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The Fires of 2000: Community Response and Recovery in the Bitter Root Valley, Western Montana

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ABSTRACT

In late July and August, 2000, firestorms raged in the western United States. Several areas in Montana, especially the Bitterroot Valley in Western Montana, were severely impacted. Through a quick response study, data were collected in selected communities in the Bitterroot Valley. The communities studied were severely affected by the fires. Data were collected on the extent of the damage, perceptions of fire, the local strategies of coping with the impacts of the fires, and the various roles of community-based organizations in the response and recovery process. The results of this study indicate that the communities exemplified a significant level of resiliency during and after the firestorms. Certain communities and dispersed mountain settlements were more vulnerable to the fire risk than others, yet everyone living in the valley experienced the smoke and the trauma associated with this event. Lessons of practical and policy relevance regarding recovery in the wildland-urban interface are highlighted.

INTRODUCTION

"God will put these fires out."

"We get to decide how we are going to handle this..."

"We represent what is best about Montana, perhaps the broadest cross-section of people in Montana, but we will be the closest community at the end of this."

Quotations from the Hamilton Town Meeting
Hamilton High School, August 28, 2000

The summer of 2000 marked what many in Montana have referred to as an "unforgettable" fire season. In the Bitter Root Valley, the firestorm started on July 31 and continued to blaze into September. As the Bitter Root Valley became enveloped by wildfires, it was declared a national disaster area. Regarded as one of the largest natural disasters in the state's history, the wildfires resulted in unprecedented impacts: hundreds of families were temporarily evacuated from their homes; over fifty houses were destroyed; some livestock perished; roads were blocked; the Ravalli County Fair and two weekly Farmers' Markets were cancelled; Stage 2 and State 3 air quality alerts were regularly implemented during a five week period; and over 360,000 forested acreage were burned. Commonly referred to as the "Fires of 2000" by the media, the fire season puts an indelible mark on the history of the valley. Those who make the Bitter Root Valley their home continue to incorporate the events and experiences of this time into their lives. Stories of

extraordinary challenges, heroic efforts, and fire-related trauma hold a strong place in people's memories and stories of the event.

The purpose of this study was to examine the impacts of the devastating firestorms of 2000 on western Montana, with emphasis on local response and recovery in the mountain communities of the Bitter Root Valley. Through field observations, interviews, secondary sources, and participation in a wide range of community-based fire meetings and events, the impacts of the firestorms on the rural population were assessed. The study was formulated as an on-site research effort during the fires and for up to one year afterwards to provide data concerning local residents' knowledge of, and reaction to, the fire hazard, as well as to provide information on the culture of response in the area. The questions investigated included:

- How did local residents perceive the fires and their effects on the valley?
- In what ways were communities affected by the fires?
- What innovative elements of response and recovery were adopted by individuals and/or communities to help them cope with the firestorms?

This report describes the perceptions, impacts, and culture of response to the fires of 2000 and its aftermath. Special attention is given to the perceptions and attitudes toward the fires, the involvement of women and children in coping with community crisis, and the role of community-based organizations in responding to community needs. It concludes by raising broader concerns about fire hazard planning and mitigation in the wildland-urban interface of western Montana. Germane to this discussion of fire hazard is the trend toward development and urbanization in forested areas that are prone to wildland fires.

THE RESEARCH SITE: THE BITTER ROOT VALLEY, WESTERN MONTANA

The setting of this research was the mountain valley of the Bitter Root. The Bitter Root Valley, situated in southwestern Montana, extends into Missoula County to the north, Ravalli County and the State of Idaho to the south, the Bitter Root Mountains to the west, and the Sapphire Mountains to the east. Lewis and Clark named the Bitter Root Valley for the Bitter Root Flower, *Lewisa rediviva*, that serves today as Montana's State Flower.

The history and culture of the Bitter Root is important both locally and nationally. During the 1990s, this valley was one of the fastest growing counties in terms of population in Montana (Swanson, 2001). According to the U.S. Census data, Ravalli County increased by more than 10,000 people (a 40 percent increase). In the communities of Hamilton and Stevensville the population has increased around 60 percent. Many newcomers have arrived from out-of-state urban areas; many new arrivals are semi-retired or retired. These factors create a profound impact on land use policies, socio-economic diversity, and the physical environment. The shift from an extractive economy to a service-based economy has also significantly affected the lifestyles and political focus of the area. Despite this growth, per capita earned income in some

areas of the Bitter Root Valley (e.g., Ravalli County per capita income was \$16,533.00 in 1996) remains at 30% to 35% below the national average. Two traditional economic bases of the Valley -- logging and agriculture -- have been depressed for more than a decade. In Ravalli County, 15.5% of residents live at, or below the national poverty level.

It is notable that the Bitter Root Valley communities impacted by the fires of 2000 are situated in the elusive wildland-urban interface. These communities have developed with a strong connection to the forest surrounding them and the potential hazards (fire and flooding) of the local environment. The cultural identity of long-term Bitter Rooters is also linked to the natural surroundings and the forest. More recently, however, as urban development in this area has expanded into forested areas, wildfires have become a greater hazard to lives and property. One of the factors contributing to this pattern of development is the resistance to urban and land-use planning. Hence, governmental agencies incur costs and difficulties in their efforts to respond to hazards in areas of disaggregated settlement in the valley.

THE EVENT: THE FIRES OF 2000

Historically, fires have been part of life and landscape in the Bitter Root Valley and have played an important role in creating a dynamic fire-adapted forest ecosystem. When comparing the 2000 fires to the fire history of the Bitter Root Valley, it becomes evident that the extent and impacts of the fires were uncharacteristically intense and exceeded fires experienced in the last 100 years (Bitter Root National Forest, 2000).

The date that stands out in many people's minds regarding the 2000 fire season is the night of July 31 when a dry lightning storm ignited over 70 fires in the Bitter Root mountains. Some of these fires grew into huge fire complexes that drew national and international media to the valley. A few days later on August 6 several of the small fires converged together to create a major fire complex in the West Fork of the Bitterroot River. This fire impacted primarily dispersed and relatively isolated households and initiated the first evacuations of the valley.

In addition to the fires on the West Fork, other geographic areas of fire included Blodgett, East Fork, and the Skalkaho-Sleeping Child-Rye Creek Complex. The Blodgett fire, which burned approximately two weeks in August, was actually human-caused rather than lightning induced. The Blodgett firestorm led to the evacuation of over 900 households and the declaration of a state of emergency by the Ravalli County Commissioners. The East Fork conflagration (which became known as the Valley Complex) "blew up" southeast of the town of Darby on August 6 which is remembered as "Black Sunday" by local residents. The Skalkaho-Sleeping Child-Rye Creek fires also burned through residential areas on August 6 and destroyed 51 homes.

The fires continued to blaze through September as residents, as one woman put it, "kept praying for rain." By the time the rains and cooler temperatures did arrive, 170 structures plus 70 homes were destroyed. Over 1,500 people had been evacuated from their homes and more than 10,000 people had supported the fire fighting efforts in the area. Local emergency and disaster resources were overwhelmed so an incident hazard expert team was brought into the area along with state

and regional specialists to monitor local weather, fuels, and fire behavior. Efforts to control the fires drew firefighters from several states, the National Guard, fire departments from across the state of Montana, and Canada, New Zealand, and Australia. Local radio stations provided nearly continuous coverage for a five-week period to help residents deal with the magnitude and the scale of the fires. Amazingly, there was not one casualty associated with the fires.

With the heavy damage to soil ecology and vegetation brought by the intense and severe fires, people found that they had to work immediately to stabilize slopes before the winter snowfalls. In terms of environmental rehabilitation, the situation was worst for people living in several of the remote drainages that were severely burned. Months after the fires, people were still terrorized by the memories of the sounds and smells of the fires and feeling fearful about the potentiality of flood hazards and mudslides being induced by spring and summer rains and snowmelt.

MAJOR FINDINGS

In general, everyone in the area felt impacted either by the fires directly as in the case of evacuations or the loss of property or in terms of the effects of the smoke and ecological devastation. A major concern expressed by study participants was the impact of the fire hazards, smoke, and road closures on local businesses, work, school activities, and human health. Others who were located in less threatened areas felt the smoke and the fires were obstacles or inconveniences to day-to-day tasks and family and school activities. Those who lost their homes, livestock and/or pastures were significantly traumatized by the fires. One person summarized the effects of the fires, stating:

The fire devastated everything to the ground. The intensity of it was extreme. ...The impacts are emotional and financial and vary depending upon people's positions. For some it was devastating and their legacy is gone. They have nothing to leave their families, [their] children's children.

Based on an analysis of the data and field observations, important findings emerge in the following areas of concern: local perceptions and attitudes, effects on the valley's airshed, evacuation decisions, and community-based networks of assistance and support.

Local Perceptions and Attitudes

It became clear through interviews and conversations that the fires of 2000 were the most serious natural hazard event most residents had ever experienced and that everyone, particularly children and the elderly, were significantly traumatized by it. Inquiries regarding people's worst fears about the nature and the effects of the fires of 2000 suggested that people experienced multiple anxieties, especially those generated by the destructive power of the fires, the oppressive smoke, the impacts on property, and the effects on the forest ecosystem. The conflagrations were described by residents in dramatic and emotional terms:

It sounded like a train roaring over the mountain.

It was like fire balls on the mountains.

I could see the flames leaping in the air.

It was so sad to see our forest burning.

There was so much smoke the sun was red.

When I was looking through my binoculars I saw a giant burst of fire above the treetops.

In particular, the psychological devastation and the shock of loosing the forest reached traumatic levels when Laird Creek and the homes in that drainage were overtaken by flames. Many people, especially the elderly, described finding themselves "living in harm's way." People continued to be terrorized by the memories of the flames and the sounds of the fires weeks and months after the fires.

Some respondents expressed the sense of disbelief or even denial that the wildfires were burning close enough to threaten communities in the area. One person stated:

...here in Montana, this summer did not seem possible. The fires had to be in some other state even though I heard about 'all the wildfires' here close to home. It wasn't until my family and I drove south to see the fires and all the firefighters; that's when I could believe it was true.

As the dry conditions continued, even thunderstorms became, as one woman put it, "objects of terror," because of the threat of new lightning strikes. During the times of raging complexes and road closures, people felt cautious, apprehensive and fearful. These feelings were intensified by the lack of precipitation, drought conditions, and summer temperatures that soared to 95-100°F. Loss of animal life, e.g., livestock and wildlife, was also mentioned by residents as being a very serious fear and concern.

Overall, two major themes emerged from people's perceptions of the fires. On the one hand, some people did express an understanding of the role of fire in maintaining the forest ecosystem and biological processes; they also felt the need to manage the fires at some basic level due to the rather "unnatural" conditions resulting from the past seventy or more years of fire suppression on many of the forested public lands in the area. Standing out in contrast to this perspective was a strong opinion within the valley that "they just let the fire burn" (i.e., the government agencies, public land managers, etc.) in a senseless and dangerous manner and to the detriment of local people and natural resources. Months after the fires, these perspectives continued to emerge in public discussions and heated debates about fire hazard management and salvage logging on Bitterroot Forest Service lands.

Effects on the Valley's Airshed

During August and September, the entire Bitter Root Valley was engulfed in smoke generated by the fires. The impact on the valley's airshed due to the smoke was significant for residents for several reasons. First, by all accounts the smoke affected people's activities.

The fires stopped me going outside and even when I could I didn't want [to] because all you could see [was] smoke and burning wood ... [you] couldn't see the blue sky or the mountains ...

It ruined our summer fun. We could not go swimming or play out side. We got so bored!

The experiences quoted above about dealing with the smoke hazard were expressed as a common predicament of thousands of residents living in the area. Vivid descriptions of how the air "stunk," "it was hard to breath," and how the smoke was as thick as "fog" were also conveyed. Travel conditions were also poor due to the lack of visibility (in addition to the road closures).

Second, the smoke, especially on the Stage 2 and Stage 3 air alert days, affected people's respiratory health and physical well-being. Many people complained about headaches, nasal congestion, and coughs. Those who were most affected were individuals suffering from asthma or other health problems that were further compromised by the poor air quality. Another dimension of this was the mental health effects on people as a result of being confined to the indoors for long periods of time. Children in particular found the weeks of confinement difficult.

When the fire came to visit me, I was sad because I had to stay in my house to get out of the smoke. My mom my brother and I put our cats, dogs in the house and put our chickens in the chicken pen, the geese and ducks in their pen. My mom had a hard time breathing because she has asthma, but she survived. Sometimes we had to go outside, and get the firewood in and dump the kitty litter out and feed the animals. I felt sorry for the wild animals because they had to run from their home.

The fire really bothered me because I have asthma. The first day after all the fires started, I couldn't go outside. It was smoky. I had to stay in the house and have my neighbor friends come in to play with me. We couldn't find enough things to do...

Arrangements were made through 4-H and other youth organizations for a summer camp to take Bitter Root children to another part of the state to gain some relief from the smoke.

And finally, it also became clear from contacts and interviews that the smoke-filled air and poor visibility affected the tourism economy, one of the most important sectors for communities in the valley. The findings indicated declines in incomes during this time for some individuals. Those dependent upon backcountry outfitting, guided fly-fishing trips, whitewater rafting on the Salmon River, four wheeling, and lodge and guest house operations experienced heavy economic losses. Respondents suggested that the recovery of the forests as well as the recovery of clean air would be crucial for tourist activities in the area.

Evacuation: Deciding to Stay or Leave

By early to mid August, many residents faced difficult decisions about whether or not to leave the area. As the wildfires spread, Bitter Root residents monitored the wind, precipitation, and location of fires in order to judge the level of risk. An information network developed at neighborhood, drainage, community, and watershed scales to notify residents of conditions. Residents would telephone other households to pass along news of significant changes. Media coverage, television, radio and newspaper sources provided a basis of common knowledge and information about the developments of the fires and new fires that further shaped people's decisions and sense of security and/or vulnerability. In addition, the district Forest Service offices and rural fire departments in the valley posted fire information. People closely followed the news and attended town meetings to stay abreast of developments and evacuation warnings.

When it became apparent that the wildfires were moving toward certain communities, affected residents prepared their homes for evacuation and some families evacuated before the mandatory evacuation orders were issued. People concerned about the risk to their homes and personal property moved belongings to friends' houses or to storage units. Those less at risk stocked up on provisions in an attempt to prepare for hosting evacuated friends. Children in particular recalled helping neighbors evacuate pets and livestock to the county fairgrounds that were the designated site for evacuated animals.

Interviews revealed the mood of town meetings as people received evacuation orders. One person recalled:

At the school everyone gathered together. They were all talking at once. I left the school knowing that we would have to evacuate. That same night my family left. We went to a shelter in Hamilton. We set up our stuff in the gym that the Red Cross provided for us. They gave us everything and let us in like it was our home.

The Red Cross shelter set up at a local high school provided people with a temporary place to stay while evacuated. It is notable, however, that many individuals and families who were on evacuation orders did not go to the shelter. Interestingly, most chose to stay with friends and family in the area. When inquiring about why many residents did not rely on the Red Cross, an emergency service provider explained, "The people who are born and raised here see it as family takes care of family and so they did not seek assistance." One person also mentioned that "a lot of people camped in tents with their children, camping near the river." As a result, the shelter and its services were underutilized.

Some families elected to leave at the last possible moment, risking being caught in the raging fires burning across dirt roads serving as the only exits out of some drainages. However, not all residents opted to evacuate in spite of the mandatory orders. They elected to stay at their property to defend it in the event the fire "blew down on them." Several respondents gave this as the reason why, like hundreds of other residents, they preferred to stay at home and face the fires. Men in particular made decisions to stay at home in order to "defend" personal property, while women and children took pets and family belongings to the homes of friends or family.

When people returned to their homes and the smoke began to clear, people were in shock when they first saw how much of the forest had burned. Some people recalled grieving for the forest and wildlife when they drove or walked through burned areas to return to their homes.

Community-Based Networks & the Culture of Response

External aid came to Bitter Root communities from established governmental and non-governmental agencies such as the Federal Emergency Management Agency, the State of Montana Disaster and Emergency Services, Project Recovery funded by the Department of Public Health and Human Services, the Center for Mental Health Services, United Way, Lutheran Relief Services, and the Red Cross. These outside assistance networks provided critical financial and moral support to fire victims who were not well established or connected to local communities.

In addition to the outside sources of assistance, a number of community-based informal and formal networks established by residents came into action. These networks included: friends and family; organizations such as the Bitter Root Humane Society; faith-based groups (e.g., churches); local youth groups (e.g., the 4-H and Future Farmers of America); school groups; environmental organizations (e.g., Friends of the Bitter Root and the local chapter of the Sierra Club), sporting and hunting clubs; women's organizations (League of Women Voters, Soroptimists); and the business community. The findings of this field research highlighted the significance of these inter-community networks to the response and recovery processes. In the Bitter Root the participation of residents in the recovery of their own communities, from providing meals to caring for evacuated livestock and rebuilding homes, was an opportunity to learn new skills, to get to know other residents of the valley, and to do "the right thing."

The connection of these networks and people, which in some cases have evolved over a long period of time to deal with crisis, resulted in a unique culture of response. It was through these networks that assistance was mobilized throughout the state and the nation to assist affected families. In many cases these networks facilitated a volunteer base used to mobilize energy and resources to address specific needs. One example of this was evident in the area of helping people create defensible space around their homes. The Friends of the Bitter Root, for example, was instrumental in organizing volunteers through the Sierra Club, The Ecology Center, Bitterroot Mission Chapter, Montana Wilderness Association, Alliance for the Wild Rockies, and local hiking clubs to work on fuel reduction efforts (raking fine fuels, trimming trees, and moving wood piles). As one volunteer organizer put it:

When the Blodgett fire started some of our members realized that people would be in need of support in mitigating the risk of fire from their homes. Since we have extensive volunteer organizing experience, we thought it would be put to use helping people do home protection... We developed a volunteer list, a form for describing and documenting the work done, and a policy for the work we could and could not do... We reached out to other civic and environmental groups in Western Montana to fill our volunteer base.

One key informant described how he was involved in coordinating the delivery of air ventilators and helping with the logistics of providing assistance as part of a network of church aid and volunteer church organizations, and other non-governmental organizations. The connections and collaborations between these diverse networks resulted in a unique culture of response.

A strong sense of community emerged during the firestorms and their aftermath. The experience of dealing with fire hazard seemed to give an additional sense of identity to the communities which had been severely burned. One woman said:

The community pulling together was amazing for me. The sheriff was incredible. The man lived for this community in just being out there, a leader and being involved in helping keep it together. It was so incredibly moving. Everybody wanted to help. Some were frustrated because they wanted to go up the mountain and put the fire out. There wasn't anyone who did not help.

Using the West Fork, Blodgett, Laird Creek and Valley Complex fires as their frames of reference, most victims and responders praised the sense of "community" which occurred during the crisis. During this time people reported a general ethic of helpfulness, cooperation and community spirit:

We released staff to work with crews, to go out and help seniors, hold their hands, help clear their property.

The sense that the residents had of themselves are being part of a larger community was fundamental in the response and recovery processes. The community-based networks represented structures already in place that assisted individuals in fire preparedness, rebuilding, and regaining self-sufficiency. These networks were in place because people understood the vulnerability and fire risk associated with living in mountain environments.

CONCLUSIONS

Future decades do not portend a decrease in the destructive effects of wildfires in the western United States. Given the trend towards urban develop in the wildland-urban interface, the impact of wildfires and the challenges of providing emergency services to dispersed mountain settlements will most likely continue. In the case of Montana several complex factors - increased development, population growth in wildland areas, forest management policies, and severe drought conditions - have combined to contribute to a wildfire crisis that has been complicated by emergency evacuations. The evacuations have involved a large number of households, pressures for assistance and relief, and a level of public debate and controversy. Learning from the societal responses and attitudes to such fire events is crucial to the future planning and design of relevant and cost-effective prevention and mitigation efforts.

Based on this qualitative study, the early response in the Bitterroot was fairly well organized given the scale of the fire events. Observations and interviews suggested a strong sense of

community and informal and formal networks of support and assistance. Without these networks the preparedness of at risk homes, the approaches to addressing the severe smoke and air quality problems, the recovery of evacuated households, and forest rehabilitation efforts in the post-impact period would have proceeded incrementally and haphazardly.

Several important lessons emerge from this research. First, policy responses need to focus on educating the public, especially new arrivals to the Inter-mountain West, about the realities of wildfire hazard and about how to alter their behavior in order to reduce risk. Conversations with long-time residents, e.g., ranchers and farmers, suggested that they have understood the fire (and flood) hazards in their area, have adapted to them, and have looked upon newcomers as simultaneously being alienated from nature and drawn to nature without practical grounding or training for living in such an environment. The newcomers to the valley seemed more astonished by and outspoken about the fires and were frustrated by the lack of 911 services. In general, recent arrivals do not completely understand the history of fire suppression, or the physical and biological relationships and processes in the areas where they are locating and building homes. This would include teaching homeowners how to create "firewise" structures and landscape and involving planners, community leaders, and homeowners associations in the process. Second, policy responses need to be aware that fire-related disasters have long-term effects on residents and require long-term psychological, emotional and environmental adjustments.

Third, support of community-based informal and formal networks can facilitate the response and recovery process and enhance the work of external emergency response agencies. These networks should be linked somehow to international networks that can help provide insight to places that experience wildland fires and assistance with planning for fire hazards. This effort could help create accurate data and information about vulnerabilities and risk, fire preparedness, and community assessment methodologies. And finally, assessment of needs should incorporate attention to gender and age-specific data. Questions such as: How many households affected by wildfires are female-headed? Where are the senior citizens? How many of them live alone and/or in senior residents? What proportion of the seniors are women? What childcare resources are available, and how are they utilized? What senior care resources are available, and how are they accessed? What resources or special programs are available for women and youth? What resources or special programs are available for ill, home-bound or disabled? What formal and informal networks serve the needs of women, men, children, the elderly, and those with pets and livestock?

In sum, seeing the fires of 2000 through the eyes of local people represents an important opportunity to contribute to hazards and disaster planning, preparation, recovery and hopefully to prevention in the wildland-urban interface. Certainly, this case study demonstrates that in order to minimize damage and loss of life to fire hazards, mountain communities need to be alerted as early as possible of the conditions and movement of the fires as well as the behavior of the fire. In the context of dispersed settlements in mountainous areas, it seems to be particularly important for residents to receive advanced warning so that adequate preparation of defensible space and evacuation plans can be made.

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REFERENCES

- Arno, S.F., and T.D. Petersen. 1983. *Variation in Estimates of Fire Intervals: A Closer Look at Fire History on the Bitterroot National Forest*. USDA Forest Service Research Paper INT-301.
- Bitterroot Ecosystem Management Research Project. 2001. *Eco-Report 2000-01*. Missoula, MT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Forestry Sciences Laboratory.
- Bitterroot National Forest. 2000. *Bitterroot Fires 2000: An Overview of the Events, Effects on People and Resources, and Post-Fire Recovery Priorities*. Hamilton, MT: Bitterroot National Forest.
- Bureau of Business and Economic Research. 2001. *Bitterroot National Forest Social Survey*. Missoula, Montana: Bureau of Business and Economic Research, University of Montana.
- Burk, D. 1981. Bitterroot Valley: Montana's oldest settled area hasn't settled down, *Montana Magazine*, May-June, pp 9-12.
- Dannenberg, M. 1988. Wildfire! New hazards in the suburbs, *Western Wildlands*, Volume 14, Number 1, Spring, pp 25.
- Ewert, A.W. 1991. *The Wildland-Urban Interface: Future Forest Management Near Large Cities*. Riverside, California: California Water Resources Center.
- Ewert, A.W.; Chavez, D.J. and A.W. Magill. 1993. *Culture, Conflict, and Communication in the Wildland-Urban Interface*. Boulder, Colorado: Westview Press.
- Gardner, P.D. and H.J. Cortner. 1988. An assessment of homeowner's perceptions of wildland fire hazards: A case study from Southern California. In *Arid Lands--Today and Tomorrow*, edited by E.E. Whitehead, Boulder, Colorado, Westview Press, 1988; 643-657
- Hirsch, K.G. et al. 1996. *An International Collection of Wildland-Urban Interface Resource Materials*. Edmonton, Alberta: Canadian Forest Service Northwest Region.

International Association of Wildland Fire. 1999. *International Bibliography of Wildland Fire*. Fairfield, WA: International Association of Wildland Fire (IAWF).

Johnson, B.B. and V.T. Covello. 1987. *The Social and Cultural Construction of Risk*. New York: Reidel.

Menning, N.L. 1995. Traffic and tourism in the Bitterroot: tourism promotion, development and management, *Montana Business Quarterly*, Volume 33, Number 2, 1995, Summer, pp 2-7.

Moore, M. 2000. *Montana On Fire! Summer of 2000*. Helena, MT: Montana Magazine/Farcountry Press.

Moore, M. 2000. *Montana On Fire! Summer of 2000*. Helena, MT: Montana Magazine/Farcountry Press.

Myers, R.; Cohen, S. and D. Miller. 1979. The big burn: the Northwest's forest fire of 1910, *Montana: The Magazine of Western History*, Summer, pp 82-83.

Pyne, S. J. 1982. *Fire in America: A Cultural History of Wildland and Rural Fire*. Princeton, New Jersey: Princeton University Press.

Pyne, S. J. 1989. Letting wild fire loose: the fires of '88, *Montana: The Magazine of Western History*, Volume 39, Number 3, Summer, pp 76-79.

Pyne, S.J. 2001a. *Fire: A Brief History*. Seattle: University of Washington Press.

Pyne, S.J. 2001b. *Year of the Fires: The Story of the Great Fires of 1910*. New York: Viking.

Searle, M. 2001. *Montana Disasters : Fires, Floods, and Other Catastrophes*. Pruett Publishing.

Swanson, Larry. 2001. *The Bitterroot Valley of Western Montana: Area Economic Profile*. Missoula, Montana: O'Connor Center for the Rocky Mountain West, The University of Montana.

Teie, W. C. 1999. *Fire in the West: The Wildland/Urban Interface Problem -- A Report to the Council of Western State Foresters*. Rescue, CA: Deer Valley Press.

United States General Accounting Office. 1999. *Federal Wildfire Activities: Current Strategy and Issues Needing Attention*. GAO/RCED-99-233. Washington, DC: U.S. General Accounting Office.

Western State Fire Managers. 1998. *Fire in the West: A Report and Analysis on the Fire Activities in the 17 Western States (1993 through 1997)*. Rescue, California: Deer Valley Press.

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