
Management Response and Needs

(What are we going to do about it?)

The Wildland/Urban Interface in 2025¹

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Abstract: In the year 2025, wildland fire fighting practices have improved significantly over the method employed during the late 1900's. Improved methods for predicting severe fire weather conditions, the establishment of the North American Fire Coordination Center, and the utilization of foam products for both wildfire and structural fire control have significantly changed the methods of fire suppression. An increased awareness of the dangers posed by wildfire has been accomplished through a concentrated effort to educate the public. Buildings are being constructed that afford greater protection, and fuel modification surrounding structures is now required by most state and provincial governments. With the accomplishments achieved during the past 40 years (1985-2025) it's hard to believe that wildland fire protection could become more efficient or effective, but I am sure it will!

In this paper I discuss the wildland/urban fire problem as I see it in the year 2000 and beyond. I have chosen to base most of my projections on the year 2025. Before I do this, I will define the wildland/urban problem, and then look at how we have gotten to the point where we are in 1987. My definition of what constitutes a wildland/urban interface is any area where residential or commercial development is intermingled with flammable vegetation. That

vegetation could be trees or brush, or in some cases, even grasses. When this situation occurs it can significantly alter the methods that are used to control either wildland or structural fires. Wildland fire fighters find themselves concerned about structures, and structural fire fighters may have to deal with problems of fire spreading to the wildlands. According to Al West, current Deputy Chief for State and Private Forestry, of the Forest Service, U.S. Department of Agriculture, "our fire fighting costs continue to climb because of the need for more equipment and personnel to save structures." Increasingly fire commanders have to sacrifice control of the wildfire to defend buildings (NW/UFPC 1987). Where are all of these buildings coming from? Looking at the United States in 1945 there were 140 million people living here. By 1980 the population had jumped to nearly 225 million, an increase of over 60 percent (Bogue 1985). In the 1950's and 1960's much of this population was centered in urban areas. However, during the 1970's a migration back to the country or at least out of the city centers began. During this time the rural population grew as rapidly as the urban population. Looking specifically at rural counties around the nation's forests, the Forest Service reported a population growth rate of 25 percent, which was higher than the growth rate for the nation as a whole (NW/UFPC 1987).

So in 1987, there is a continuing increase in the population, and an increasing tendency for individuals to want to move from city centers to more suburban or rural settings. Having our dream homes away from city centers, places increased pressure on wildland fire managers on how to effectively deal with an issue that 30 to 40 years ago was much more limited in scope. It also places increased pressures on local governments to provide services, particularly fire protection, at a

¹Presented at the Symposium on Wildland Fire 2000, April 27-30, 1987, South Lake Tahoe, California.

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level that wasn't necessary in the past. A good example of this can be found in Virginia where between 1979 and 1984 there was a 75 percent increase in the number of homes built in areas that had wildland fire potential (NW/UFPC 1987). Examples such as this can be found throughout the United States, in New Jersey, Massachusetts, Florida, Nevada, and California. As we look ahead to the year 2025, population projections indicate that there will be approximately 306 million people in the United States. That is an increase of about 36 percent (Bogue 1985). This same rate of growth is projected for Canada which also faces serious problems in relation to the wildland/urban interface. If we can assume that the trend will continue for the increase of population in suburban and rural areas adjacent to the nation's forests, I think we can anticipate more conflagrations such as those in 1985 in Florida and California, and I believe that we can anticipate them becoming more severe.

Another factor to keep in mind when looking at population increase is that over 90 percent of wildland fires are human-caused. With everything staying the same we can anticipate the number of fires increasing at a similar rate. The more fires that have to be dealt with, the greater the likelihood for large catastrophic fires to develop.

So what role do wildland fire managers play in this complex issue of the wildland/urban fire problem? What can be done as we move into the 21st century to minimize the losses from the inevitable fires that will occur?

I suggest that you wildland fire managers, researchers, and educators need to look at the "whole fire problem." You can not isolate yourselves into dealing with only the "pure" wildland fire situation.

The wildland/urban fire protection problem needs to be given the same importance as prescribed fire, smoke management, and wilderness fire. It is not scientifically as nice a package to work on, but expertise in fire detection, fire behavior, fire modeling, and large scale fire management are all areas that need to be addressed in relation to the wildland/urban fire problem.

In the 1970's some excellent work was accomplished by the combined efforts of Federal, State and local fire agencies on the FIREScope project. FIREScope for the first time applied

integrated information technology to the fire line and blurred the distinction between urban and wildland fires (Pyne 1982). It was a significant effort that was brought about by a series of catastrophic fires. Unfortunately, it will probably take another event of even greater magnitude to direct the resources and talent to again address this problem with the same level of commitment. What took place in California during the FIREScope project really needs to take place across the United States. An effort to improve local fire fighting capabilities by integrating both wildland and urban fire fighting forces so that they are able to effectively work together to prevent and suppress wildland/urban fires. Efforts must also be made to encourage the utilization of more fire resistive construction techniques and the better designing of communities to minimize their exposure to fire. The use of fuel breaks and other methods of modifying ground fuels near structures must be encouraged.

In many cases this information is currently available, but effective methods for the adoption by local regulatory authorities, or even effective methods for developing awareness among property owners as to the benefits for following such guidelines are not available on a widespread basis. I believe an effort must go forward to develop historical fire and meteorological data that will identify the fire probability in a given area similar to what is done with 50 or 100 year flood designations. With that information local officials can then make decisions based on real data. Currently decisions have to be based on what local fire officials think is the problem.

What will the 21st century be like for wildland fire managers? Well, I am going to take an optimistic view and say that significant strides will have been made. A new attitude will prevail concerning fire. However, this attitude will not have come about just because of a newly enlightened citizenry. Unfortunately, as has been the history in the United States a catastrophic event will have occurred sometime between now and the year 2000. This event quite possibly will be in the eastern portion of the United States and will be our Ash Wednesday--the series of fires in Australia in 1983 that caused 77 deaths, destroyed 2528 homes and burned more than 840,000 acres. From this event, citizens will clamor for better protection, politicians will see the value in leading the way, and finally a concerted effort, FIREScope Part II will be underway. From this will come evidence that

fire fighting organizations, both wildland and structural, must work together to be effective. The development of a well funded, nationally coordinated, fire prevention program will begin. Better detection methods. improved fire suppression techniques and equipment will be developed. Local communities will adopt stricter regulations concerning building, design, use of fuel breaks, and combustible roof coverings. Citizens will become more involved in neighborhood organizations to assist in fire prevention and in taking more responsibility for their own protection.

At this point, I would like to look into the future and develop a short scenario that would look at wildland/fire management in the wildland/urban interface in the year 2025.

A North American Fire Forecasting and Coordination Center has been established jointly with Canada. At this center, potential conditions throughout North America are continually monitored. Predictive models have been developed that allow fairly accurate forecasting up to 90 days before the development of high or extreme fire conditions.

As specific areas indicate the possibility of severe fire conditions developing a National Fire Prevention Coordinating Team is activated. This team will go into an area and assist local fire officials in implementing intensive fire prevention awareness campaigns targeted at the immediate problem. One of the tools they will use is the Ignition Management Plans that have been developed locally. These plans will identify the areas and the audiences that fire prevention information must be targeted. This process evaluates three factors, risk, hazard and value. Subsequent prevention programs can then be focused on the potentially more damaging ignition problems.

The Forecasting and Coordination Center will continue to update the data being received by satellite and from field stations, to continually refine their forecasts. As the severe fire conditions become reality, specialized equipment and personnel will be brought in to augment local fire suppression forces.

One of the key pieces of equipment will be the specially designed short-takeoff and landing aircraft that does not need to work from airports, but can be located in the targeted area. Operating with a ground tender the

aircraft has a 1000 gallon capacity, and uses a foam concentrate for increased effectiveness.

Again as the fire weather severity increases, the movement of equipment and personnel is further concentrated to areas with the highest risk of ignitions. A Cray Computer is used to maintain seven major data bases; (1) equipment and personnel inventories from throughout North America current to the hour; (2) fire history to the hour; (3) lightning location data to the second; (4) historical, current and forecasted weather; (5) fire weather indices; (6) fuel types and topography to 50 meter grids; (7) and a fire modeling system that immediately starts modeling any ignitions as soon as they are reported. With this information, limited fire suppression forces are concentrated in areas that are most susceptible for ignitions and also present the greatest values at risk.

Along with the adoption of better community designs, better building materials and a public with an increased awareness of the need for fire prevention, the wildland/urban interface problem is controlled to an acceptable level.

In conclusion, I would like to point out that the items discussed in this scenario, although speculative, are all available to some degree now. Russ Johnson (1987) of the San Bernardino National Forest has developed a proposal for a National Fire Prevention Mobility team. The ignition management planning process has been developed by Bill Bradshaw, Bill Smith, and Jim Page (1987) of the Forest Service, U.S. Department of Agriculture. The decision support system has been developed by the Canadian Forestry Service and is currently being used on a trial basis in some parts of Canada.

I urge wildland fire managers, researchers, and educators to keep in mind the issues of the wildland/urban interface. If ignored, they will over take you at some point. It is necessary to get out and develop relationships with your colleagues in the structural side of the fire business, and it will only be through the extensive development of cooperation that this problem can be addressed. Improved methods also have to be found to implement the excellent work that has already been done.

I am optimistic that as we go forward, this serious fire problem will be minimized.

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