The use of local knowledge in the Australian high country during the 2003 bushfires

Jenny Indian considers the application and use of local knowledge as a tool for emergency management. She discusses the implications of such a tool using two case studies

Abstract

The concept of local knowledge in fire management has long been recognised as important. Rural communities carry most of the burden of bushfire and yet fire managers have often proceeded in the absence of key local knowledge held within these communities. Despite this, the significance of local knowledge in bushfire management, it's meaning and practical application remain vague. Here the role of local knowledge is discussed as a tool in fire planning and explored as a crucial part of the community engagement process, allowing rural communities the chance to play a more active role in fire management. In turn, by way of two case studies in the high country, the impact of this involvement, or otherwise, is considered in relation to the resilience of two specific rural communities.

Introduction

The idea of local knowledge is widely embraced and recognised as important in the debate surrounding fire management (Esplin, 2003; COAG, 2004; McLeod, 2003, Parliament of the Commonwealth of Australia, 2003, Government of South Australia, 2005) particularly after the extensive 2003 fires throughout Alpine Australia. When I have been speaking to individuals with direct experience of both this fire and others, discussion often returns to the question of local knowledge, its use, dismissal or simply what it involves.

Although the term local knowledge often comes up, the concept often remains misunderstood—though initially seeming quite simple, local knowledge can present as a complex mixture of observations, thoughts and reasoning based on local experience and tradition. Interestingly, it is referred to by various Government Departments, including in Victoria the Department

of Human Services and the Department of Victorian Communities, as 'local intelligence' within their research. For the purposes of this paper, local knowledge is considered as information based on tradition, personal observation and experience of a particular geographic location and how it functions as a community, both first hand and passed on.

It is important to note that this article only goes some way to exploring the concept of local knowledge. Considerably more work needs to be done into just how its use and application can aid or, as discussed, potentially hinder fire managers and agencies. The case studies are not included to provide clear cut examples of either the positive use of local knowledge or the problems encountered when it is not considered. They are more presented as examples of what can and does happen in rural communities during a major fire event—local knowledge is inherently complex and so often hard to clarify—and therefore more add to the broad picture of the use of this concept than provide immediate answers.

All knowledge has a context and, as such, who the expert is depends on the circumstance (Yli-Pelkonen & Kohl, 2005). One can delve beyond that and suggest that local knowledge involves a degree of understanding over and above simply knowledge. Information exists and is received but interpretations vary. Indeed, it has been noted that knowledge is not something an individual has 'more' or 'less' of but rather reflects the specific forms of practice undertaken in daily life; thick in some areas and thin in others, knowledge is embedded in daily political and environmental activity (Robbins, 2004). The tacit, almost elusive, nature of local knowledge is also acknowledged, contributing as it does to the inherent difficulty of isolating this concept.

Within this paper I will be explaining the methods used in researching aspects of local knowledge, considering the general idea of this concept and viewing its use and application specifically in relation to two case studies within rural communities in the high country of Victoria and NSW. Importantly, the use of this tool will also be considered in the light of its potential weaknesses and the timing of its application in relation to the varying stages of fire management.

Methodology

The research follows a more constructionist philosophy where the social phenomena investigated may not be directly observable and perhaps only implicit and approximated (Robson, 2004). This approach favours a more sensitive anthropologically based qualitative research design involving unstructured in-depth interviews, focus groups and participant observations.

To date, extensive interviews have been conducted with individuals, local Government officers and Government and non Government agencies throughout the high country of Victoria, NSW and, to a lesser extent, the ACT. Numerous focus groups have been conducted, bringing together a range of both locals and newcomers within these communities and, with that, a diversity of thought and opinion. Participant observations have been conducted at community meetings and, in addition, current and established literature has been reviewed extensively.

The idea of local knowledge

Traditional ecological knowledge (TEK) is one form of local knowledge as ancient as the hunter gatherers and yet the term only came into widespread use during the 1980s (Berkes, 1993). This form of knowledge represents experience acquired over perhaps thousands of years of direct human contact with the environment. TEK can be a vast accumulation of knowledge and understanding. Within the Alpine areas of Australia, for example, large fires appear to have been extremely rare before European occupation. However, the movement of Europeans into the area shows a massive increase in both the frequency and intensity of fires. Indeed, studies indicate that fire frequency and intensity in the Alps under Aboriginal management was far lower than that for the rest of south eastern Australia (Zylstra, 2006).

Local knowledge can be intensely specific, applicable only within a very small geographic area and so be potentially limited and problematic in application. However, its successful use and transfer within any district may have generic application elsewhere—verification of map accuracy, for example, with those who know the country in question. How local knowledge can be harnessed and practically applied and why this is important to the process of community engagement is at the core of a genuine understanding of this concept. However, it can be riddled with subjectivity, coloured by self interest and bring with it value-laden emotions and potential weaknesses. Further, it can be used as part of the airing of long held grudges, general distrust of authorities and personal gripes. Local knowledge is difficult to measure and test quantitatively as it involves, as noted by Howitt (2002, pg.3), "local values; anecdotal, observational experience; colloquial terminology; the all-but-invisible background of relationships, behaviours and kinship structures that shape people-environment relations".

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Local knowledge is invaluable for effective emergency management.

Importantly, local knowledge need not be set up against scientific or expert knowledge but can be viewed as complementary (Mahiri, 1988). Where scientific knowledge can dictate overarching policies and practices, local knowledge can guide local, more practical applications. Herein lies the dilemma of local knowledge, its apparent weakness and inherent strength—it can underpin the knowledge interface between experts and locals and, as such, play a pivotal role in the communication process by promoting trust and cooperation. What is fundamental to the gathering and use of this tool is the acceptance and understanding that local knowledge must be subject to the same scrutiny as all knowledge collected—simply because it is deemed local knowledge does not mean that it is correct. One form of knowledge should not be privileged over another.

In considering this area of research it is tempting to indulge in lost rural traditions, glorify the past—the 'good old days'—and the demise of self-reliance amongst changing rural communities. All too often "Collective memory simplifies; sees events from a single committed perspective; is impatient with ambiguities of any kind; reduces events to mythic archetypes" (Manne quoting Bean, 2006, pg.26). The changing demographic of rural populations, the questioning of the sustainability of farming practices and perceived overarching bureaucracy and regulation can be viewed as disruptive elements to the apparent rural idyll. However—and particularly in relation to fire management—many aspects of improved scientific knowledge and technology are enormously positive, and, indeed, often enable the continued existence of isolated rural communities which may otherwise decline into oblivion. Greatly improved communication, understanding of fire behaviour and constantly updated equipment must be acknowledged as crucial to fire management.

Local knowledge is merely one tool available to fire managers and must be viewed as such—it needs to be scrutinised as any information should be when used to inform decision making. It cannot therefore necessarily inform management practices as part of a blanket approach and should not drive these decision making processes but must be viewed as situational and contextual-specific, applicable at certain times, in certain locations and in particular ways. It may not, therefore, be geographically transferable though, as noted, can have generic application (see Table1).

However, what is most disempowering for those involved in an event such as the 2003 fires is the complete dismissal of their input—the apparent lack of consideration and the acknowledgment that the knowledge and understanding they have is seen as irrelevant. Local knowledge is not a spontaneous tool and cannot be used in an ad hoc fashion. It must be part of a long term process, gathered over time and fostered from within a community. Rural communities are complex and vary enormously and, while common themes and aspects will be noted, a 'one size fit all' approach cannot be undertaken. Each region, district and every community has its own history and sense of country. This must be acknowledged and respected and the specific attributes of this knowledge and understanding be openly recognised and valued at all levels of fire management.

Local knowledge in Australian fire management : two case studies

In times of emergency it is crucial that the confidence of locals in fire agencies and management is not compromised as this can quickly deteriorate into anxiety, uncertainty and, often, mistrust. Once this process begins further long term alienation and disquiet can occur. Innovative opportunities to harness and utilise local knowledge exist at a regional and international level for both Fire Brigades and Government departments. More obvious examples include training— for example, those from completely different geographic terrain be given training in districts very different from their own, thereby broadening experience and including local brigade personnel in the decision making process wherever possible. However, the displacement of local brigades may be part of the response depending upon the specific phase of fire management.

As outlined in Table 1, though initially very resource intensive, the accumulation of local knowledge is a long term investment which has the potential to aid all phases of fire management in particular the final, operational phase when the information is being used to reinforce community participation and engagement.

Specific examples of the use of local knowledge from the 2003 fires in the Australian high country include locals assisting with accurate mapping (particularly effective well prior to a fire), older brigade members

Table 1:		
Stages of fire management	**Use of LK – strengths**	**Use of LK – weaknesses**
	Availability of detail, ground-truthed & accurate; can give access to community	Potential to be narrow & parochial – limited & subjective
Listening	- early communication & contact with locals - community involvement indicates a long term investment - broadening of information base - promotes trust and cooperation	- hard to access & verify - may not be altruistic - may encounter conflict from & within community - resource intensive
Planning	- potential for new perspectives - building community involvement & confidence - greater confidence as decisions made based on verified/ checked LK - utilising existing information, not reinventing the wheel - allows early organisation of specifics eg to ensure presence of a local in IMTs - may aid the application of broad government/agency policy	- limited in application; impossible on broad scale - may be gaps in knowledge interface (between locals & agencies)
Operational Response	- taking local community with you; greater understanding of decisions made due to early inclusion - increased communication & involvement resulting in better fire awareness & understanding - potentially greater confidence eg when using maps checked by locals - in strengthening community involvement & understanding of emergency also increasing resolve and underpinning resilience	- use of LK here less tangible/ apparent causing some lack of trust to remain

briefing the more physically able (access, terrain, local landholders) and a list of those within a community considered more vulnerable being made available during an emergency (care must be observed here in relation to privacy). Ideally, a measured approach is to tap into and document this information well before an emergency.

Benambra, Victoria

The small rural community of Benambra is located 22km north-east of Omeo and 437km east of Melbourne, Victoria. Other nearby towns include Swifts Creek, Ensay and the major town of Bairnsdale.

The town is at an altitude of approximately 700m and has a population of around 150 people, although most residents live on farms and properties out of the actual town. This is a relatively isolated community with a harsh climate—arguably factors which may contribute to the apparent strength and resourcefulness of the local community.

On 6th January 2003, an established, local landholder noted smoke west of Benambra. Having an extensive knowledge of both the country and fire history of the district, he was very concerned at the potential of this fire and local forces were marshalled to combat a fire which went on to join and become part of the Bogong East complex of fires. The nature of this blaze, given the extreme weather conditions on the day and prolonged drought leading up to that summer, caused extreme concern at a local level—action had to be taken quickly and there was little time to consult with those outside. Though support obviously came from the Department of Sustainability and Environment (DSE), Parks Victoria and the Country Fire Authority (CFA), the initial response was essentially run by and involved locals.

The local landholder is a respected leader within this district and an acknowledged key player in community matters. As such he has both the knowledge and skills to galvanize those within the community and is very aware of specific skills which individuals have to offer in a major fire event. Importantly, he also has the respect of those within the district and he, in turn, values his community and the strengths of individuals within it. It could be suggested that this goes beyond simply knowledge and involves a sense of country and a genuine understanding of its people. His wife is also highly respected within the district and, in addition to surveillance at their property throughout the fire, she also acted as a Peer with the Critical Incident Group throughout this fire event.

Examples of the application of local knowledge in this instance are many but include the use of landholders to phone in developments and monitor the fire—acting as local lookouts ('cockatoos') from their own properties and beyond. Here geographic knowledge of country and accuracy is all important as time is absolutely of the essence and decisions involving lives and property are taken based on this information. Locals were using machinery, often their own, in the construction of breaks and, again, here knowledge of country is crucial. Guided by those with extensive knowledge of fire and weather history of the region and the expected run of this fire, machinery operators worked in adjacent bush and extensive backburns were undertaken in an effort to reduce fuel for the approaching blaze.

An appreciation of the strengths and weaknesses of this community is fundamental to how a community responds in stressful circumstances. Those who were vulnerable due to age or having dependents, those who were better away from the isolation of their own property and working in the township supporting others, those physically frail but with extensive and useful knowledge—the diverse roles of individuals was acknowledged, their strengths respected and most within the community were involved.

This was an extraordinary fire effort, established very quickly and working over many weeks throughout the local district. It involved people from within the community and beyond. Aspects of the fire management established during this fire have since been adopted by various fire agencies and managers, though criticisms have also been made.

Accusations of the local response being over protective is one such criticism—something very difficult to prove or otherwise given the circumstances surrounding this particular fire. The location of the initial fire coupled with the extreme conditions led to a rapid response from those locally and 'everything was thrown at it' in an attempt to prevent its spread. In this sense people and machinery were fully concentrated on this location initially and, as the fire did spread, others were pulled in. Total concentration of all available resources initially at least would seem reasonable—arguably this focus may have been hard to change.

In speaking to members of the community about this particular time, many relate their sense of ownership of the fire effort. There is a strong feeling that they were able to be a fundamental part of the initial response and, as such, their involvement at this early stage gave the community strength to withstand the ordeal of the fire, an enormous sense of pulling together and therefore confidence to endure and work in the exhausting weeks to follow.

Berridale, NSW

Berridale is a small NSW rural settlement with a population of around 800 people. It is located 436 km southwest of Sydney and 35km from Cooma and sits 860 m above sea level (ie below the snow line). Although essentially a service town for the surrounding area, Berridale is also an important stopover point for those travelling to the snowfields of Thredbo and Perisher Valley.

One particular key player within the district has played a pivotal role in previous fire events and is currently Operations Officer – Monaro Team and Fire Control Officer – Snowy River, with the Rural Fire Service (RFS), NSW. In addition, this person is a well known and respected local landholder with family residing in the district for over four generations. As is often the case in small rural communities, respected and established locals such as this tend to be sought out for advice and relied upon heavily during an event such as the 2003 fires.

However, early on during the fires in 2003 this individual was taken away from the local operations and placed at Jindabyne to act as Deputy Incident Controller/ Planning in an effort to help with the broader scale fire fight. Though this may have seemed a valid decision at the time—and no doubt contributed to the broader scale effort—RFS Group Captains and other locals involved in the fire effort were very disturbed by this move. In speaking with many involved it becomes apparent that their sense of confidence was undermined by the absence of this particular person and his capacity to communicate clearly, direct fire fighting efforts and offer support and guidance to those on the ground—his role up to that point. This sense of unease permeated well beyond just a handful of fire fighters and appears to have led to extreme disquiet amongst many within the NSW RFS in this region for the duration of the fire effort.
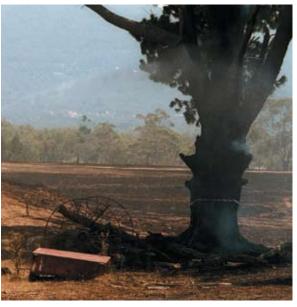
Those with an established and recognised knowledge of country, weather patterns and fire history are crucial to the sense of control and confidence held by local communities when those communities are under direct threat. The role of key players varies but in this instance the capacity to listen, make measured and respected decisions based on ground-truthed knowledge and understanding of both country and the people involved, discuss and offer support to those on the fire ground was fundamental to the fire effort. The removal of this respected and pivotal player completely unsettled this community, causing cynicism and a lack of trust which was—and continues to be—directed at those who came from outside the district to help with the fire effort.

Interviewees indicated that they would have felt much 'safer' and 'in better hands' had they known that this particular individual was in his usual role during a fire, that of overseeing local operations. As it was there was a general feeling of vulnerability due to the absence of this person. In speaking with the individual concerned, he too felt uncomfortable in his new role, though was able to contribute, and was trying to keep in contact with locals from his particular district to establish just how the operation was going. Should another major fire event again threaten the Berridale district, he has vowed to stay in his local district, doing 'what he does best', overseeing local operations.

Obviously, decisions are made and must be made rapidly during a fire as to placement of personnel. A key player in a particular community and one respected beyond the immediate district is a very valuable tool in the broader fire effort as well as within their own specific locality. However, at some point the value of these individuals with strong local knowledge within their own community and district must be weighed against their value when placed elsewhere. Again, the informal and elusive nature of local knowledge makes it difficult to measure this and yet lessons must be learnt from previous experience and hindsight harnessed. Those with genuine local knowledge are able to offer thoughts and advice grounded in experience and tradition and therefore underpinned by understanding. This must be respected. The dangers of dismissing this and all it has to offer include, in the short term—and, importantly, during the fire fight—a sense of ill ease and disquiet, perhaps then a lack of trust and confidence in management and potentially the long term alienation of an entire community. Genuine community involvement and engagement become virtually impossible if this scenario develops.

Pitfalls and potential dangers of using local knowledge

Possible dangers of using local knowledge are many and varied. There may be difficulty in reaching consensus within a community because of divergent views and not everyone wanting to be involved. Is the information reliable or is it dated and based on country long gone? Is it based on opinion rather than fact and charged with emotion and sentiment? Is it totally subjective rather than objective? What is perceived as local knowledge within a community must be examined in the light of

Respected and established locals were sought for advice and heavily relied upon during the 2003 fires.

genuine altruism—is it coloured by self interest? Is it too narrow and, if followed, will the specific information received actually jeopardise the broader fire effort? Does the information gained actually provide a complete picture? Judge Stretton (1939) noted that:

"The truth was hard to find. Accordingly, your Commissioner sometimes sought it (as he was entitled to do) in places other than the witness box. Much of the evidence was coloured by self interest. Much of it was quite false. Little of it was wholly truthful." (pg. 7)

Who is to judge what is the balanced view and how can this be achieved? Outcomes from seeking local knowledge are not necessarily predictable nor tangible; verification may be very difficult and take time and resources. This is not a simple tool; in considering local knowledge one must proceed with caution.

Rural observations and use of language vary and the overuse of acronyms and scientific terms is often confusing and alienating to those unfamiliar. Language understood by all must be used and respect shown for variations; those less articulate are still worth listening to and their views must be sought with suitable methodologies. As noted by Pennesi, "The gap between information and usable knowledge can be bridged with effective communication practices that take into account a wide range of linguistic and cultural factors" (Pennesi, 2007, pg. 1034).

Local knowledge can bring with it a position of power in a community—those who have it and those who don't. This has the potential to further fracture the community which can cause those who are perhaps unsure of the worth of their knowledge to remain silent. 'Sides' may develop, become polarised and the resulting conflict can impact negatively for all. Care must be taken to ensure that prejudices don't become entrenched, dominating and distorting dialogue.

The term itself and its role can be confused and misused as something of an elixir for all the ills befalling communities before, during and after a major emergency. This can serve to deepen any apparent rifts between communities and Government agencies, causing blame and a negative backlash which, again, further complicates recovery.

Conclusion

The use of appropriately derived local knowledge can only be beneficial to future fire management whether in the explicit transfer and use of otherwise unknown or misinterpreted local geographical knowledge or through the more general fostering of trust and cooperation between community and agencies. As noted above, in times of emergency it is crucial that the confidence of locals in fire agencies and management is not compromised as this can quickly deteriorate into anxiety, uncertainty and, often, mistrust. Once this

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Caution should be exercised in using local knowledge as it may be coloured by self-interest.

process begins further long term alienation and disquiet can occur.

Methods of feeding this information into the policy process must be further explored. However, as noted, the potential pitfalls of this tool must also be recognised. The use of local knowledge in fire management is both complex and controversial and, as with many aspects of community involvement and participation, it must be scrutinised thoroughly. Though initially very resource intensive, the accumulation and use of local knowledge should be acknowledged as a long term investment which has the potential to aid all phases of fire management. Talking to locals in their own environment is an obvious beginning as is providing circumstances where people can feel comfortable in coming to you—"…how citizens are invited to participate in disaster management is critical to the success of that participation." (Pearce, 2003, pg 218). It is crucial that the term and all it represents not be considered as a silver bullet which can overcome all perceived problems within fire management and changing rural communities—it is a complex area and one worthy of further research.

In taking the time, providing the resources and being involved in the use of local knowledge fire managers and agencies are investing wisely, acknowledging the wealth of experience available and developing the necessary skills to ensure the reliability and effective application of this tool. No longer can the experience and tradition found within rural communities be held at arms length—all levels of fire managers and agencies need to embrace this understanding, rub shoulders with those who have it and use it willingly and innovatively.

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