Wildfires and insurance

Abstract

This report reviews trends in wildfire events in North America and the role of insures in reducing our vulnerability to wildfire hazards.

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The Institute for Catastrophic Loss Reduction (ICLR) was established in 1998 with the mission to reduce the loss of life and property caused by severe weather and earthquakes through the identification and support of sustained actions to improve society's capacity to adapt to, anticipate, mitigate, withstand and recover from natural disasters.

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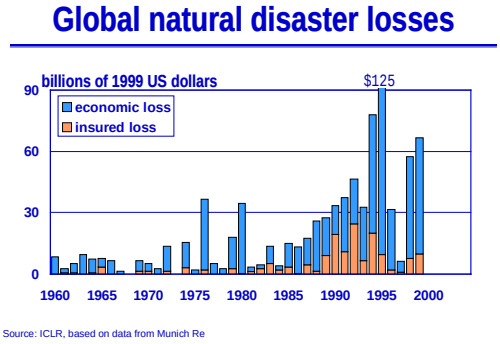
Introduction

Natural disaster damage losses paid by insurance companies have been doubling every five to ten years since at least the 1960s (Kovacs, 1999). The largest losses have been due to hurricanes, earthquakes, tornadoes, hail, winter storms and wildfires. This alarming trend is driven, in my opinion, by three primary factors – more people and property are exposed to Nature's hazards; the frequency of many extreme weather events is increasing; and critical infrastructure is aging. This exposure is likely to rise further in the years ahead and scientists, practitioners and policy makers should work to reduce our vulnerability to Nature's hazards.

The topic of this paper is urban/wildland fire, focusing on insurance and wildfires. Interest in this peril began with the California wildfires of the early 1990s, and this paper will set out the reasons why insurers may expect this interest will grow in the years ahead.

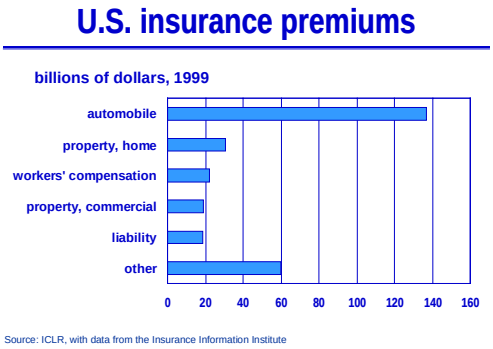


This paper will set out a brief history of the insurance industry, with a focus on fire risk; then describe the trends in major wildfire losses; and conclude with an overview of the role insurers will likely play in future wildfire management. The focus of this paper is on the experience of, and expectations for, insurers in the United States and Canada.

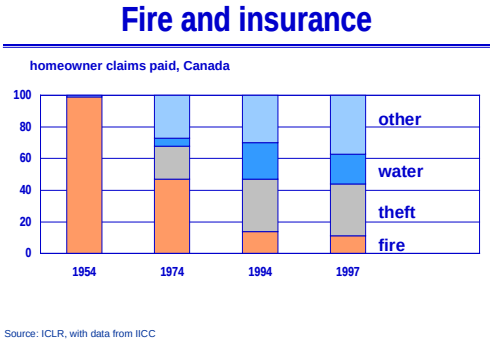
A Brief History of the Insurance Industry

Risk management and insurance-like practices have been in place for a very long time. For example, there are many references to insurance-like behaviour in the historic literature, including logbooks from Chinese boat captains almost 5,000 years ago who were managing their cargo much like that documented in the marine insurance literature today (Bulau, 1953).

The modern insurance industry, however, began in England shortly after the great London fire of 1666 (Hives, 1985). Insurance companies were established at that time to offer homeowners' fire insurance similar to that available today. During the 1700s, this urban fire insurance coverage was refined to better meet the needs of homeowners and businesses and fire insurance industries were developed in the United States, Canada and across most of Europe.



In the 1800s, the industry learned the importance of partnership with public officials to reduce losses. In particular, all fire fighting equipment at the beginning of the 1800s was owned by insurance companies and used exclusively to combat fires on property owned by customers (Hives, 1985). Nevertheless, within a few decades this equipment was owned by municipalities and used to protect all property owners in the community (Hives, 1985).



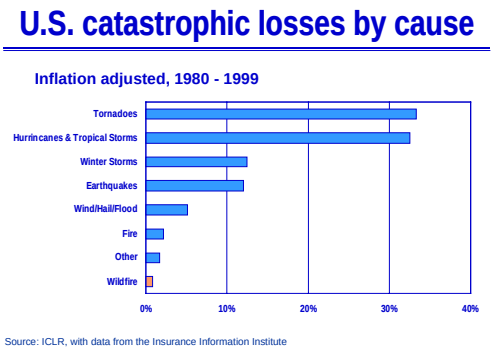
Over the course of the 20th century, the industry expanded to cover many other exposures. Homeowners' fire policies were expanded to include coverage for theft, and other catastrophes such as wind, hail and winter storms. Business typically purchased multi-peril coverage, including fire with other cover. Automobile insurance has become the most significant product offered by most companies. The industry also provides protection for those concerned about injuries at work, and a broad range of other products.

The 20th century also brought major improvements in fire insurance coverage. Today every community in Canada and the United States is rated by the insurance industry in terms of its capacity to respond to a fire. Communities viewed by the insurance industry as operating better fire protection services are rewarded with lower fire insurance costs. Throughout this period, deaths and damage from urban fires have been declining.

The industry's roots began with urban fire coverage, but today fire damage accounts for less than ten percent of industry claims, and wildfires are much less than one percent (ICC, 2000). Interest in other areas, however, has not diminished the significance of fire insurance for insurers. Most homeowners and businesses in North American presently have valid fire insurance coverage. This coverage is very comprehensive. The policyholder is covered for all fires, other than policyholder arson or those due to war or insurrection. The typical fire insurance policy does include wildfires.

Trends in Wildfire Damage

Industry interest in wildfires began with large losses in the early 1990s in California, although the evidence shows that there have been major wildfires in almost every part of Canada and the United States at some point in the past century. Wildfires occur more frequently in the West, but the entire continent is vulnerable (ISO, 1997). There are tens of thousands of wildfires each year, destroying millions of acres of forests and grasslands (NIFC, 2000). During the 1990s the U.S. National Fire Protection Association estimates that more than 900 homes were destroyed each year, on average, by wildfires (USDA et al, 1995). In 1916 a Canadian wildfire killed 228 people in Northern Ontario, and was reminiscent of the 1825 Miramichi fire which was responsible for the death of up to 500 people in Atlantic Canada (McClelland & Stewart, 2000).



Wildfires occur on a regular basis. Almost half the wildfires start with a lightening strike, and these fires account for about 85 percent of the acres of forest lost due to fires. Most of the other fires start because of human factors, but these fires typically do less damage (CCFM, 2000). Many factors contribute to wildfire risk, including the weather and the slope of the land (ISO, 1997). Foremost there must be something to burn.

The Insurance Services Office has maintained from 1970 a consistent database of insurance payments in the United States due to wildfires and other catastrophes. During the 1970s and 1980s there were eight major wildfires which led to insurance payments of between $5 and $43 million for each event, or adjusted for inflation, losses between $10 and $100 million (ISO, 1997). All monetary data in this paper are in U.S. dollars. Between 1990 and 1993, however, there were four enormous fires in California which led to several thousand insurance payments totalling $265 million to $1.7 billion for each event or, adjusted for inflation, a total payment of $3 billion (ISO, 1997).

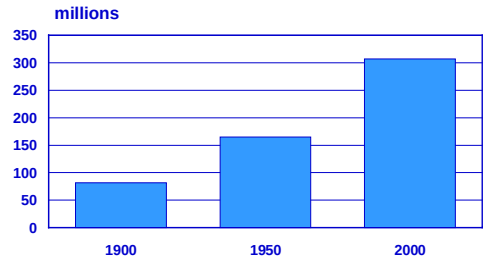
These large losses focused industry attention. Wildfire losses remain an order of magnitude smaller, however, than the multi-billion industry losses from the large Atlantic hurricanes and California earthquakes, but they are now seen by insurers in some regions as important as the frequent hail and tornado losses in the prairies, and the winter storm losses in Canada and northern states.

The Insurance Bureau of Canada has maintained a similar catastrophic loss database for Canadian insurers since the early 1980s. Over this period, there were thousands of fires in the country, but there was not a major wildfire loss for the insurance industry. The industry has not yet experienced a Canadian wildfire loss in excess of $10 million (ICC, 2000).

Insurers in Canada and the United States are concerned about growing vulnerability to wildfire damage. Three factors include: more people and property exposed to this peril (USFA, 2000); the general warming of the climate, which has increased the frequency of lightening strikes and the likelihood of extended periods of drought in some regions; and decades of fire suppression has increased the fuel available to burn in several areas (Parker et al, 2000).

The largest concern is the growth in the number of people and property at risk. More than ever people are moving into remote area with the desire to "get back to Nature" (ISO, 2000). Typically, homes built in these areas put more emphasis on ensuring a spectacular view and less on the dangers around them. The knowledge exists to make homes less vulnerable to wildfire. Firewise homes have a survivable landscape and use appropriate building materials. Investments of a few hundred dollars can significantly reduce the risk wildfire damage (IBHS, 2000).

North American population

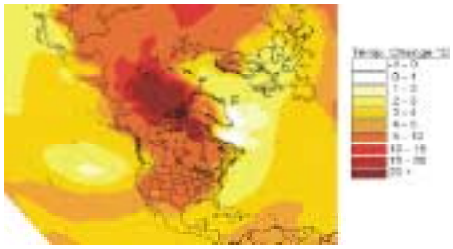


Source: ICLR, based on data from Statistics Canada and U.S. Bureau of the Census

Also our climate is changing (Hengeveld, 2000). The are important differences in the specific changes taking place across Canada and the United States, but most areas are warming, however. Climatologists have found that warming temperatures bring an increased frequency of lightening and more frequent periods of extended drought – conditions that increase the risk of wildfires (Parker et al, 2000).

Projected winter temperature change

between 1975-1995 and 2080-2100, Canadian Climate Change Model



Source: Meteorological Service of Canada, Environment Canada.

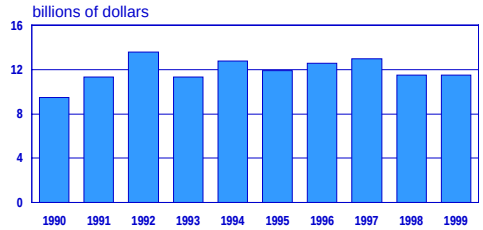
In addition, several decades of active fire suppression has increased the amount of brush and dead wood in many forests (ISO, 1997). This is more evident in the United States where fire suppression efforts have been more intensive than is evident in Canada as a result of a larger population base. More potential fuel increases the risk of a major wildfire. Accordingly, there has been a significant increase recently in the number of controlled fires to take away some of the build up. The easiest way to stop wildfires is to take away the fuel (Vicars, 1999).

To summarize, in the 1990s there were several large wildfires in California which led to insurance payments of $3 billion (ISO, 1997). These events focused industry attention on this peril and the factors that may further increase the risk of wildfire damage in the years ahead. These include more people and property living at risk, climate change and more fuel available to burn.

Role of Insurers in Wildfire Management

This final section discusses the role of the insurance industry in wildfire management. It addresses compensation for property damaged by fire and three other elements -- education through industry participation in wildfire management efforts and public communications; incentives driven by industry pricing and other practices which encourage better risk management by property owners; and, promotion of improved land use practices and adequate resources for wildfire management. While some of these elements are evident today, I argue that the others will emerge increasingly in the years ahead.

Compensation for U.S. fires



Source: ICLR, with data from the Insurance Information Institute

First and foremost, the industry is responsible for compensating fire victims. A home or business damaged because of a fire is covered under a fire insurance policy and the victims are compensated promptly. This coverage is valid for urban fires, wildfires and interface fires. Should the number of homes and buildings damaged in wildfires increase significantly in the years ahead, it will be interesting to see if more insurers seek compensation from those responsible for fire management.

Ultimately, homeowners and businesses are responsible for protecting their property. The insurance industry has always been an active participant in education and outreach programs working to help the public to better understand actions they can take to reduce the risk of traffic accidents, theft and fire damage. These programs have largely focused on urban centres given high concentration of Canadians and Americans in larger communities. However, there is a growing capacity to target messages to specific audiences, and there is more clear advice available about how to reduce the risk of wildfire damage (Partners in Protection, 1999). In the United States, the insurance community has been working for several years now through the Institute for Business and Home Safety (IBHS) in Tampa to participate in discussions about wildfires. IBHS's Wildfire Peril Committee will soon publish a homeowners' guide to wildfire retrofit. Also the Insurance Services Office has published a report on the wildland/urban fire hazard. In Canada, the Institute for Catastrophic Loss Reduction (ICLR) began a wildfire research program last year. Also, the Insurance Bureau of Canada has participated in conferences promoting greater action to address this threat. The insurance industry endorses the FireSmart program of Partners in Protection that has been developed by wildfire experts to advise homeowners how they can better manage this threat.

Insurance incentives

Approved Roof

Code	Exposure Distance in Feet	Class of Protection							
		1 - 4		5 - 6		7 - 8		9 - 10	
		Col. A*	Col. B**	Col. A*	Col. B**	Col. A*	Col. B**	Col. B***	
1	Under 30'	0.63	0.63	0.75	0.75	1.01	1.01	2.01	
2	30'–59'	0.44	0.57	0.57	0.75	0.88	0.88	2.01	
3	60'–99'	0.31	0.44	0.38	0.5	0.5	0.5	2.01	
4 –5	100'–199'	0.13	0.25	0.19	0.38	0.38	0.38	1.76	
6 – 7	200'-299'	0	0	0	0	0.25	0.25	1.26	
8 – 9	300'-399'	0	0	0	0	0	0	0.75	
10	400'	0	0	0	0	0	0	0	

Unapproved Roof

Code	Exposure Distance in Feet	Class of Protection						
		1 - 4		5 - 6		7 - 8		9 - 10
		Col. A*	Col. B**	Col. A*	Col. B**	Col. A*	Col. B**	Col. B**
1	Under 30'	0.79	0.79	0.94	0.94	1.26	1.26	2.52
2	30'–59'	0.55	0.71	0.71	0.94	1.1	1.26	2.25
3	60'–99'	0.39	0.55	0.47	0.63	0.63	0.94	2.52
4 –5	100'–199'	0.16	0.31	0.24	0.47	0.47	0.63	2.2
6 – 7	200'-299'	0	0	0	0	0.31	0.47	1.57
8 – 9	300'-399'	0	0	0	0	0	0	0.94
10	400'	0	0	0	0	0	0	0

Source: ISO

Insurance practices are a tool for promoting better management by property owners. Pricing and other conditions act as incentive to reward good behaviour. The

Insurance Services Office (ISO) has published proposed surcharges that would increase the cost of insurance by up to 2½ percent for wildfire-vulnerable homeowners who do not install approved roofing materials, fail to clear the area around their home and/or are not accessible to fire fighting services (ISO, 1998). The surcharges remain small relative to the cost of changing behaviour, so insurance savings alone are not sufficient to justify a change in practices. Also, the tools insurers currently use to differentiate fire risk when determining pricing do not include many of the large cost factors in wildfire management. Perhaps the largest incentive may come through concerns about availability of coverage, and not pricing, as potential future increases in the frequency of losses could lead more companies to reduce or stop providing coverage in certain vulnerable regions until community and property owner practices change.

ISO have also recently launched FireLine as a tool for wildfire risk management. It combines street maps; satellite maps that measure fuel density; and topographical maps showing slope, elevation and severe weather frequency. This new product shows how the insurance industry is determined to underwrite high-value wildfire risk based on accurate measures of risk.

Finally, improved land-use planning and adequate resources for wildfire management are critical. Most work by insurers and the policy research community emphasizes the important role of land-use planning. Each year more and more Canadians and Americans are living in areas of hazard risk, including the risk of hurricanes, earthquakes, flooding, winter storms, tornadoes and wildfires. Hazard risk needs to be an increased part of our planning efforts. This is a primary theme of the report “Disasters by Design” by Denis Meleti and Mary Fran Myers, who argue that nature’s hazards become natural disasters because of poor decisions made by people (Mileti, 1999). The insurance community shares the view that the knowledge exists to reduce our vulnerability to Nature’s hazards, and that the industry is a natural ally in the promotion of better land use planning and also adequate resources for wildfire management.

Conclusion

Disaster damage costs paid by insurers and by governments in Canada and the United States are increasing at an alarming rate, and the factors driving this are poised to deteriorate further. The insurance industry is a natural ally in the dialogue about hazard management for wildfires and other major hazards.

Insurers have been a driving force for the past three centuries in the promotion of better practices for the management of urban fires. The industry has also been interested in wildfire peril for the past decade, and I believe that the industry's involvement will grow in the years ahead. Still, wildfire losses remain moderate for the industry, less than one percent of overall losses, confirming that the industry is naturally more aggressive at this time in its efforts to address selected other hazards, including hurricanes and earthquakes. Nevertheless, beyond compensation for property damaged by fire, three areas where the industry will likely be involved in the years ahead in wildfire management include -- education through industry participation in wildfire management efforts and public communications; incentives driven by industry pricing and other practices which encourage better risk management by property owners; and, promotion of improved land use practices and adequate resources for wildfire management.

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