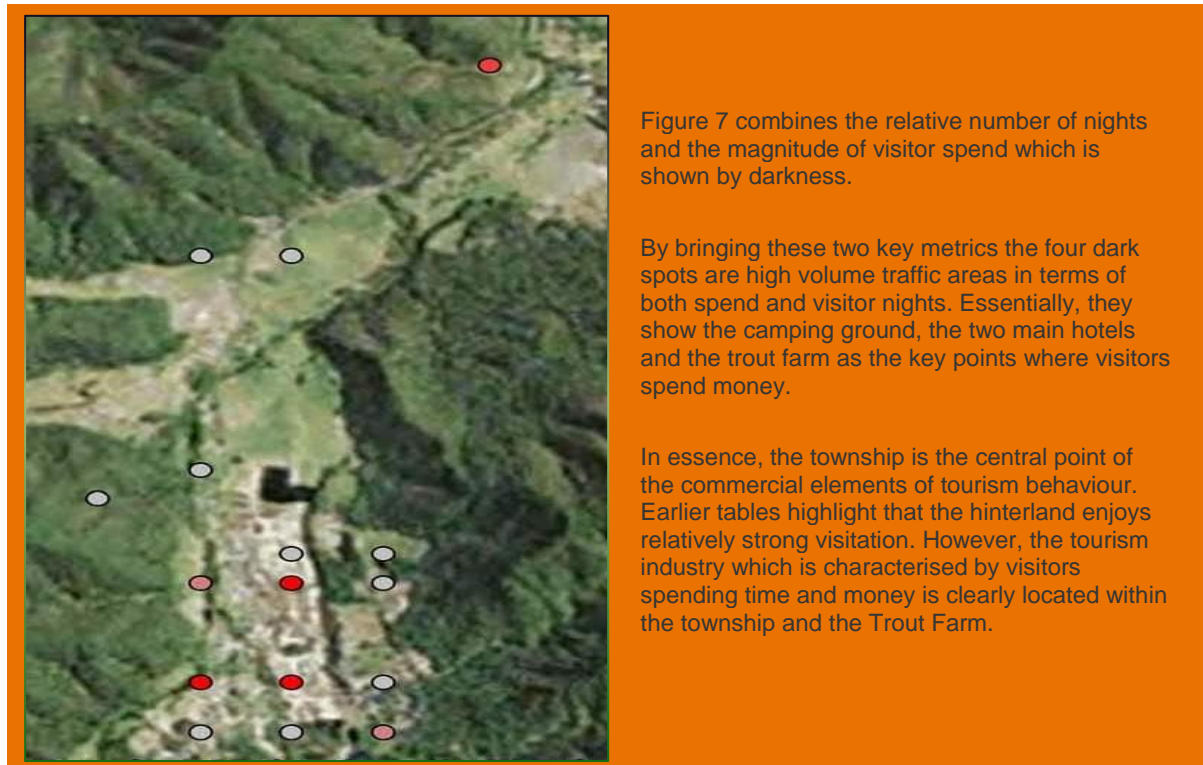
Figure 5. Visitor Party Size



Figure 6. Visitor Spend



Figure 7. Visitor Nights v Spend



2.5 Conclusions

The visitor survey findings reveal key characteristics, motivations, activities and awareness and preparedness for fire. Overall, these results confirm the perceived value of Harrietville and the North East to the respondents. They visit for several reasons, but such reasons are endemic, most notably opportunities to undertake both passive and active recreation in the wilderness, typically in groups, with family and friends. Based on the activities undertaken by visitors and visitor 'spend', there is a dynamic and entrepreneurial tourism sector in Harrietville that capitalises on visitor traffic in ways that 'value add' to the nature-based recreation undertaken in the region. The visitor survey indicates that visitors spend approximately \$184 per day and the national data analysis indicates all tourists spend on average \$104.72 per day. Based on visitor numbers estimated by TRA data and using the lower spend estimate the value of tourism in 2013 was estimated to be approximately \$6.3 million.

Visitors are primarily aware of fires that have affected Harrietville and that there is a risk of fire over the summer period. The dominant response to perceived fire risk is to visit an alternative destination highlighting the importance of accurate information about fire in order to maximise visitation when it is actually safe to do so. There are also a small but significant proportion of regular visitors who are not aware of fire risk potentially indicating the need for wider communication about fire and its related risks.

The following section further draws on this estimate to inform an IO analysis to estimate the likely impacts of fire on the tourism economy in Harrietville and in the Alpine Shire.



Section Three: Estimating the economic impacts of a bushfire on the Victorian Alpine Region

3.1 Introduction

Having estimated tourism spending in the Harrietville area, this section uses input-output analysis to identify the impact of fire on the economy in Harrietville and in the Alpine region. The input-output framework is a technique that has been used to estimate the impacts of new projects, disasters, or policy changes on a region. The input-output methodology is useful as it not only incorporates the direct effects of a policy change, but also the indirect impacts through linkages across industries. This is all done within an established economic framework known as multiplier analysis.⁵

This project uses the technical coefficients (to be defined later) from an existing input-output table of the Alpine region provided by Department of Environment and Primary Industries (DEPI). This

⁵ Key terms and acronyms applied are defined on p. vi

provides a structured representation of the economic activities of the Alpine region. This table indicates the linkages between sectors and indicates the payments to inputs and contributions to the Alpine's regional gross regional income. Further, employment data is included so as to evaluate the impact of the shock upon employment.

The total effect from a bushfire to the Alpine region can be broken into two parts; a direct effect which measures the initial impact from the bushfire on economic activity and employment, and the flow on effects arising from the accumulation of lost purchases after the initial impact. Therefore, the event's impact on spending and employment can be seen as being larger than the effect at the time of occurrence.

3.2 Basic results and assumptions

3.2.1 Structure

This section provides the results and assumptions to obtain those results. The initial impact of a bushfire is expected to significantly reduce final demand on four sectors of the Alpine economy: Forestry and logging (Forestry), Retail trade (Retail), Accommodation (Accom), and food and beverage services (Food/Bev). The economic structure of those sectors is displayed in Table 14, for the year 2011/12. These sectors represent about a quarter of the Alpine region's total output. Further, much of the production from these sectors is exported out of the region (32 % of all Alpine exports) where exports account for 27 per cent of total Alpine production (output). These four sectors comprise of just less than 1,500 of the 4,950 jobs in the region, equating to an employment level of 1,313 full time jobs.

Table 14. Model structure of various industries for year 2011/2012

	Total Alpine production	Alpine consumption	Tourism	Other exports	Tourism per output (%)	Total Jobs	Employment (FTE)
Forestry	89.1	24.1	0.0	65.0	0.0%	119	135
Retail	47.7	26.1	21.6	0.0	45.3%	598	445
Accom	60.4	2.7	42.8	14.9	70.8%	380	366
FoodBev	42.0	22.5	19.5	0.0	46.5%	381	367
Total 4	239.2	75.3	83.9	79.9	35.1%	1479	1313
Total Alpine Production	920.0	555.8	115.4	248.8	12.5%	4948	4744

3. 2. 2 Assumptions

The following assumptions are used when calculating the results. Table 14 reproduced in Table 15 shows the four sectors which receive the initial impact of the bushfire. To account for the large amount of uncertainty in impacts there is a low damage and high damage case to provide a range for which the expected impacts may fall. The low damage shock represents 5 per cent damage to output and the high damage shock represents damage to 15 per cent of output. These amounts compute to be declines of \$m 12 to \$m 36. This can be verified with previous tax statistics (see section 3. 3. 2).

Table 15. Estimated final demand reductions

Sector	Base level	Low damage (5%)	High damage (15%)	Low % of Tourist demand	High % of Tourist demand
Forestry	89.1	-4.5	-13.4		
Retail	47.7	-2.4	-7.1	-11%	-33%
Accom	60.4	-3.0	-9.1	-7%	-21%
Food/Bev	42.0	-2.1	-6.3	-11%	-32%
Total	239.2	-12.0	-35.9		

3. 2. 3 Results

Table 16 shows the summary results from the base run with the initial impacts shown in Table 15. The total impact of a bushfire based upon the impacts on the four sectors identified above would be a decline between \$m 18.5 to \$m 55.4, which is about 2 to 6 per cent of total regional output.

Table 16. Estimated impact of bushfires on the Alpine region

	Demand (\$m & %jobs)	Initial impact	Total impact
Low damage (5%)			
Output Impact (\$m)	-12.0	-12.0	-18.5
Employment Impact (total no. jobs)	-12.0	-73	-107
High damage (15%)			
Output Impact (\$m)	-35.9	-35.9	-55.4
Employment Impact (total no. jobs)	-35.9	-220	-321

The low damage panel shows that a decrease in 5 per cent in the output of the four selected industries equates to a decline of \$m 12 initial, the impact of closing businesses due to the bushfire or associated closes for safety reasons, culminating in a total impact of about \$m 18.5. The decline in employment initially is a loss of 73 jobs (both full-time and part-time) with a total loss of 107 jobs. The high damage panel shows that a 15 per cent decline in output of the four industries equates to a loss of \$m 35.9 in output initially and totally \$m 321. Employment losses are about 220 jobs initially with a total of 321. The initial impact on jobs is high due to the importance of employment of these sectors in the Alpine region. It would be expected that a recovery would make the bulk of these losses temporary and less than one year's duration (see section 3. 3. 2).

The impact on some sectors is presented in Table 17. The total decline in agricultural output is \$m 5.2 to \$m 15.6, decline of \$m 0.7 to \$m 2.1 in manufacturing, and a decline of \$m 12.6 to \$m 37.8 in services. The largest impact on output is the forestry sector, between \$m 4.5 to 13.6, however as a whole the tourism exposed sectors have an output decline between \$m 8 to \$m 24. Accommodation is estimated to have the largest decline, between \$m 3 to 9, followed by retail, \$m 3 to 8, then food and beverage services, a decline between \$m 2 to \$m 7. Cultural and recreational services are very tourism dependent for output and they will also see a small decline, however this sector is small.⁶

Table 17. Sector breakdown of estimated impacts

SECTOR	Output Impact (\$m)				Employment Impact (total no. jobs)			
Agriculture *	0.0	-0.7	0.0	-2.0	0	-4	0	-12
Forestry and Logging	-4.5	-4.5	-13.4	-13.6	-6	-6	-18	-18
Mining	0.0	0.0	0.0	0.0	0	0	0	0
Manufacturing	0.0	-0.7	0.0	-2.1	0	-3	0	-9
Services *	0.0	-4.4	0.0	-13.1	0	-19	0	-56
Retail Trade	-2.4	-2.8	-7.1	-8.3	-30	-34	-89	-103
Accommodation	-3.0	-3.1	-9.1	-9.2	-19	-19	-57	-57
Food & Beverage Services	-2.1	-2.4	-6.3	-7.2	-19	-22	-57	-65
Cultural & Recreational Serv.	0.0	-0.001	0.0	-0.003	0	0	0	0
Total	-12.0	-18.5	-35.9	-55.4	-73	-107	-220	-321

* excludes sectors indented sectors listed below sector

Turning to the impacts upon employment agriculture sees a decline of 10 to 30 jobs, manufacturing 3 to 9 jobs, and services 94 to 282 job losses. Although Table 17 shows that much of the individual sector impact in terms of output is in the forestry sector, the fall of employment is 6 to 18 jobs, small relative to the total impact on jobs. The major employment losses occur in the services predominately those related to tourist spending. The retail sector will see losses between 34 to 103 jobs, food services losses between 22 to 65, and accommodation losses of 19 to 57 jobs.

⁶ It is difficult to measure the output of such services.

3.2.4 Further details of the results

This section provides more insights in how the effects flow through the system. Table 18 repeats with extra information. Starting with additional rows, Gross Regional Product (GRP) is included. GRP measures the net contribution of activity to the Alpine region, which is the value of output less costs of production. The estimated loss to GRP is between \$m 9 to \$m 27. This table also includes a measure of employment which converts total jobs to full time jobs. The estimated loss of full time (equivalent) jobs is expected to be between 97 and 292.

Table 18: Estimated impact of bushfires on the Alpine region with breakdown of induced effects

	Demand (\$m)	Initial	Production Induced	Consumption Induced	Total
Low damage (5%)					
Output Impact (\$m)	-12.0	-12.0	-3.9	-2.6	-18.5
GRP Impact (\$m)	-12.0	-5.8	-1.6	-1.5	-8.9
Employment Impact (total no. jobs)	-12	-73	-18	-16	-107
Employment Impact (fte)	-12	-65	-18	-14	-97
High damage (15%)					
Output Impact (\$m)	-35.9	-35.9	-11.6	-7.9	-55.4
GRP Impact (\$m)	-35.9	-17.5	-4.8	-4.6	-26.8
Employment Impact (total no. jobs)	-36	-220	-53	-48	-321
Employment Impact (fte)	-36	-195	-54	-42	-292

GRP = Gross regional product, fte = full time equivalents.

3.2.5 Direct and indirect effects

The initial impacts are the direct effects, the decrease in the level of economic activity from the bushfire. These are the equivalent of the total impacts of the four sectors in

Table 16. The decline in \$m 12 (low damage case) translates into a loss of \$m 5.8 GRP, 73 jobs, and 65 fte jobs while the decline of \$m 36 of output translates to \$m 18 GRP, 220 jobs, and 195 fte jobs.

As the direct effects work their way through the Alpine region, the shortfall of demand will impact upon the other industries, for example a decline in retail impacts upon wholesalers and manufactures. These effects are called indirect effects and found in the column labelled production induced. The effect on economy wide output from the initial lost production from the bushfire totals to \$m 4 (\$m 1.6 GRP). The impact of less output required realises a loss of 18 jobs.

The consumption induced effects are the result from less spending in the Alpine economy.⁷ As job losses mount and less goods become available, people are more cautious about spending money, resulting in less consumption spending, requiring less production in the economy. The impact of reduced consumption from the bushfire, results in a loss of output between \$m 3 to \$m 8 (\$m 2 to 5 GRP). The employment losses are between 16 and 48 jobs.

The combined effect produces the total effect. It is the sum of the initial impact of the bushfire on the four sectors, plus the flow on effects (both induced production and induced consumption). In terms of output the result is \$m 12 + (3.9 + 2.6) = 18.5 for low damage and \$m 35.9 + (11.6 + 7.9) = 55.4 for high damage.

⁷ The reduction in spending to both indirect and direct effects. This sometimes is called the induced effect.

3.2.6 Multipliers

The multiplier is an index which indicates how much a direct impact will impact totally on an economy. To measure the flow on effect two ratios are calculated: Type 1 and Type 2. The type 1 ratio computes the production impacts from a stimulus.

$$\text{Type 1} = ((\text{Direct} \& \text{Indirect effect})) / (\text{Direct effect}).$$

The type 2 ratio computes the total effect from a stimulus.

$$\text{Type 2} = ((\text{Direct} \& \text{Indirect} \& \text{Induced effects})) / (\text{Direct effect})$$

The ratios from the analysis above are shown in Table 19. The values are from Table 18.

Table 19. Economy wide multipliers for output and employment

SECTOR	Direct	Indirect	Induced	Ratio
\$Output/\$FD				
Type 1 ratio	-12.0	-3.9		1.323
Type 2 ratio	-12.0	-3.9	-2.6	1.545
Jobs/\$mFD				
Type 1 ratio	-73	-18		1.243
Type 2 ratio	-73	-18	-16	1.462

Direct is the initial impact, Indirect is the production induced effect, and Induced is the consumption induced effect. The values are linear so whether using low damage or high damage does not matter. \$FD = per final demand.

We also provide the individual sector multipliers for the three tourism heavy sectors. They are provided in **Table 20**. For a reduction of \$1 in retail we can expect a total decline of \$1.63 and 1.275 jobs lost. Note that the initial number of jobs lost is 12 which results in a total of 16 job losses.

Table 20. Individual sector multipliers

SECTOR	Initial	Direct	Indirect	Induced	Total	Type I	Type II
\$Output/\$FD							
Retail	1.000	0.214	0.095	0.325	1.634	1.309	1.634
Accom	1.000	0.272	0.124	0.229	1.625	1.396	1.625
FoodBev	1.000	0.230	0.102	0.261	1.593	1.332	1.593
Jobs/\$mFD							
Retail	12.429	0.982	0.474	1.967	15.852	1.117	1.275
Accom	6.235	1.069	0.660	1.384	9.348	1.277	1.499
FoodBev	8.977	0.968	0.599	1.580	12.124	1.175	1.351

Interpretation: Number of jobs per \$1 million dollars of sales to final demand

3.3 Impacts on Harrietville

This section uses the multipliers (**Table 20**) to estimate the impacts of reduced tourist flow on Harrietville. Tourism Research Australia calculates the total spend is \$m 6.3 for year 2013 (see Table 13). We use the same range approach as above with low damage = \$310 000 and high damage \$940 000. We compute the sectors percentage of tourism final demand (from Table 14) and multiply that percent by the total damage direct above providing an estimate of the direct decline. The direct decline is then multiplied by the multiplier to obtain an estimate of the total impact. The results from a decline in output from a bushfire range between \$510 000 to \$1 530 000 and are shown in Table 21. If employment figures are known, then a similar analysis can be performed for employment.

Table 21. Impacts on Harrietville

	% of tourism final output	Output multiplier	Direct decline	Total output
Low damage (5%)				
Retail	0.26	1.63	-0.08	-0.13
Accom	0.51	1.62	-0.16	-0.26
FoodBev	0.23	1.59	-0.07	-0.12
Total			-0.31	-0.51
High damage (15%)				
Retail	0.26	1.63	-0.24	-0.40
Accom	0.51	1.62	-0.48	-0.78
FoodBev	0.23	1.59	-0.22	-0.35
Total			-0.94	-1.53

Sector tourism % is the percentage of sector's tourism of the three sectors (see Table 14 column four). Direct decline = $-0.31 \times \text{sector tourism \%}$. Total output = direct decline \times output multiplier. Multipliers are from table

3.3.1 Limitations

There are some limitations to using input-output models, such as the assumptions of constant returns to scale and linear production functions. A further major limitation to this methodology is the large data requirements. At the regional level, the accuracy of sales and their impacts have a large amount of uncertainty describing them. Although not important for this study, the expansion of an industry requires resource mobilisation, which puts upwards pressure on prices, which are not well captured in this model.

This model does not include any spatial effects of where the fire impacts, and how much damage it does on its path (such as towns or surrounds). The model used does not account for spatial analysis beyond industry connections, which is why they are omitted. To overcome this limitation a low damage and high damage range is provided to try to capture some of that impact. One other sector could have been included as sources of initial impacts (Dairy), however economically its contribution to the region is much smaller than the four chosen.

Another limitation of the model is the element of time. The inputs in the model represent years, such that annual production for the Alpine region is \$m 920. However, the impact on the region would depend upon the time of year, as well as how fast the recovery would be. As the initial shock would occur in one month it would appear not to be unreasonable to expect that recovery of some sorts would have started within three months after the initial impact. The model cannot capture this dynamic (even if the recovery phase was) therefore we have chosen 5 per cent and 15 per cent as value bounds which seem reasonable to capture this effect.

3.3.2 Validation of results with past experiences

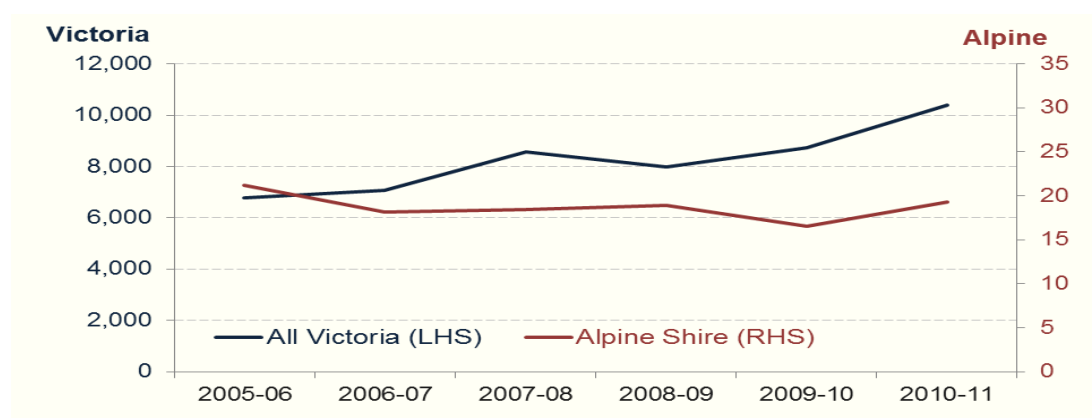
In conducting this bushfire impact simulation based on input output analysis, we have used the range 5-15 per cent of final demand. We adopted this range based on an examination of taxable income data for individuals for the Alpine Shire. This data provides information about the size of taxable income in total and for various sources of income, such as wages and salaries and for unincorporated enterprises by LGA. It can be expected that many tourist enterprises will be conducted by companies but at the smaller scale there will be a large number of unincorporated enterprises and it might be expected that these would be most severely impacted by the fire. There is no data on company income tax at the LGA level.

We examined both the change in total taxable income for the Alpine Shire and that for unincorporated enterprises to establish a possible impact range for further analysis. While the actual change is important, of greater relevance is the relative rate of growth in the Shire compared with Victoria. As a measure of the possible sizes of the impact, we compared rates of growth in the Alpine shire with the average across Victoria and used the difference as an approximate impact measure.

The 2006-07 Alpine Bushfires appears to have had a marked effect on total taxable incomes for individuals in the Alpine shire. Growth in total incomes was only 3.6 per cent per annum compared with 8.0 per cent for Victoria between 2006-07 and 2005-06 and again between 2007-08 and 2006-07 was only 4.7 per cent compared with 9.4 per cent for Victoria, which is a difference averaging about 4.5 per cent per annum for the two years following the bushfires.

The impact on unincorporated business enterprises appears, as one would expect, to be much greater. Taxable income for unincorporated business enterprises fell 14.1 per cent between 2006-07 and 2005-06 and grew by only 1.5 per cent between 2007-08 and 2006-07 compared with growth for Victoria of 4.1 per cent per annum and 21.2 per cent per annum respectively, that is a difference averaging about 19 per cent per annum for the period. Figure 8 shows the divergent trends in taxable income following the bushfires.

Figure 8. Taxable income: Unincorporated enterprises, Victoria and Alpine Shire, 2005-06 to 2010-11 (\$m)



Source: ABS Estimates of Personal Income for Small Areas, Time Series, 2005-06 to 2010-11(cat: 6524.0.55.002)

There are of course many possible reasons for these differences in growth rates, including population movement and other economic drivers. However, in the several years following this period the difference in growth in total taxable incomes reduced to an average of about 1 per cent per annum lending support to the proposition that the marked differences in growth rates were bushfire related. Accordingly, we regarded these differences as upper and lower bounds in impact on total demand to test in the input output analysis.

3.4 Conclusion

This section quantifies the economic impacts of a bushfire for the Alpine region. An input-output model was used to obtain estimated the effects upon output and employment. The results indicate that a bushfire;

- may result in a decline between \$m 18.5 to \$m 55.4 in output for the Alpine region;
- may result in a decline between 107 to 321 total jobs for the Alpine region;
- for a visitor spend of \$m 6.3 in Harrietville a decline in output from a bushfire may range between \$510 000 to \$1 530 000.

These results do not include a recovery effect once the bushfire has passed. The range of values is expected to aid policy makers and other interested parties in decision making. Further, multipliers are provided so as interested readers can do their own analysis. The analysis does, however, give an indication of a possible range of economic loss experienced due to fire incidents. The focus of the following section is to examine how such losses might be minimised through adaptation and resilience building strategies.

Section Four: Tourism Vulnerability and Resilience Assessment for Harrietville

4.1 Introduction

The aim of this section is to provide a vulnerability and resilience (V/R) assessment of the tourism economy of Harrietville informed by data gathered over the course of the project including data collected from the Harrietville visitor survey, in-depth interviews, an economic analysis and other relevant secondary data.⁸ The section begins with an explanation of the conceptual framework applied before discussing key elements of the V/R analysis. This includes an exploration of 'shocks', 'stressors', 'vulnerabilities' and 'resilience factors' in order to provide an understanding of the factors that contribute to the underlying vulnerability⁹ and resilience of Harrietville in the Ovens and Alpine area of North East Victoria, Australia. While this V/R assessment was conducted in the context of bushfire risk, a bushfire in itself does not cause vulnerability – instead it is better conceptualised as a trigger that reveals underlying vulnerability and resilience in a destination (Calgaro et al., 2014).

4.2 Conceptual framework

Informed by tourism adaptation theory, this project takes the V/R approach and seeks to understand the complex interactions between external risks (with a particular focus on bushfire risk) and the affected tourism system's conditions. A myriad of compounding (and often overlapping) economic, political, and environmental factors in the tourism destination/system can directly and indirectly disrupt tourist flows (e. g. Baker & Coulter, 2007; Burak, Dogan, & Gazioglu, 2004; Faulkner, 2001; Prideaux, 2004; Richter & Waugh Jr, 1986; Ritchie, 2008; Sharpley, 2005), which means that the effectiveness of resilience-building activities for tourism ultimately relies on understanding and addressing the underlying socio-political processes and environmental linkages that form the foundations of vulnerability (Calgaro et al., 2014). The Destination Sustainability Framework (DSF) (Figure 9) is used in this project as the overarching theoretical framework for assessing tourism vulnerability and resilience to inform tourism planning and management in the context of fire risk.

4.2.1 Harrietville in the context of bushfires.

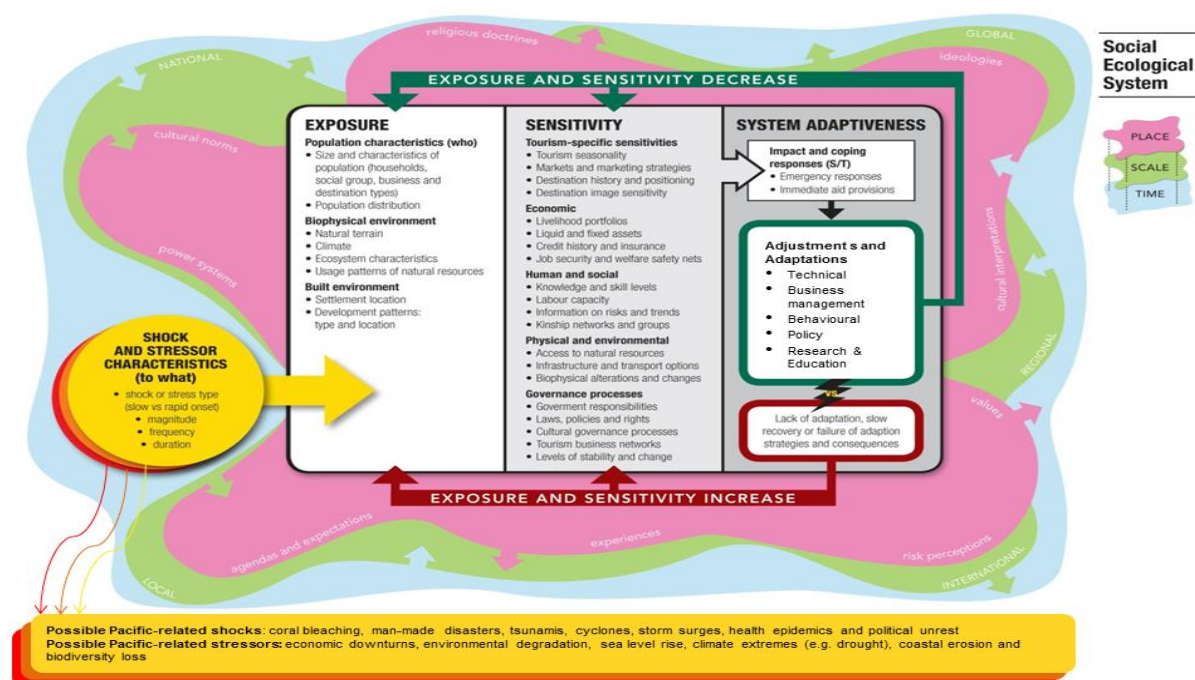
The purpose of the DSF is to guide the identification of the multiple factors and processes that influence vulnerability and resilience in the tourism context, along with the social actors and agendas that drive action and non-action. Understanding these factors and processes creates entry points for effective adjustments and positive change. Originally developed by Calgaro (2010); Calgaro et al. (2014), the DSF has been modified and applied in a number of destinations in the South Pacific including Samoa, Tonga and Vanuatu. The main modifications include aspects of the tourism system model (Gunn, 1994; Leiper, 2004) as well as the climate adaptation portfolio for the tourism-recreation sector by Scott et al. (2009). This was done to focus the framework on the type of adaptation strategies available to tourism stakeholders to (1) reduce vulnerability and increase resilience; and (2) prepare and adapt to change. As shown in the Figure 9, the DSF comprises six main elements: (i) the combination of shock(s) and/or stressor(s) that affect destinations, (ii) the three interconnected dimensions of vulnerability - exposure, sensitivity, and system adaptiveness - that form the core of the DSF, (iii) the dynamic feedback loops that express the multiple outcomes or consequences of actions taken (or not taken) in response to the shocks and stressors, (iv) the contextualised root causes and drivers that shape places (including destinations) and their characteristics, (v) the scale, and (vi) multiple timeframes within which social-ecological change occurs.

⁸ See 0 for details of methodology and results.

⁹ Vulnerability is a place-based and dynamic condition of the coupled human-environment system and is defined here as "the degree to which an exposure unit [households, human groups, ecosystems, and communities] is susceptible to harm due to exposure to a perturbation or stress, and the ability (or lack thereof) of the exposure unit to cope, recover, or fundamentally adapt (Kasperson, Turner, Schiller, & Hsieh, 2001, p. 7)".

The following sections further explain the key components of the DSF and how the Tourism System Model (adapted from Leiper, 2004) and Climate Adaptation Portfolio for the Tourism-Recreation Sector (Scott et al., 2009) fit in to the DSF to add the required depth needed to assess the vulnerability and resilience of destinations and the supporting tourism system to change, with particular emphasis given to climatic changes.

Figure 9. The modified Destination Sustainability Framework (DSF) (Adapted from Calgaro et al. 2014)¹⁰



¹⁰ The modification of DSF (Calgaro 2010; Calgaro et al. 2014) for tourism vulnerability and resilience assessment in the context of climate change was made to be applied in an AusAID Australian Development Research Award Project Pacific Tourism – Climate Adaptation Project (PT-CAP) (ADRA0800029). The key research team that contributed to the development of the modified DSF include Dr Emma Calgaro, Dr Louise Munk Klint, Dr Min Jiang, Professor Terry DeLacy, and Professor Dale Dominey-Howes.

4.2.2 Shocks and Stressors

The V/R analysis begins with identifying *to what* the tourism destination/system is vulnerable or resilient, which is the event or events that destabilises the existing system. The **shocks and stressors** element (*to what*) is shown as piercing the core of the social-ecological system. The event does not cause vulnerability - it is the trigger event that reveals vulnerability and resilience patterns - but the nature of the shock or stressor does influence how the system is affected over space and time (Wisner, Blaikie, Cannon, & Davis, 2004). Shocks and stressors are differentiated here because they have significant implications for prioritising adaptation strategies especially when resources are limited (Jiang & DeLacy, 2014). Figure 9 shows that the extended yellow box on the bottom of the modified DSF includes a range of shocks and stressors relevant for the South Pacific small island destinations. This provides an example of localised identification of shocks and stressors. In this project, bushfire is the pre-determined risk concerned. However, a range of other shocks and stressors facing the local tourism stakeholders in Harrietville were also identified.

4.2.3 The Tourism System

The addition of the Tourism System Model in the application of the DSF is helpful to fully understand *who* is vulnerable or resilient to the shocks and stressors. It is important to identify the key players of the tourism system because they might be potentially exposed to shocks and stressors in different ways (Jiang & DeLacy, 2014). Their perceptions towards certain shocks and stressors may also vary, which could lead to difference in their vulnerability and resilience level. The identification of the tourism system components also helps to scope out the relevant stakeholders who are in special need for, responsible for, or able to take adaptation actions.

4.2.4 Vulnerability and Resilience

Vulnerability and resilience are place-specific conditions of the coupled human-environment system. Therefore, the three interconnected dimensions of vulnerability form the heart of the DSF (the three columns at the centre of Figure 9). The factors that contribute to exposure, sensitivity, and system adaptiveness are then broken down into subgroups, enabling the easy identification of key assessment focal points, but the lists are not exhaustive.

Exposure presents an inventory of the destination's defining physical characteristics. Sensitivity captures the pre-existing economic, social, political and environmental conditions that shape how the destination is affected by the shocks and stressors. System adaptiveness highlights how the system and its people respond to the shocks and stressors, and the consequences of these responses. There are numerous ways in which different tourism stakeholders can respond and adapt to change. In line with Scott et al. (2009) Climate Adaptation Portfolio for the Tourism-Recreation Sector, the types of adaptation responses are grouped under six categories: behavioural and social; technical and structural; business management; policy; research; and education. It is important to understand that post-event responses may have different consequences on future vulnerability and resilience levels in the tourism system/destination. Actions can produce both positive and negative outcomes for different players in the tourism system. Positive outcomes lead to reduced exposure and vulnerability and enhanced resilience. In contrast, lack or failure of adaptation may increase vulnerability levels. This feedback loop is shown in the Figure 9 by the green (positive feedback) and dark red (negative feedback) arrows.

The tourism destination and its tourism system do not exist in vacuum. It is important to understand the socially constructed and dynamic spatio-temporal context within which vulnerability and resilience manifest in the tourism destination/system. This context, including *place*, *scale*, and *time*, is also acknowledged in the framework (Figure 9). The destination's vulnerability and resilience to shocks and stressors are shaped by multiple actions and decisions, which occur at different levels of *place*, *scale*, and *time*.

The actions and decisions of actors involved in the tourism system are also influenced by a range of contextual factors, as shown in the element of *place* (in the pink area of Figure 9). As a crucial part of the tourism system, tourists' perceptions of the destination, their travel choices or preferences play a significant role in determining destination vulnerability to shocks and stressors. *Scale* represents the tourism system, through its various actors, its value chain, and social networks, crossing local, regional, national, and international levels (in the green area of Figure 9).

Finally, the element of *time* is represented in the blue area of Figure 9, acknowledging the importance of the timing of responses to shocks and stressors and their consequent outcomes in planning effective adaptation. These contextual spatio-temporal factors interact with the tourism system's environmental, political, economic and social conditions, which together influences vulnerability and resilience. Investigation of place, time, and scale is embedded in the vulnerability/resilience analysis as integral consideration in the assessment.

4. 2. 5 Data collection and analysis methods

As detailed in 0, the primary data collection took place predominantly in and around Harrietville utilising multiple methods. This analysis relies particularly on in-depth interview findings. A total of 25 semi-structured interviews (average 45 minutes in length, mostly face-to face with a couple of telephone interviews) were conducted using a question outline to guide the interviews. Despite the structured question outline, the interviews allowed flexibility for the researchers to seek clarification or elaboration on specific topics, as well as for interviewees to tell their stories without being interrupted. Interview participants included tourism stakeholders, members of the community and representatives from various government departments involved in bushfire management. The concept of data saturation point (Minichiello, Aroni, Timewell, & Alexander, 1995) was used to indicate when to stop further interviewing as the themes emerging from the interviews started repeating themselves and no new information or themes were emerging.

Interviewees were identified to ensure the representation of a cross-section of people connected with the Harrietville tourism system. These included people engaged in operating private tourism businesses, community members with an interest in the wider social and economic wellbeing of the Harrietville community, relevant governance officers at state, regional and local levels and other peak tourism and event management organisations. The specific selection of interviewees was guided by advice from Emergency Management Victoria (EMV) and community planning forums with consideration given to minimising any inconvenience to interviewees, the need to coordinate with other community planning activities and consider seasonal factors that affected the availability of interviewees. While not exhaustive, the final twenty-five interviews achieved the aim of gaining a cross-section of perspectives to inform the analysis.

The cross section of interviewees by stakeholder group is shown in Table 22.

Table 22. Sample of interviews by stakeholder group

Breakdown of Interviews by Stakeholder Group	
Tourism Industry (including operators, event organisers and peak bodies).	11
Community Participants in this category were chosen because of their individual community perspectives and engagement with community planning processes - however, most also have a stake in tourism through the nature of their employment, business operations or their interest in community wellbeing.	5
Government Officers (from across the spectrum of tourism related sectors such as parks management, land use planning, community engagement and events management)	9

The interviews were audio recorded subject to the participant consent, and professionally transcribed. All transcripts were then coded and analysed using a thematic analysis approach in the NVivo 10 software (Patton, 2002). Through the identification of categorical themes (Patton, 2002), the central themes were identified to primarily reflect the detailed components featured in the modified DSF.

4. 3 Key findings of the vulnerability/resilience (V/R) assessment

4. 3. 1 Specifying the risks

A scoping of the external risks for Harrietville's tourism system was conducted by identifying the major shocks and stressors (rapid vs slow onset) that Harrietville has experienced in recent years. As anticipated, the two major shocks were identified as bushfires and associated flooding and landslides. The identified stressors included the bushfire-triggered factors of sensationalized media coverage, disruptions caused by fire-fighting operations, as well as road and track closures. Additionally, there are stressors which had not been triggered directly by a bushfire-event. These include heat waves, bad snow seasons and preventative control burns, as well as the underlying progression of climate change.

Shocks

Bushfire

Harrietville is surrounded by expanses of bushland and bushfire risk is accepted as a part of life. However, in recent years, several major bushfires events have occurred in the region in close proximity. These included the bushfire events of 2003, 2006/07, 2009 and 2013. This V/R assessment was conducted in the context of the most recent fire, which started on 21 January 2013 and was ignited through a lightning strike at Smoko, around four kilometres north-east of Harrietville. The fire eventually burnt 37,000 hectares of Alpine National Park over a period of 55 days, with the tragic loss of two firefighters and with the Alpine Shire estimating a collective economic loss of \$40 million (Hallowes, 2013).

Named as the "Harrietville Fire" this bushfire did not actually cause damage to Harrietville itself (and neither has any other bushfire in the past), but the unfolding events during, and for a long time after the fire had ceased, have had significant effects on Harrietville's tourism system. These events are analysed in this V/R assessment to identify the underlying factors for vulnerability and resilience in Harrietville. Some of these factors are fire-related, while others are not. The intent of identifying these factors is to inform future planning and management of future bushfire risk with consideration of the tourism impacts. The analysis is also important to inform the development of measures to adapt to climate change with the frequency and severity of bushfires expected to increase (Hughes & Steffen, 2013).

Flooding and landslides (caused by heavy rain after the fire)

The bushfire of 2013 was followed by heavy rains causing further shocks to the system. With little vegetation left after a fire, burnt mountain areas are particularly susceptible to erosion, when the "first lot of rain sends all the silt, all the ash, all the soot, everything else down and kills fish, kills whatever wildlife is left". The heavy rains consequently resulted in landslides, one of which caused the Great Alpine Road to slip away between Harrietville and Mt Hotham, severing the Great Alpine Rd between Harrietville and Mt Hotham. The Ovens River, already clogged with post-fire debris became completely blocked, eventually flooding parts of the town. Some properties and tourism businesses were badly affected, including washed-away bridges and footpaths, as well as flooded rooms and destroyed gardens - requiring what are effectively major clean-up operations for small businesses with only a few employees and affecting their ability to trade as normal. This came as an additional shock to an already stressed tourism system:

We just had the six to eight weeks of the fire impacting the town, destroyed tourism and everything else and then we had the flash flood that flooded us out. We figured the next thing, [Mount] Feathertop was going to turn into a volcano and burn us all in hot lava just to finish us off, those of us that hadn't been impacted.

The ash and debris run-off caused considerable water pollution with impacts on the visual amenity (e.g. dead fish and platypus caught in sticks) and death to fish stocks. This had particular impacts on the Trout Farm, one important attraction in the Harrietville area. From a tourism perspective, the river became unusable for months because it was "just black".

Stressors

The nature of the media coverage (bushfire event related stressor)

The nature of the media coverage is widely understood as particularly damaging for Harrietville as the media's "...appetite and zest for drama tends to override their ability to communicate a strong, clear safe message without alienating people's desire to come up here... In the aftermath, the communications and also during the bushfire, the media get hold of it and blow it – disaster sells well". Sensationalised and misleading news coverage particularly affects those businesses that cannot communicate easily with their customers. Those with large group bookings usually communicate with one central person and can easily relay the message when it is safe or not safe to visit. Caravan parks, motels, hotels and tourism operators often do not have this option and their visitors get their information primarily from the media with direct consequences if misinformation is presented. In addition to anger about management decision by authorities, the nature of the media coverage has been the focus of particular anger by the local community. Further stress was added by the fact that the fire had been named the "Harrietville Fire", thereby impacting tourism even though the fire had, for the most part, travelled a considerable distance from the town.

Disruptions caused by fire-fighting operations (bushfire event related stressor)

In the most recent bushfire of 2013, Harrietville became a crucial and necessary base for the fire-fighting operations. At the height of the operation, some 50 fire trucks, 150 other smaller four-wheel drive vehicles were operating in and out of Harrietville, up and down tracks, and using Harrietville as a bypass. Ten aircraft were operating out of the Harrietville cricket ground with associated bulk fuel tankers and other support operations and helicopters collecting water from the local dredge holes (normally used for swimming). Even though the fire and threat had passed Harrietville, the town and its tourism system continued to be under the stress of the operations for the duration of the fire as one interviewee described:

So, for six weeks all day there was a series of four or five or six helicopters flying low over the town, that created just a noise even though we couldn't see the fire, the fire was already out there gone somewhere but we still had this chaos. So, its impact on the town in that sense, without talking about tourism, is a long-term impact and through that period of time at the same time our tourist industry is stopped.

Road and track closures (bushfire event related stressor)

After the bushfires and landslides of 2013, the Great Alpine Road was damaged and closed for months for major repair work, with only limited access periods. Being the only road connecting Harrietville to Mt Hotham and Gippsland, this was particularly damaging for Harrietville's tourism system. As access to Harrietville was so limited, so too was any tourism spending... *"so really, from the 24th January to Easter, the town basically had no income"*. Road works also limited access for the myriad of other services a tourism business relies on, such as the delivery of goods, as well as repair and maintenance services, often conducted at that time of year. A further effect was a loss of work for those in the community that work at Mt Hotham.

The stress of road closure was compounded by the use of road signage that was misleading, limiting the existing access even further as it did not give exact details of closure points, opening times or reasons how and why it was closed. Signage was easily interpreted as if it was not possible to reach Harrietville - thereby confusing potential visitors even further. Finally, repeated road closures over the long term may become an image problem for the destination, as *"there is a fear that visitors will start to see Harrietville as unreliable and travel to Hotham via Omeo"*.

The many four-wheel drive and walking tracks that crisscross the landscape are Harrietville's main thoroughfare for nature-based tourism (Harrietville's major tourism asset). These tracks were also closed for months generating a major stressor for tourism in Harrietville because *"there was nothing they could do. They couldn't go anywhere. So, they just didn't come"*. For instance, the West Ovens Track, the main thoroughfare into the hills for motorbikes, four-wheel drivers and hunters was closed for access from Harrietville for 12 months.

While access to the hills was possible from further afield, it meant that four-wheel drive clubs, motorbike clubs and individuals “were not coming into Harrietville to get a coffee or stay at the pub on the night before they left [or] have a meal [], because of the fact that that track was closed for 12 months”. These closures were therefore a key stressor on the town’s tourism economy.

Heat waves (general stressor)

While extreme heat is one of the critical factors in bushfire risk, it also affects tourism without the occurrence of a bushfire event. High temperatures affect the ability of event organisers to run an event as planned (e.g. cycling) and impact visitation as visitors are put off because “you’re not going to go ride a bike or do cellar tastings —you’re not going to do anything in 40-degree temperatures”. Many tourism businesses lost cancellations earlier this year due to the extreme heatwave from 13-18 January 2014.

Bad snow seasons (general stressor)

The effects of a bad snow season in the ski fields on Harrietville are twofold. Winter visitors to Mt Hotham (e.g. skiers) often stay in Harrietville and only drive up the mountain during the day, while others travelling to and from the ski fields often stop in Harrietville for fuel, a meal or other supplies. A bad snow season consequently has a direct effect on the tourism economy in Harrietville. The mountain also plays an important role as an employer for local residents and if the ski resorts are struggling the effects can be felt in the community in terms of less employment and lower visitation.

Preventative control burns (general stressor)

Prescribed fuel reduction burning is now a central fire risk reduction strategy administered by DEPI. Smoke and smoke haze, however, is a stressor for tourism and a serious issue for the wine industry and can taint the tourism experience. This is particularly an issue for Harrietville given its location in a valley where smoke takes some time to disperse. There is also a relatively narrow time period in which control burning can be safely (ie. the weather is not too hot) or practically (ie. The fuel is not so damp that it will burn). The few opportunities to conduct control burning is primarily in the Autumn months of March, April and May, which also coincides with peak tourism periods. Reconciling the need for burning to reduce fire risk, with the need to retain Harrietville’s image as a pristine tourism destination, is a key stressor.

Climate change (stressor influencing bushfire risk)

Climate change is an important underlying stressor influencing the frequency and severity of bushfire events - thereby increasing the overall bushfire risk for Harrietville (Hughes and Steffen, 2013). The bushland ecosystems surrounding Harrietville are naturally adapted to sporadically occurring bushfire events, but they are not able to adapt for a quick succession of major bushfires as recently experienced. By increasing the risk of frequency and severity of bushfire events, climate change presents an underlying factor in each of the identified, bushfire-related shocks and stressors. Fire seasons are expected to lengthen into the future, further reducing the opportunities for safe hazard reduction burning (Hughes & Steffen, 2013).

4. 3. 2 Understanding vulnerability

Vulnerability can be defined as “the degree to which an exposure unit [households, human groups, ecosystems, and communities] is susceptible to harm due to exposure to a perturbation or stress, and the ability (or lack thereof) of the exposure unit to cope, recover, or fundamentally adapt” (Kasperson et al., 2001, p. 7). It is a property of the coupled human-environment system that is determined by three interconnected dimensions: exposure, sensitivity and system adaptiveness (Calgaro et al., 2014).

Exposure

As described earlier, Harrietville is highly exposed to bushfire and its related impacts due to its location at the far end of the Ovens Valley and is the last main town before the ski resort of Mt Hotham coming from the Hume Freeway (M31). It is surrounded by bushland - state forest (crown land) to the west and national park to the east – each managed by separate land and fire management authorities. The state forest has many fire trails, which allows good access for example for four-wheel driving, hunting and mountain biking, while the national park provides predominantly bushwalking tracks and huts.

Harrietville's bushfire risk has been formulated collaboratively by the emergency services and members of the community as follows:

Although Harrietville has no bushfire history within the town, certain circumstances have the potential to generate bushfire events of extreme risk. The township of Harrietville is situated in a valley surrounded by State Forest and National Parks. Local residents and visitors should be prepared for fire and have a plan for when the Fire Danger Rating is SEVERE, EXTREME or CODE RED. The extreme bushfire risk comes from the combination of high fuel loads in the surrounding forest, homes nestled into bushland, the hilly terrain and a lack of accessibility with one way in and out of town via the Great Alpine Road. Living, visiting or working in this area means you must have a well-developed bushfire survival plan for ALL days when hot, dry and windy weather increases the bushfire risk (CFA, 2014, p. 1).

The Country Fire Authority (CFA) (CFA, 2014, p. 2) also characterises bushfire risk in Harrietville as being generated by steep terrain and heavy vegetation on all sides. Heavy vegetation and topography create the potential for severe ember attack and direct fire into the town environs with properties located higher in the valley being particularly vulnerable due to the tendency of fire to travel rapidly up-hill. In 2003 fire came within 200 metres of the town. The section between Harrietville, Hotham Heights and Dinner Plain is also particularly narrow with sharp twists and bends, steep inclines and very heavy roadside vegetation. Travelling along this road may not be safe during extreme weather and/or bushfire events.

In 2011, Harrietville had a resident population of 402 residents (Easterbrook, 2013)-a considerably larger population than in 1981, when the population stood at 156). As a small Alpine town close to the ski fields it attracts new residents with the promise of a new life. *"Nobody's getting rich having a business in Harrietville. What they've got themselves is a lifestyle"*. The community perspective of Harrietville as unique, authentic and a place to enjoy a country lifestyle is supported by an Alpine Shire business survey that identifies 'lifestyle' as overwhelmingly the major motivation for business operators to operate within the locality (Alpine Shire Council, 2011). As a destination, it offers approximately 600 commercial beds, a caravan park with a 400-guest capacity and houses that are rented out in busy periods.

Constraining factors in sensitivity

Strong economic dependence on nature-based tourism and tourism transit

Primarily, Harrietville is economically dependent on nature-based tourism as well as tourism transit (primarily to Mt Hotham but also as part of a number of car, bike, walking and 4wheel drive routes). With the exception of forestry there are very limited economic alternatives and when Harrietville loses visitation it effectively loses its economy. The five major pillars of tourism in the region are: snow – Alpine winter experiences; cycling – road, trail and mountain biking; Food, wine and beer; nature-based experiences – alpine and non-alpine walking, horse riding, water sport, fishing; and, cultural heritage (Tourism North East, 2013). These are complemented by many events and festivals in the region that also play an important economic role for Harrietville (e.g. for accommodation, as a touring stop and many flow-on effects). These major tourism pillars all interlink with one another through the dependence on the beauty of the alpine scenery and all rely heavily on prime weather conditions. While the regional tourism product is increasingly being diversified, there is limited potential to diversify beyond the broader nature-based or weather-dependent product.

All of Harrietville's tourism activity can therefore be affected by bushfire for extended periods of time - and long past the time when emergency response operations have been completed. After the 2013 bushfire, tourism revenue was significantly affected for several months. However, the cumulative effect of the identified shocks and stressors caused a visible effect in tourism revenue for most of the year. On this point, it is important to note that the nature of the tourism business differs to other economic sectors. Tourism loss cannot be made up later - when a bed is not filled the income is lost. Timing therefore plays a critical role in sensitivity. The bushfire of 2013 occurred immediately after the Christmas holiday and some of busiest weeks had already occurred and so Harrietville did generate substantial tourism income for most of January. In this sense, the losses were less severe than if the fire occurred earlier, in which case, the impact would arguably have been much worse.

The nature of tourism business and employment also plays an important role. Most Harrietville businesses are small and family-run. Many do not have business plans and income insurance is often not considered feasible due to the high cost compared to the small business. Additionally, there have been reported problems with insurance payments (i.e. not actually covered for flood, only partial payments due to errors in evaluation). Casual employment is common, and the cumulative effects of shocks and stressors directly impacts on the ability of tourism businesses to provide work opportunities. With very few tourism-unrelated work opportunities, it is practically impossible for people to recover economically, emotionally and socially until the tourism sector recovers.

Dependence on access via the Great Alpine Rd

The events of 2013 have demonstrated the dependence of the tourism sector on access provided by the Great Alpine Road and the few major access points to the forest (such as Mill Road) as there are no alternative routes. If these major thoroughfares are affected, Harrietville loses its second important tourism element: tourism transit. The tourist survey conducted for this report indicated that 15 per cent of all first-time visitors to Harrietville were in transit to other areas such as Mount Hotham and Dinner Plain, even though the survey was conducted over the Easter period (outside the ski season). Therefore, with both major tourism pillars affected, Harrietville is in a situation where economic vulnerability and resilience becomes severely affected by decisions that would otherwise only cause a minor disruption (e.g. track closures).

Sensitive destination image

The strong economic dependence on nature-based tourism and tourism transit underline the importance of maintaining a positive destination image. If an image develops that casts doubt on whether Harrietville is able to provide the desired nature-based experience and transit access, there are no alternatives for the destination to fall back on. This sensitivity was highlighted in particular by the effects of the sensationalized media coverage and the naming of the bushfire as the “Harrietville Fire”. Potential tourists do not usually have access to local information. According to the tourist survey, more than 60 per cent of tourists learnt about fires through general media, which tend to sensationalise the fire events, and may alter tourist’s choices and preferences of destinations. One interviewee expressed the concern about the destination image sensitivity by saying

I guess the other area we don’t know is, is it changing people’s perceptions on visiting not only Harrietville but anywhere in the bush in the summer time? Is that perception changing? I don’t know but we do know that we were having cancellations right through the year based on the fact that they thought that things would be different [after the fire].

The Harrietville visitor survey results show that nearly a quarter of visitors (14.2 per cent) who participated in the survey changed their plans as a result of a bushfire event. This represents a small percentage, which is consistent with only 26.4 per cent of survey respondents being the first-time visitor. What is more concerning is that, while repeat visitors tend to keep coming back to Harrietville regardless of potential fire risk, new visitors seem to be more influenced by ‘the media build up’. As one interview source told, ‘there were a lot of concerns for new bookings because they’d heard – because of all the media...’ The survey results also show that 59 per cent of participating visitors are concerned or very concerned about the bushfire risk in Harrietville during the summer period, leaving them open to media influence.

Constraining government processes

One of the defining characteristics of Harrietville is its location in the centre of large tracts of state and national park with state parks to the west and national park to the east and south east. Consequently, responsibility for land management for the parks and the town lies with multiple organisations and agencies. Interview results revealed some on-going concerns by the community and private sector in relation to a perceived lack of co-ordination, communication and community engagement by government agencies concerning land and fire risk management. For example, interviewees cited instances where four-wheel drive tracks have been closed without community consultation and such measures have impacts on visitors and business operators.

At the same time, planning, governance and land management officers highlight the challenges of implementing national or state policy within the area, with limited human and financial resources, and in a large and geographically diverse region. Concerns were also expressed by government officers about the difficulties in managing some inherent conflicts between the necessary implementation of safety or conservation measures and the interests of varied tourism business operations that rely on nature-based tourism assets.

As discussed in the report background, there has been considerable progress in implementing processes and forums to improve government and community communications. While communications may have improved, as many interviewees suggest, interviews also revealed that misunderstanding continues between varied stakeholders in the tourism system. These findings point to the need for on-going efforts to build and sustain effective and productive communication between the community and government.

Development barriers

A key issue highlighted by interviewees is that Harrietville is not connected to a mains sewerage system, which has consequences for tourism development. While many businesses have installed newer treatment plants, there are still many old or ad hoc systems in place. There are fears that a breakdown could contaminate the river and affect the entire town. This is a particular threat to Harrietville, as it is crisscrossed by small water courses and building regulations specify the distances required between waterways and any building activity. At present there are valuable areas that cannot be utilized due to the lack of sewerage infrastructure.

Additionally, internet connectivity is limited within the area. While enhancement devices are available, not everyone in the community may be willing to purchase these, and tourists visiting the area may not know that mobile or internet coverage is not up to the standard they expect or are familiar with. This has been a problem in emergency situations, especially for tourists unfamiliar with the area and is also a limiting factor for tourism marketing, communications and management as it makes day-to-day tourism operations more difficult (e.g. internet bookings). While there has been the supply of additional internet ports in 2014, connectivity remains relatively limited to meet demand by business and visitors.

Environmental change

The increased frequency, intensity and timing of fires in recent years have begun to cause substantial environmental change. The succession of intense fires approximately every three years since 2003 has, in particular, had severe consequences for a number of plant species. The most substantial impact has been on the regeneration of the tall Alpine Ash (*Eucalyptus delegatensis*), a species that need to be able to mature before they can regenerate. As Fairman (2013) describes, Alpine Ash is an 'obligate-seeder' that germinate from seeds in contrast to many other species that can regenerate from post-fire re-sprouting from the trunk and branches. Large areas of Alpine Ash were lost in 2013 and attempts to re-seed have been only partially successful because the stocks of available seed soon became depleted, threatening to convert large areas of once beautiful forest into eucalyptus-free shrublands. The seed banks can be replenished but ultimately it is a complex system and the impacts of fire depend upon a myriad of factors such as the age and type of forest and landscape change. Regeneration of trees cannot be addressed by reseeding alone. This is a particular concern from a tourism perspective as it is the bushland that is the major asset for Harrietville's tourism system. Burnt forest is also more vulnerable to impact from tourism (e.g. erosion) and needs time to regrow before it can be used for tourism activity sustainably.

The social and emotional effects of living in a bushfire-risk area

An important aspect in vulnerability and resilience is the human and social sensitivity of the destination. It is self-evident that major fire events are traumatic for residents and visitors and these impacts are experienced differently and unevenly. Age, gender, family composition, financial position and other circumstances and conditions imply that community members, visitors and tourism operators have varied experiences of fire events and similarly, experiences of fire have varied longer term impacts.

The importance of gender (Tyler et al., 2012) and cultural diversity (Cary, Lindenmayer, & Dovers, 2003) has become increasingly recognised an important consideration in planning and management of fire risk and events. The following quote vividly describes important sensitivities that particularly impact on women and children living in Harrietville and the vulnerability it reveals.

I think that is something that is undermined, that the communities that live up here are often so heavily involved [] in the community support networks: they are CFA members, they are Parks Victoria employees, they are DEPI employees. If they're a parent or a tourism operator, it becomes secondary to the fact that they are now away on that particular incident. You can literally go weeks and weeks and weeks and weeks in these communities up here and its just women in town or its single mums all struggling because husbands are away fighting fires. [] That has a massive impact on people's ability to be resilient and to think clearly. They're exhausted, yet often the smoke haze kicks in, even if it's a hundred kilometres in a different direction, the smoke haze kicks in and it wears you down. It makes you wary, it makes you tired, it makes potential visitors to the region sceptical about whether or not there is a fire nearby. 'I'm sure there is. I can smell it.' It makes you a bit emotional because your partner is out there. Last year we had three really serious incidents that community members [of a nearby town] were involved in. They didn't die but [] their family couldn't function. They were crippled and so as a result, every other female in town was then making lunches and doing kid drop-offs and that kind of thing is really undermined, undervalued and under-understood. So, from a resilience perspective, that just wears you down. I'm not scared of fires and I think our communities are so well placed and resilient to the physicality of it. You know, 'There's fire burning, and we know what we have to do. We've got a fire plan.' Most people have a fire box at their back door. Most people have a very considered plan and they know if they're an operator what they're going to do for their guests, what they need to do for their kids, what they need to do on Code Red days. All of those things are so real because every summer we live it. I reckon the greater risk is that it eventually burns people out. You're heightened for six months of the year and that's a whole community. The whole community is heightened. You call a community meeting in any of these little towns, you get hundreds of people, not because they're going to hear anything new but because they want to know that everybody is doing it together and they see all those familiar faces and 'we're all in this together'.

This interviewee highlights key factors that highlight both the resilience and vulnerability of Harrietville. The strong community networks, community engagement and the extent to which businesses, families and individuals are prepared and organised for fire events are highlighted. As the same time, the quote illustrates the growing strain on the community in ways that are particularly relevant to women with the increasing incidence of fire events.

Constraining factors in the system adaptiveness

Weaknesses in bushfire preparedness

A further constraining factor identified was that of community complacency in relation to fire planning. Directly after a fire there is a focus on fire resilience building, but that focus begins to wain after around 12 months and attendance at information events for example drops dramatically – until the next fire event starts the cycle again. Incidents have also occurred where businesses have assured tourists that it was safe while it was not. Complacency also occurs in planning for the potentially more frequent and severe events in the future. While businesses are generally fire aware, few are actively planning for the expected increases in risk and continue in a business-as-usual approach. Such an approach does not factor in the increased risks presented by a changing climate.

Several constraining factors were also identified for tourism-specific weaknesses in bushfire preparedness. For example, poor telephone, mobile and internet coverage limit the ability to contact local residents as well as tourists. While tourism operators can effectively communicate with tourists during an emergency, those staying in a holiday home for instance are much harder to reach. This also applies to second home owners who often use houses between family and friends as a base for the snow over winter. The visitor survey results show that more than half of the visitors surveyed (51.8%) are not aware of any information about what to do in case of a bushfire in the area of Harrietville, which also represents a constraining factor in bushfire preparedness.

Finally, bushfire perceptions are changing and while visitors are now more aware of fire, they are also more scared, which can lead to unnecessary fear and panic.

Lack of communication between stakeholders during emergency and recovery

While the events of the 2013 fires have been well documented, the issues surrounding government and community engagement were also important themes to emerge through the interviews.

Consistent with other research, key issues identified by community members and tourism operators include:

- Early fire management (putting the fire out before it became a problem);
- Lack of reference to local knowledge and consultation (mistakes could have been avoided if local advice had been followed (such as the loss of a historic site that was not marked on a fire management map) “we have the resources and the knowledge especially the local knowledge, which I believe they don’t use enough in my experience.”
- Protection of critical infrastructure (e.g. the Great Alpine Road) *“if I look at tourism, it’s very hard for me to focus on a pinpoint of one little town because I see the Great Alpine Road going through and making sure that that’s open and looked after as an asset, one for Harrietville, two for tourism abroad.”*
- Management of road signage *“[the road signage] was clearly written, yeah. It should have said road open to Harrietville, closed to Mt. Hotham and just be made clear, instead of road closed to Hotham, which people think they can’t go past that sign.”*
- Land management decisions (track closures, access) *“the management of this fire led to road and bushwalking track closure – consequently, there was a complete loss of visitation to Harrietville for the five-week period of the fire and beyond.”*
- Allocation of resources (e.g. the river could have been cleared of debris before it flooded and became a serious problem) *“all the debris had come down prior to the floods and half blocked the river but they didn’t find it important enough to clean the rivers out, so they left it.” “They might’ve had a lot more potential of stopping the fire or managing the fire than what they did with the helicopters trying to paint retardant lines was just futile. And as a taxpayer, an absolute waste of money, like a lot of wasted time and a lot of wasted money.”*
- Provision of safety and risk information (e.g. it frightened some people unnecessarily, caused panic) *“Well I think for the bushfire season, it’s having the information available putting it out, but not over doing it. Keep it relevant, keep it timely, but don’t blow it out of proportion.”*

While the issues identified above have been canvassed elsewhere (Hallowes, 2013), particularly in relation to relationships between DEPI, the CFA and the community, they are factors that have particular relevance in the context of the tourism economy.

4.3.3 Understanding resilience

Resilience is ‘the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change’ (IPCC, 2007, p. 880) and is a direct expression of the strength of a coupled human-environment system (Carpenter, Walker, Anderies, & Abel, 2001).

Enabling factors in sensitivity

Harrietville’s community characteristics

The Harrietville community is widely described as politically savvy, committed and organised, whilst being tenacious and well resourced. They are strongly invested in the region itself and generally have a wider perspective than simply as a place to operate their business – they are there for the lifestyle that it offers, and they have a strong commitment to community wellbeing. Community members come from a diverse range of backgrounds with many highly-skilled individuals with previous positions in government or industry.

The town has many self-funded retirees in the community who are not necessarily reliant on income from tourism, thereby reducing the overall dependence on tourism somewhat.

There is also a strong community pride in being self-sufficient and community spirit is deeply valued. Most say that in a catastrophic bushfire event they would be determined to rebuild and start again. There is a strong belief in the approach to “just pull your socks up and just get stuck in and just keep going”. The community is concerned, but not afraid, of future fires. As one interviewee commented:

Having been a Harrietville resident, been through three bush fires, more, you know, ever since as a kid I remember bushfires. I don't remember the details of them, but you know, that's something that we live with...

Bushfire risk is a part of life that is accepted, while resilience and adaptiveness are necessary traits of living in the bush - when there is a problem you “can't just ring the CFA, they might be busy, ambulance is half an hour away”. Often, it is new residents that struggle with the necessity to be self-sufficient and the risk of living in the bush.

Developments in communication and engagement

With State government support, high priority has been given to improving communication and engagement between, government, community and industry. One aim of these processes is to incorporate local knowledge into policy development. A key initiative has been the creation of the Harrietville Community Forum¹¹ as a strategy and mechanism to enable community engagement in the community in policy development, planning and decision making.

Out of this fire came the Harrietville community forum and out of that a decision was made that we needed to repair and build the relationships with agencies. [] So, the meetings you attended yesterday would never have happened in the past.

The Harrietville Community Forum is now an incorporated body, which is important because people in the town then become members and we work closely, as I said, with the other agencies. That's probably the biggest single advance that we've made is with the cooperation, collaboration and working alongside of all of the other agencies that work here – you know, firefighters, emergency services, Parks & Wildlife, State Forest, Victoria Roads, council – all of those people.

At a local government level, there has also been the formation of a 'Resilience Committee' comprised of elected community members and formed following the fires over January and February 2013. This committee is an evolution of an earlier community building committee in operation since 2007. The specific aim of the committee is to improve communications between the community and authorities responsible for fire and infrastructure management. Agencies represented come from across government sectors including human services, roads, fire services, parks management and other relevant agencies. There is a common belief that the committee has been highly successful in resolving some major tensions following from the way in which the 2013 were managed. For instance, a new committee has been created to improve departments working together and the new policy for communications and engagement is visible throughout the board:

We have to be flexible on how we engage so, you know, meeting with the Harrietville Community Forum which was born out of the Harrietville fire, I suppose, and working with the Aline Shire resilience committee. It's about I suppose identifying what needs to be done but then making a commitment to what we're going to do and then informing the community all the way.

¹¹ The forum is an evolution of earlier community engagement committees supported by the Alpine Shire and State Government community strengthening strategies.

Low Seasonality

While traditionally seasonal, visitation to Victoria's High Country is consistent throughout the year (by quarter) with a slight peak during winter (Tourism Victoria, 2012). Harrietville's busiest periods occur around the Christmas and Easter holidays (with continuously busy period from November until the start of May), around larger events and festivals (e.g. cycling) and on weekends throughout the ski season depending on snow conditions. Events and festivals usually occur in the warmer months and coincide with the fire season. Low seasonality is an important factor in enabling resilience as year-round visitation presents a more stable and diversified system, which is more likely to be able to absorb shocks and stressors. While tourism businesses in Harrietville do experience variations in visitation throughout the year with February being the traditionally quietest month, it is positive to see that Harrietville is becoming 'a four-season destination'. One interviewee commented that '[Harrietville] is now a year-round visiting area, [] we're getting more visitors in autumn than we're getting in the ski season.' Activities like bushwalking, mountain-biking and cycling are becoming an important part of tourism in the region, supported by increasing investment in tracks and trails infrastructure. Also because of the fact that the community is mainly made of lifestyle seekers, it is less sensitive to tourism seasonality as 'This is a place to come when you're made a decision in your life that my lifestyle's more important than my income'.

Diversification and repeat visitation

In common with the NE Region (Tourism North East, 2013), visitors to Harrietville can largely be grouped within two market segments - "habituals" (representing 28% of regional visitors) who are long-term repeat visitors who are highly knowledgeable about the region, who tend to return to the same location and often travel with the same group. At a regional level, "lifestyle leaders" are identified as the growth segment (40%) which is now the dominant target audience for regional strategic planning.

They are people who are more likely to take—instead of taking two two-week breaks a year, they're more likely to take ten three-day breaks and they don't want to look at things vicariously. They want to be absolutely in there, boots and all. They want to be doing workshops and they want to be doing cooking classes and they want hands-on experiences.

While 'lifestyle leaders' provide opportunities for tourism diversification, 'habitual' visitors offer stability and are less sensitive to negative information. The visitor survey conducted specifically for this project suggest that Harrietville attracts a higher proportion of this segment with 67 per cent of respondents being repeat visitors and highly connected and attached to Harrietville.

Regional tourism marketing and strategy

Harrietville's tourism interests are represented by North East Tourism (regional tourism board), which is an important enabling factor for resilience. By providing strategic planning and marketing for the region, promoting a positive and safe image and by being on the incident control team in a crisis to represent tourism interests, it plays an important role in building resilience in tourism. Overall, the tourism industry in the region is becoming more sophisticated in its ability to feed back into policy development.

4. 3. 4 Enabling factors in the system adaptiveness

Emergency responses

While there have been tensions over fire and land management decisions, there is also considerable community investment in, and engagement with emergency response processes and agencies. For instance, there is great community trust in the Harrietville CFA. There is also considerable appreciation of local, state and regional agencies. For example, the risk of water contamination during the 2013 floods was averted through the provision of portable water and chlorine filter treatment. The perceived strength of Victoria's overall emergency response system provides an instrumental enabling factor on which resilience for tourism can be built. Until recently, tourism was not a priority in immediate emergency response, but awareness is growing, and new systems and processes are being put in place.

The development of the Harrietville Community Forum has created the discussion [how to engage the community better] and I think generally history shows that the agencies, whether it be fire or flood, have done a very good job at protecting the life and property and that kind of thing. So, in terms of the emergency response side of things for bushfire suppression, I'd say the planning has been quite adequate but as we talked about before, it's about bringing the community on with them. So, I suppose there's potential for improving that space but there's no silver bullet.

While this is an ongoing process, immediate emergency responses are widely recognised as highly successful in the protection of life and property. Both the system in itself, as well as community trust in this system, is an important dimension of the capacity of the system to adapt to future fire risks.

Adaptations in policy and planning

Adaptations are now taking place with the aim to improve relationships, communication and engagement for bushfire planning, emergency management and recovery. The Community Emergency Management Plan (CEMP) for Harrietville, for instance, is being developed between Victoria's fire agencies, emergency services partners and the community (including DEPI, Parks Victoria, SES, CFA, Alpine Shire and the Harrietville Community Forum). It aims to support people in Harrietville to be better prepared and manage the risks from bushfire, flood and landslide events before, during and after emergencies. As the draft plan states, "the development of this Harrietville CEMP signals a key milestone in building relationships to develop a local community based 'all-natural hazards' emergency management plan for the Harrietville community."

The CEMP includes a generic CFA plan with input from the community and a separate sheet for tourism operators providing important contact numbers and guidelines on how to advise tourists during times of risk, which is a new approach not available in the past. Local priorities are emphasised in the plan to recognise the importance of developing local solutions. It also highlights the importance of building relationships between agencies and community, and with locals and visitors.

While such a plan provides an important step in bringing agencies and community together and working on a plan for tourism (both locals and visitors), its effectiveness relies community engagement and implementation. The potential for success is enhanced by the involvement of the Harrietville Community Forum which plays a key role in the development and implementation of the plan.

4. 4 Summary of findings

The vulnerability/ resilience (VR) assessment for the tourism sector in Harrietville has revealed several external shocks and stressors. The major shocks (rapid onset) for Harrietville were identified as bushfires and related flooding and landslides, while stressors were identified as the bushfire-related risks of sensationalized media coverage, disruptions caused by fire-fighting operations and road and track closures, as well as stressors that play a role in bushfire risk but are not caused by a bushfire event. These general stressors were identified as heat waves, preventative control burns and climate change.

Several factors were identified that influence the vulnerability of Harrietville's tourism system. Vulnerability can be conceptualized as a destination's exposure and the constraining factors in sensitivity and adaptiveness. In terms of exposure, while Harrietville is located in a valley offering protection, it nonetheless is situated in a valley surrounded by large areas of bushland and thereby making it susceptible to bushfire-related risks. Constraining factors in sensitivity for Harrietville are a strong dependence on nature-based tourism and tourism transit with only limited potential for diversifying the product beyond nature-based and strongly weather dependent tourism activities, a sensitive destination image, constraining government processes, barriers to development as well as the social and emotional effects of living in a bushfire-risk area. Constraining factors in system adaptiveness for Harrietville were identified as weaknesses in bushfire preparedness and a lack of communication between stakeholders during emergencies and recovery.

However, vulnerability cannot be viewed in isolation from resilience, which refers to the enabling factors in sensitivity and adaptiveness. Enabling factors in the sensitivity of Harrietville's tourism systems were identified as the particular characteristics of the local community, developments in communication and engagement, low seasonality, diversification within the nature-based tourism segment, repeat visitation as well as representation at the regional level. Enabling factors in the system adaptiveness were identified as the level of emergency responses as well as adaptations in policy and planning.

Section Five: Implications for policy and strategies

5. 1. Overview

While Australia has always been fire prone, projections are that Australia is very likely to experience longer bushfire seasons and increased number of days with extreme fire danger (Hughes & Steffen, 2013). Susceptibility of tourism to the impacts of bushfire has been well documented in the literature (Cioccio & Michael, 2007; Sanders et al., 2008). In order to sustain tourism economies, it is therefore crucial that the tourism destinations make concerted efforts to reduce their vulnerability and strengthen their resilience to the bushfire risks. The purpose of this section is to identify the implications of project findings in relation to the economic impacts of bushfire and strategic priorities necessary to build resilience of destination Harrietville and as an example to small tourism destinations more broadly.

A key foundation for the adaptation of small tourism destinations to bushfire risk is to understand and map in some detail the tourism profile (demand and supply) of the area in order to estimate the economic value of tourism to the destination. For Harrietville, this was undertaken by a combination of visitor survey, business operator and other stakeholder interviews, analysis of national, state and regional tourism related data sets to map tourism activity and spend. This 'map' of tourism informed a vulnerability/resilience assessment and an analysis of the impact of bushfire on the area's tourism economy. For example, it is estimated that a bushfire might cause a decline in income from tourism of between \$510,000 to \$1,530,000 from the approximately \$6.3 million total income in 2013.

The vulnerability/resilience (VR) assessment for the tourism sector in Harrietville in this project is informed by the literature relating to tourism adaptation to climate change. According to the IPCC definition, adaptation refers to a process of adjustment to actual or expected climate, and its effects, in order to moderate harm or exploit beneficial opportunities (IPCC, 2011). This assessment takes the vulnerability/resilience-based approach to adaptation, which offers a more holistic approach than the traditionally dominant hazards/impacts-based approach, seeking to understand the complex interactions between external risks and the affected system's conditions (IPCC, 2007). Informed by comprehensive understanding of exposure, vulnerability, and resilience of a destination, more targeted adaptation strategies can be developed.

The vulnerability/resilience assessment has revealed the exposure and vulnerability of Harrietville's tourism to a range of risks together with bushfires, and also identified factors that make its tourism system resilient. This section presents the key policy and strategic implications of such understanding for building resilience and adaptive capacity of Harrietville's tourism system. In making these recommendations, however, we are mindful that this project is undertaken in the context of a highly dynamic policy environment and that the town and the region, is engaged in multiple and overlapping planning processes and initiatives aimed at minimising the incidence of, and harm caused by fires. Given this context, some of the proposed adaptations and initiatives may duplicate recommendations being made from other sources of advice and/or are already widely recognised as a priority by the community, industry and government stakeholders. While we recognise this overlap, all recommendations relevant to the tourism economy are included.

5. 2. Policy and Planning

5. 2. 1 The development of a community tourism development plan

As discussed, Harrietville is characterised by a range of both resilience and vulnerability features. Many of these characteristics, however, are 'double-edged' in the sense that what makes Harrietville resilient (e.g. abundant in nature-based tourism attractions and a strong community), are the same features that makes the town vulnerable (e.g. vulnerable to fire damage and economically vulnerable given the reliance on nature-based tourism). There are also opportunities to minimise economic vulnerability through tourism development and there have been gaps and opportunities for the development of visitor services identified by business operators and the community.

Developments such as the extension of the bicycle rail trail between Bright and Harrietville also offers potential for future business development with the potential for increased visitation. Capturing these opportunities, however, has implications for the town's size and character and raises questions about the type and mix of developments that might be encouraged. These questions could be usefully considered by local operators and community members as part of a community tourism planning process. This process could also engage with questions around addressing vulnerabilities such as the impact of control burns. For example, the presence of smoke from burn-offs could be incorporated as part of an authentic seasonal experience in the region. Such a planning process might be facilitated in collaboration with North East Tourism and the Alpine Shire, in concert with the broader regional tourism strategy, but with a focus on key directions for Harrietville as a unique destination in its own right.

5. 2. 2 Strengthen Harrietville's destination image as a year-round destination

An important resilience characteristic of tourism in Harrietville is that the township is relatively less sensitive to tourism seasonality even though it does experience variations in visitation throughout the year. A range of outdoor activities is generating popularity among visitors in the region with strong investment in infrastructure, driving increasing year-round visitations. However, opportunities exist in the development of new marketing strategies to promote Harrietville as a four-season destination. Strategies such as the development and promotion of new walking trails, and services for cyclists, and encouraging the development of back-packer accommodation are all potential strategies that could contribute to higher visitation.

5. 2. 3 Strengthen Harrietville's image as a fire prepared destination.

Tourism heavily relies on image perception to generate visitors (Cioccio & Michael, 2007). While Harrietville receives a large number of repeat visitors who tend to come back regardless of potential fire risk, an image as a fire prepared destination is crucial for Harrietville to attract new visitors and retain repeat visitors who are increasingly concerned about the bushfire risk. Specific marketing campaigns may be developed to promote Harrietville as a resilient destination to fire risk, and collective approaches to promotion may be explored by working with the regional tourism board North East Tourism.

5. 2. 4 Improve disaster preparedness and further build capacity in emergency responses by community, and industry levels.

Although the community and tourism businesses in Harrietville demonstrated general awareness of fire risk, the assessment suggests that community complacency in relation to fire planning needs to be better addressed. This requires the community and tourism businesses to take the initiative, for example, to attend information events offered by government, to use the resources available for them, and to take actions to plan for the increased risks resulting from a changing climate. At the same time, government needs to be innovative and proactive in engaging the community and tourism businesses in fire planning and management.

5. 2. 5 Develop mechanisms for better use of local knowledge in bushfire preparedness and management.

The importance of local knowledge in natural resource management, disaster management and emergency management is well reported in the literature (Mercer et al., 2007). Current research in disaster risk reduction also recognises the challenges in how local, traditional, and indigenous knowledge and scientific knowledge can be effectively combined to reduce vulnerability to environmental hazards (Mercer et al., 2007). The vulnerability/resilience assessment of Harrietville reveals that the tourism community faces such challenges. While it has been stronger focus by all stakeholders on incorporating local knowledge in policy development, there is an opportunity for 'a constant process of collaboration and exchange' (Mercer et al., 2007, p. 253), to facilitate effective communication and develop mutual respect among all stakeholders, and to enable them to learn from each other. To this end, communication again lies at the centre of building resilience.



5. 3. Awareness raising and communications

5. 3. 1 Improve fire awareness and preparedness of visitors

The assessment also reveals weakness in bushfire awareness and preparedness by visitors, which needs greater emphasis in future capacity building efforts. The visitor survey data showed that more than half of the visitors surveyed are not aware of any information about what to do in case of a bushfire in Harrietville. This brought to light the need to provide awareness programmes on risk and emergency responses for tourists. There is a particular need for effective and targeted communication and awareness with four visitor types. These include:

- visitors staying in holiday homes where it is difficult to obtain hands-on assistance and timely information in emergency compared to those staying with tourism operators;
- first time visitors who show low awareness of the incidence of fire and measures to prepare for fire;
- campers in the State parks, particularly those who are international visitors;
- a small segment (14%) of 'habitual' visitors who were also unaware of fire risk

5. 3. 2 Continue to improve communication between public and private sectors and between government agencies

Stakeholders across government, industry and community have made remarkable progress in improving communication for better emergency management for Harrietville. The Harrietville Community Forum now serves as an effective mechanism to enable community engagement in policy development, planning and decision making. The Fire Services Commissioner plays a critical role in coordinating consultations between community and government agencies. Government agencies are increasingly working closely with each other in a more coordinative manner. These developments in communication and stakeholder engagement represent a strong enabling factor for vulnerability reduction and resilience building. While this strategy has been highly effective, there is a risk that enthusiasm for forums will dissipate over time, particularly while there is no immediate fire threat over a period of time. Continued government support for sustaining the community/inter-agency forums is a high priority for future planning and minimising the social and economic impacts of fire on the community.

5. 3. 3 Refine communications and consultation in relation to road closure

From a systems perspective of tourism, transport is an essential element of the tourism system to support the effective and sustainable functioning of the destination. Availability of infrastructure and transport options presents an important factor affecting the destination's vulnerability and resilience level. Located on the Great Alpine Road, Harrietville heavily relies on the road as the major lifeline for tourism. The Great Alpine Road is indeed the only access in and out of Harrietville as it is nestled in a narrow valley surrounded by bushland. The draft Community Emergency Management Plan for Harrietville highlights the importance of Great Alpine Road by recognising 'support agencies to keep the Great Alpine Road open unless unsafe to do so' as one of the local priorities for 2014. This calls for more effective coordination of road management and fire management. When road closure becomes necessary for safety reasons, one improvement that can be made in operations is to ensure that road signage is not misleading and provides adequate and accurate information about closure including details of closure points and opening times. This is particularly necessary to minimise the time periods in which visitors are deterred.

5. 3. 4 Media representations of fire

A widely expressed concern of community members and tourism operators related to the media coverage of the 2013 fire. Of particular concern was that the fire was misleadingly and unnecessarily named the 'Harrietville Fire' when in actuality, the fire travelled some distance around Harrietville and caused no property damage within Harrietville itself. The related concern was that while there was wide coverage by the media when the fire was burning, there was little news after the fire had passed or explanation to the public when it was safe to return.

Coupled with misleading road signage, return visitation was unnecessarily delayed through false impressions of the extent of damage as well as access to Harrietville. Consideration needs to be given to the tourism implications of terminology used to describe fire events.

5.3.5 Post-fire communications strategy

While it is not possible to quantify the extent to which post-fire impressions have affected visitation, tourism operators reported cancellations for accommodation bookings throughout 2013 and gave examples of visitors who wrongly believed that the damage from the 2013 fires was much more extensive than was actually the case. One element of tourism planning should incorporate the development of a post-fire communications strategy that would accurately inform visitors about accessibility of the town and the local area.

5.4. Structural issues

5.3.6 Address infrastructure barriers – internet connectivity and sewerage

Following from a tourism planning process, prioritise and address infrastructure barriers that are currently limiting tourism development. These include the development of a mains sewerage system as well as improvements in internet connectivity.

5.5. Business Management

5.3.7 Support business planning by tourism operators

While tourism businesses in Harrietville have been financially impacted by fires, these impacts have not led to business closures and have largely been absorbed and accepted as part of life living in the mountains. An important resilience measure, however, is to support and encourage business planning to better plan and prepare for the financial impacts of fire given the likelihood that fires in the area will increase in frequency and intensity.

5.6. Research

5.6.1 Evaluation

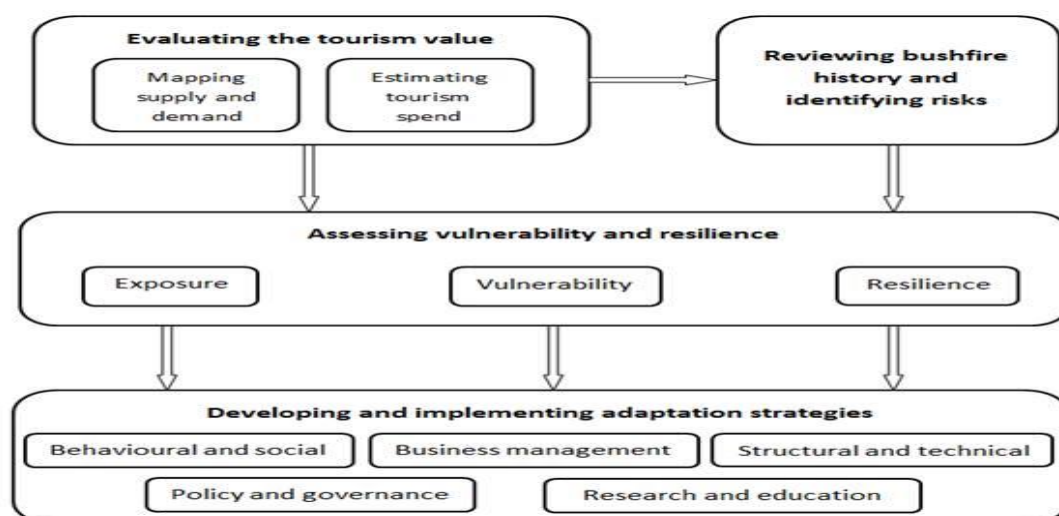
Following from above, the establishment of the Alpine Shire Resilience committee and the Harrietville Community Forum have both been widely applauded as being highly successful in improving communications, good will, and planning coordination between agencies, community and industry. Future support of these forums would usefully include an evaluation component in to capture and transfer learnings from the implementation of the forums as well as to identify how the forums might continuously improve and be sustainable over the longer term.

5.6.2 Development of a “Small tourism destination valuation and fire risk adaptation tool kit”

The research for this report has clearly indicated the enormous importance of tourism to livelihoods of Harrietville residents and the risk bushfire poses to these livelihoods. It has further highlighted the crucial importance of the local tourism industry and wider local community to greatly enhance their adaptation to risk most importantly bushfire risk. To undertake this effectively is a multifaceted task including mapping and valuing tourism, estimating vulnerability/resilience of the sector to bushfire and other risks and developing and implementing an adaptation strategy.

But Harrietville is but one of many such small destinations. By the very nature of their smallness, such destinations lack the range of resources to develop such a comprehensive adaptation strategy. Hence, we believe it might be useful for Victorian Government agencies to develop a “Small tourism destination valuation and fire risk adaptation tool kit” to assist similar small tourism destinations to Harrietville develop adaptation strategies to bushfire and other risk. Based on our study in Harrietville the components of such a tool kit might involve the steps illustrated in Figure 10.

Figure 10. Elements of a small tourism destination valuation and fire risk adaptation tool kit.



5.6.3 Replication

More broadly, the project has considerable potential for replication in several ways. First, each of the methodologies implemented as part of a mixed method approach could be implemented as individual strategies that could inform various aspects of resilience building in small tourism destinations. Specifically, individual methods that could be replicated include:

- The visitor survey: The survey design was informed by the broader tourism literature to identify tourism values in the area but adapted to further investigate visitor perceptions of bushfire risk, bushfire preparedness and visitor responses to the threat of bushfire. This survey instrument could be readily adapted and applied in other small areas to inform planners about visitor characteristics, tourism values and levels of awareness in relation to bushfire risk.
- Estimating the value of tourism spend and economic impact of fire: The project shows how tourism value can be estimated by drawing on secondary data collected at the federal level and by the application of an I/O analysis. A similar process could be applied at other small destinations.
- Community consultations and in-depth interviews: The third main form of data involved extensive community/industry/government consultation and the conduct of in-depth interviews. This process yielded very rich qualitative data that revealed key tensions, perspectives and shared priorities in relation to minimising the impacts of fire on tourism.
- The application of an adapted tourism vulnerability and resilience assessment framework: drawing on all data gathered for the project, the analysis was guided by the framework highlighting key priorities for minimising future impacts and building resilience. Again, this framework could be applied in destinations with similar characteristics and with available data.

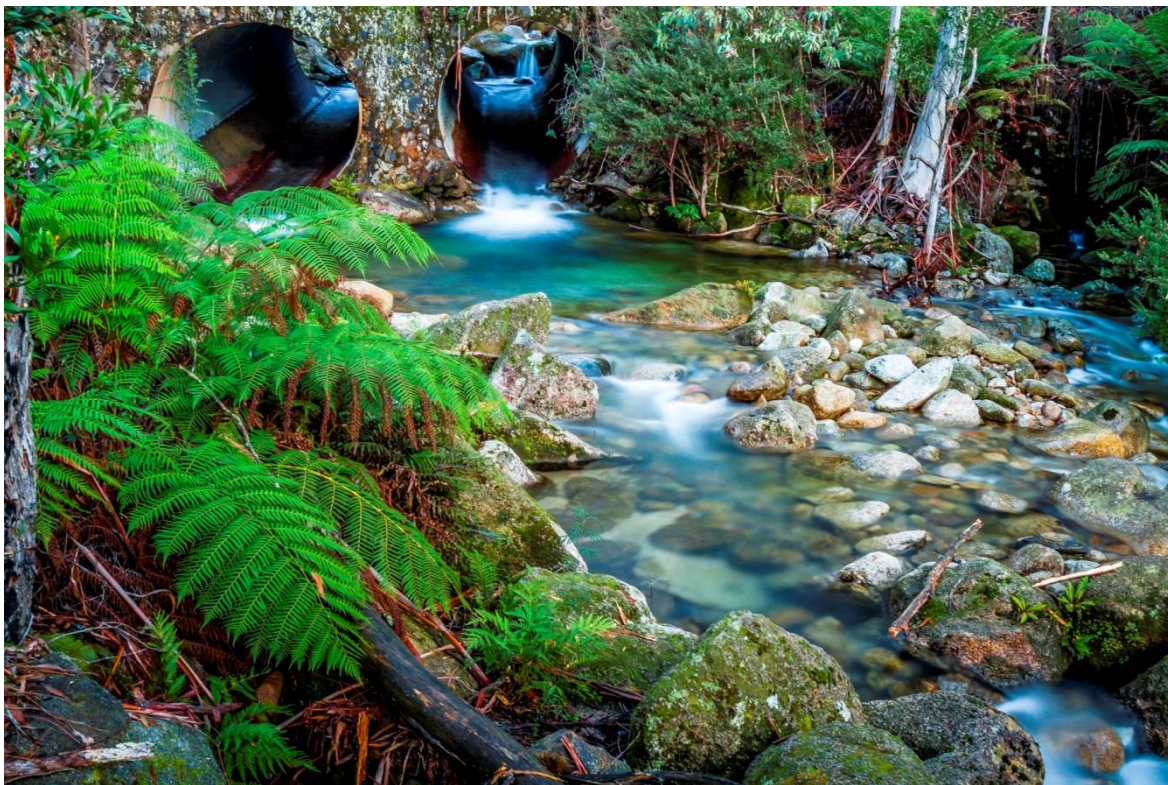
5.7. Concluding comments

The intention of this study was to assess the economic value and vulnerability of nature-based tourism in the Alpine region of Victoria to bushfire. The study has a particular focus on Harrietville which is a small and arguably unique destination. Nonetheless, the town shares characteristics with many other small destinations across Victoria and Australia that similarly face the likelihood of increasingly frequent and intense bushfires.

The findings show that while the town and the region have been economically affected by fire, the community and the local economy are also highly resilient.

To a large extent, the losses generated by fire have been absorbed. However, the most recent fire in 2013, as the fourth major fire event since 2002, revealed a number of vulnerabilities and strains on the tourism system and on the environmental systems upon which nature-based tourism relies. The need for adaptation in preparedness for future fires is widely acknowledged and there are multiple strategic planning processes currently in motion in relation to improving fire management systems and building community resilience.

This project has a specific focus on the tourism economy and strategies have been identified that have the potential to minimise the future impacts of bushfire on nature-based tourism. The intention is that the community and the varied stakeholders engaged in the tourism economy within the region and beyond will consider and embrace the strategic priorities identified by the project as part of the broader initiative of adapting to climate change. It is also hoped that the methodology and learnings can be applied in other small towns and regions across Victoria. Ultimately, the intention is that the project findings will contribute to an on-going process of sustainable tourism development capable of adapting to the climate challenges ahead.



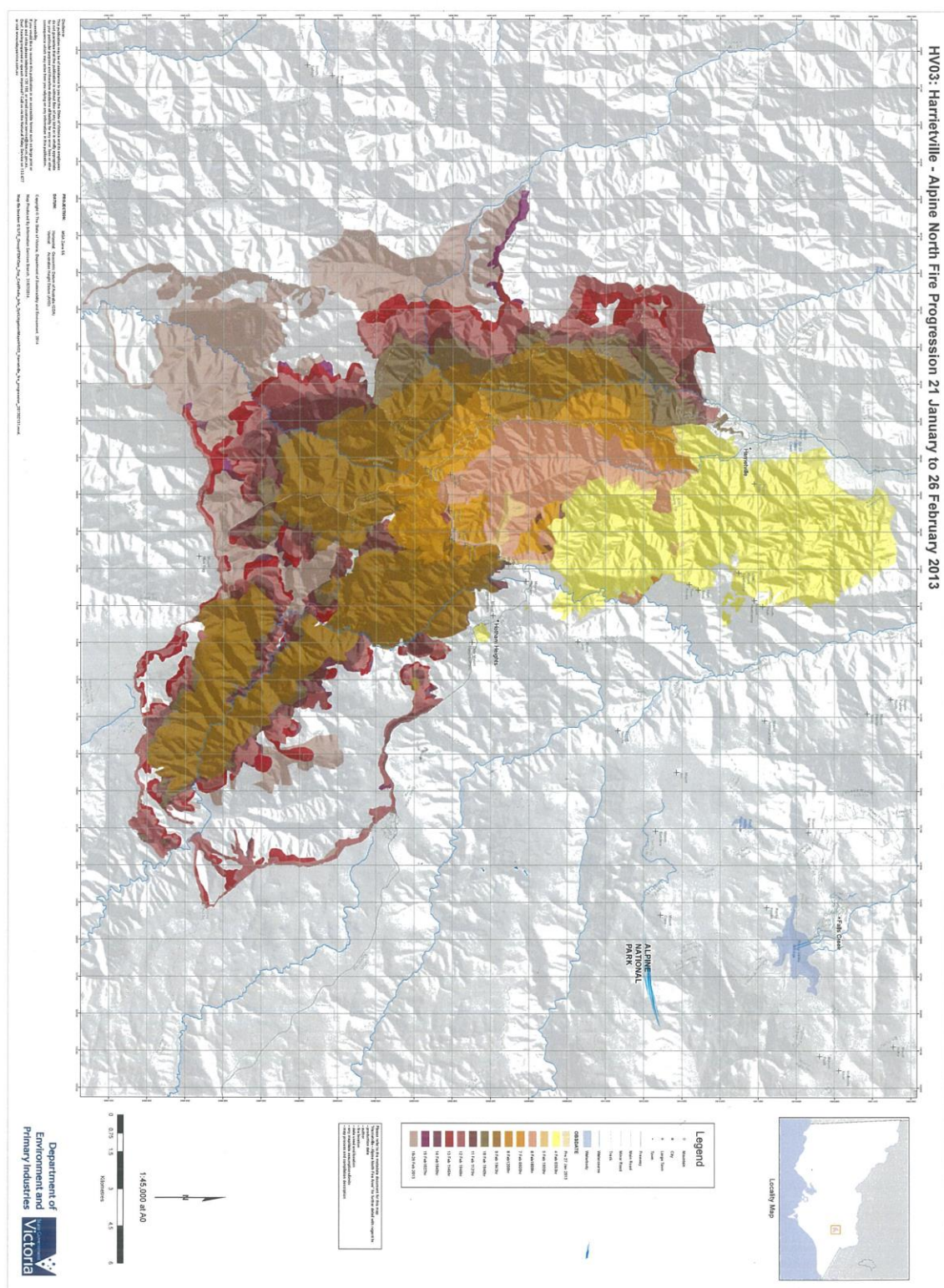
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APPENDICES

Appendix 1 Map and time series of the progress of the 2013 fires



THE ECONOMIC IMPACT OF BUSHFIRE ON TOURISM IN HARRIETVILLE: A VISITOR SURVEY.

As a visitor to Harrietville, you may be well aware that the communities of NE Victoria have been affected by bushfires in 2002/03, 2006/07 and more recently in 2012/2013. You would also be aware of the importance of nature based tourism to the local economy.

A team of researchers from Victoria University are undertaking a project for the Victorian Government to investigate the impact of bushfire on the tourism economy. Part of the project involves identifying what is most important about Harrietville to visitors, how aware visitors are about bushfires and how bushfires affect visitation. The information gathered will inform tourism and bushfire planning.

The following survey takes around 5 minutes to complete and asks questions about why you have visited Harrietville, what you do when you are here and what you value most about the area. We also ask some questions about your characteristics such as post-code, age group and cultural background.

The information collected in the survey will be kept strictly confidential and no individual will be identified through the survey results. The aggregate data will be used to inform a report to the Victorian State Government on bushfire planning. Your agreement to complete the survey will be taken as consent to use the data to inform the completion of the project.

For further information, about the survey, please contact: Joanne Pyke – joanne.pyke@vu.edu.au

If you would like to complete the survey but you would prefer to do it later, please write your email address and we will send you a link to complete the survey on-line.

Email address

ABOUT YOUR VISIT TO HARRIETVILLE

1. Approximately, how often have you visited Harrietville over the last five years?

- ☐ This is my first visit
- ☐ One
- ☐ Two
- ☐ Three
- ☐ Four
- ☐ Five
- ☐ More than five

2. If you have visited Harrietville before, approximately what year was it when you first visited Harrietville?

3. Besides yourself, how many people are in your group on this trip to Harrietville?

4. Please briefly explain why you chose to visit Harrietville?

5. On this visit, please indicate by ticking the box whether you are:

- ☐ Visiting for a few hours or for the day? OR
- ☐ Staying one or more nights in Harrietville?

5a) If you are just visiting for the day, where are you staying? (eg. Bright, Mt Hotham)

5b) If you are staying for one or more nights, please indicate how many nights you are staying in Harrietville?

6. If you are staying one or more nights in Harrietville, what type of accommodation are you staying in?

- ☐ Camping in the bush
- ☐ Camping/caravan in a camping ground/caravan park
- ☐ Bed & breakfast
- ☐ Hotel/motel /cabin/unit/lodge accommodation
- ☐ In a rented holiday house
- ☐ In my own/friends/family holiday house
- Other (please describe)
-
-

7. On this current visit, please estimate what you expect to spend on your holiday and holiday activities in total?

- ☐ Less than \$200
- ☐ \$200 - \$400
- ☐ \$400 - \$600
- ☐ \$600 - \$800
- ☐ \$800 - \$1,000
- ☐ \$1,000 - \$1,500
- ☐ \$1,500 - \$2,000
- ☐ More than \$2,000

8. What year were you born?

.....

9. What is your annual income?

- ☐ Less than \$50,000 per year
- ☐ Between \$50,001 – \$100,000
- ☐ Between \$100,001 – \$150,000
- ☐ Between \$151,000 – \$200,000
- ☐ More than \$200,000

10. Please identify the main activities that you participate in while visiting the Harrietville area?

- ☐ Outdoor Activities
- ☐ Attractions and other activities
- ☐ Bushwalking
- ☐ Going on organised tour/activities
- ☐ Fishing
- ☐ Eating out in restaurants/cafes
- ☐ Swimming
- ☐ Visiting friends/relatives
- ☐ Canoeing
- ☐ The Trout Farm
- ☐ Other water activities
- ☐ The Harrietville Museum
- ☐ Skiing/snowboarding/snow activities
- ☐ Granny's pantry
- ☐ Fossicking for gold or other minerals
- ☐ The Dredge Hole
- ☐ 4 Wheel driving
- ☐ Food Tasting
- ☐ Cycling on roads or bicycle paths
- ☐ Special events eg. markets, festival.
- ☐ Mountain bike riding
- ☐ Picnicking
- ☐ Driving tours (on-road)
- ☐ Horse-riding
- ☐ Motor-bike touring (on-road)
- ☐ Trail-bike riding (off-road)
- ☐ Health and fitness activities eg. Running, yoga.

OTHER please identify what this activity is:

.....

.....

.....

11. What best describes your household?

- ☐ Single person
- ☐ Couple with no children or children who have left home
- ☐ Couple with children
- ☐ Single parent with children
- ☐ Extended family
- ☐ Couple or group household of independent adults
- Other

B. ABOUT BUSHFIRE

1. Were you aware of any bushfires that have affected the Harrietville area before completing this survey?

- ☐ Yes ☐ No (If no, go to question 3)

If yes, please outline what you know about the fires (eg. What years and what type of fires)

2. How did you learn about fires in the area?
(tick all that apply)

- ☐ General media
- ☐ The visitor centre or other tourism information services
- ☐ Friends and family
- ☐ The CFA website and other on-line information
- ☐ Direct experience
- ☐ Other (please describe)

3. Has a bushfire event ever affected your plans to visit Harrietville in any way?

- ☐ Yes ☐ No

If yes, please describe what affects this has had (eg. decided not to visit Harrietville, went to an alternative destination, lost money paid for participation in an event or accommodation.)

4. How concerned are you about the risk of bushfire in Harrietville during the summer period?

- ☐ Very concerned
- ☐ Concerned
- ☐ Not concerned or unconcerned
- ☐ Unconcerned
- ☐ Very unconcerned

4. When visiting Harrietville, do you do anything to prepare for fire?

- ☐ Yes ☐ No

If yes, please describe what these measures are?

5. Are you aware of any information about what to do in case of a bushfire in the area?

- ☐ Yes ☐ No

If Yes, please describe where this information is available.

PART C: ABOUT YOU

1. What is your postcode?

2. Are you? ☐ Male ☐ Female

3. What is your country of birth?

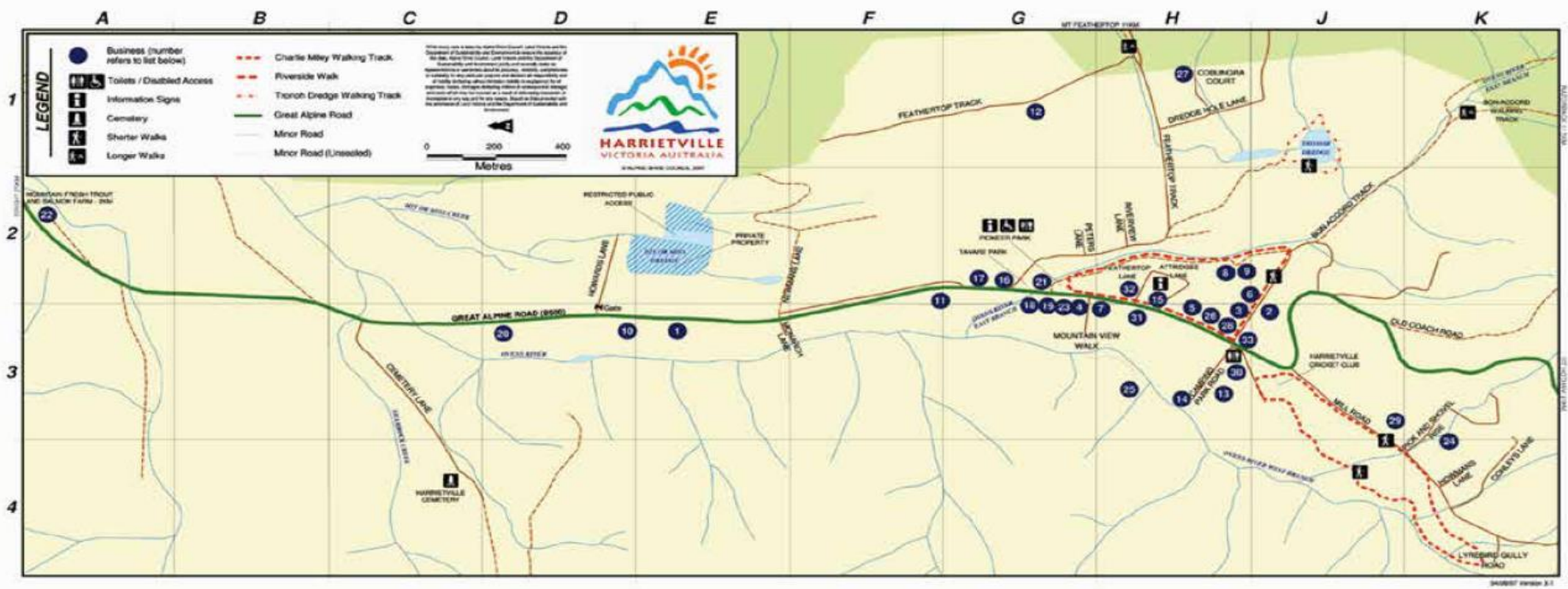
4. Do you speak a language other than English at home?

- ☐ Yes ☐ No

(If yes, please identify the language)

The following is a map of Harrietville and its immediate area. In order of importance, please circle and number the three places most important to you when you visit Harrietville. After you have circled and numbered the map, please identify the activity that you do in each place (eg. fishing, walking, picnicking)

	Activity
Place 1	_____
Place 2	_____
Place 3	_____



Appendix 3 In-depth interviews schedule

The following questions were provided the basis for open ended in-depth interviews. The relevance of the questions to each interviewee, however, varied depending on the interviewee and their circumstances.

What was your experience of fires in Harrietville?

What was the impact on tourism? (visitor perceptions, financial, environmental, reputational, infrastructure)

What has been managed well in relation to fire preparedness/management/prevention?

What wasn't managed well?

What are the natural areas of high tourism value around Harrietville (map)

What are the areas of high fire risk in relation to tourism? (map)

What are the strengths of Harrietville to withstand the impacts of fire (resilience factors)?

What are weaknesses (vulnerabilities) of Harrietville to withstand the fires?

What are the main priorities in terms of fire management/preparation/prevention?

And what do you think need to be done to make tourism more resilient to fires in Harrietville?

To what extent are you concerned about the future potential fire risks?

(Depending on the interviewee) what have you already been doing to make your business/organisation/community more prepared?

