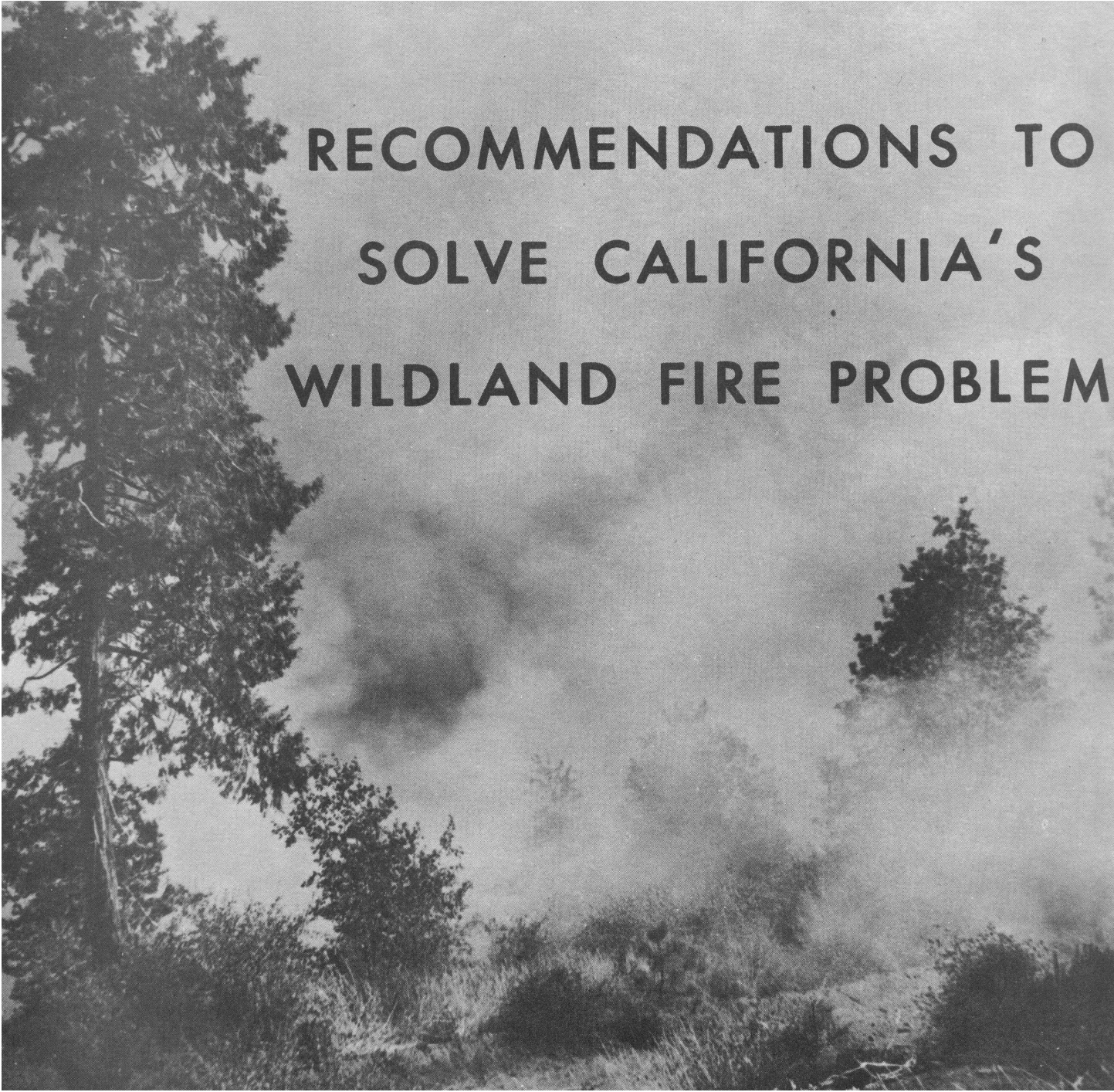




RECOMMENDATIONS TO SOLVE CALIFORNIA'S WILDLAND FIRE PROBLEM



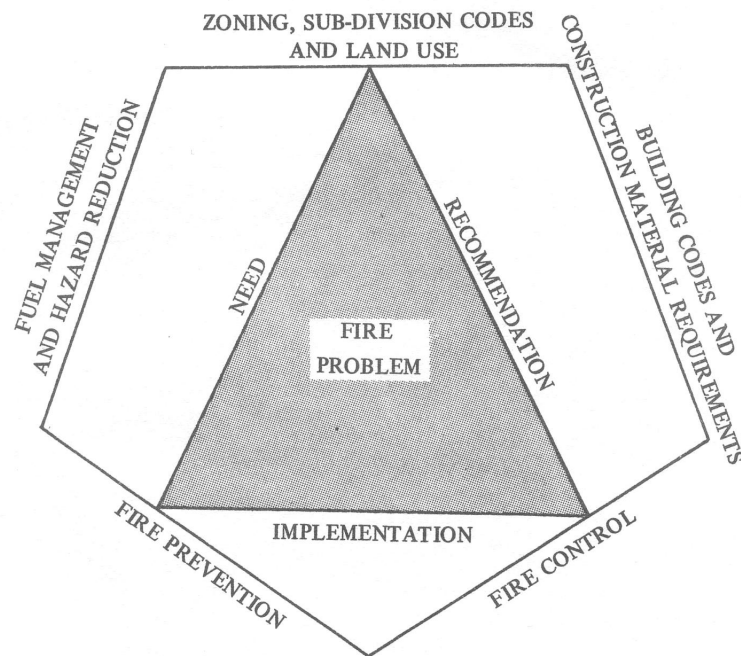
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION
DIVISION OF FORESTRY

State of California
Resources Agency
Department of Conservation

Ronald Reagan
Governor
State of California

Norman B. Livermore, Jr.
Secretary
Resources Agency

**RECOMMENDATIONS TO SOLVE
CALIFORNIA'S WILDLAND FIRE PROBLEM**



Submitted by
Task Force on California's Wildland Fire Problem
to
Norman B. Livermore, Jr., Resources Agency Secretary
June 1972

James G. Stearns
Director
Department of Conservation

Lewis A. Moran
State Forester
Division of Forestry

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PREFACE

During a 13-day period in 1970, wildfires throughout California destroyed the protective vegetative covering on nearly 580,000 acres of wildland ' consumed 722 homes, and damaged thousands of other structures. Sixteen lives were lost.

While wildfires were exceedingly destructive in 1970, large fires occur almost every year in California. The state has a wildland fire problem that is unique in the world.

To develop recommendations for solving the state's fire problem, Secretary for Resources Norman B. Livermore, Jr., asked Director James G. Stearns of the Department of Conservation to form a Task Force on California's Wildland Fire Problem. The Task Force's objectives are fulfilled in this report: To summarize California's wildland fire problem and to recommend legislative or administrative actions that should be taken to cope with the problem.

The Task Force asks the reader to study this report and give active support toward implementing its recommendations. The Task Force particularly desires that the report be read and acted upon by wildland fire protection agencies and by the members of the State Legislature, County Boards of Supervisors, and County Planning Commissions.

SUMMARY OF RECOMMENDATIONS

Wildland fires continue to take an intolerably heavy toll of life and property in California despite advances in technology and firefighting effectiveness.¹ Much of the destruction by wildfire² occurs within a few critical days each year when air temperature soars, relative humidity drops to near zero, and wind velocity increases to 50 miles per hour and more.

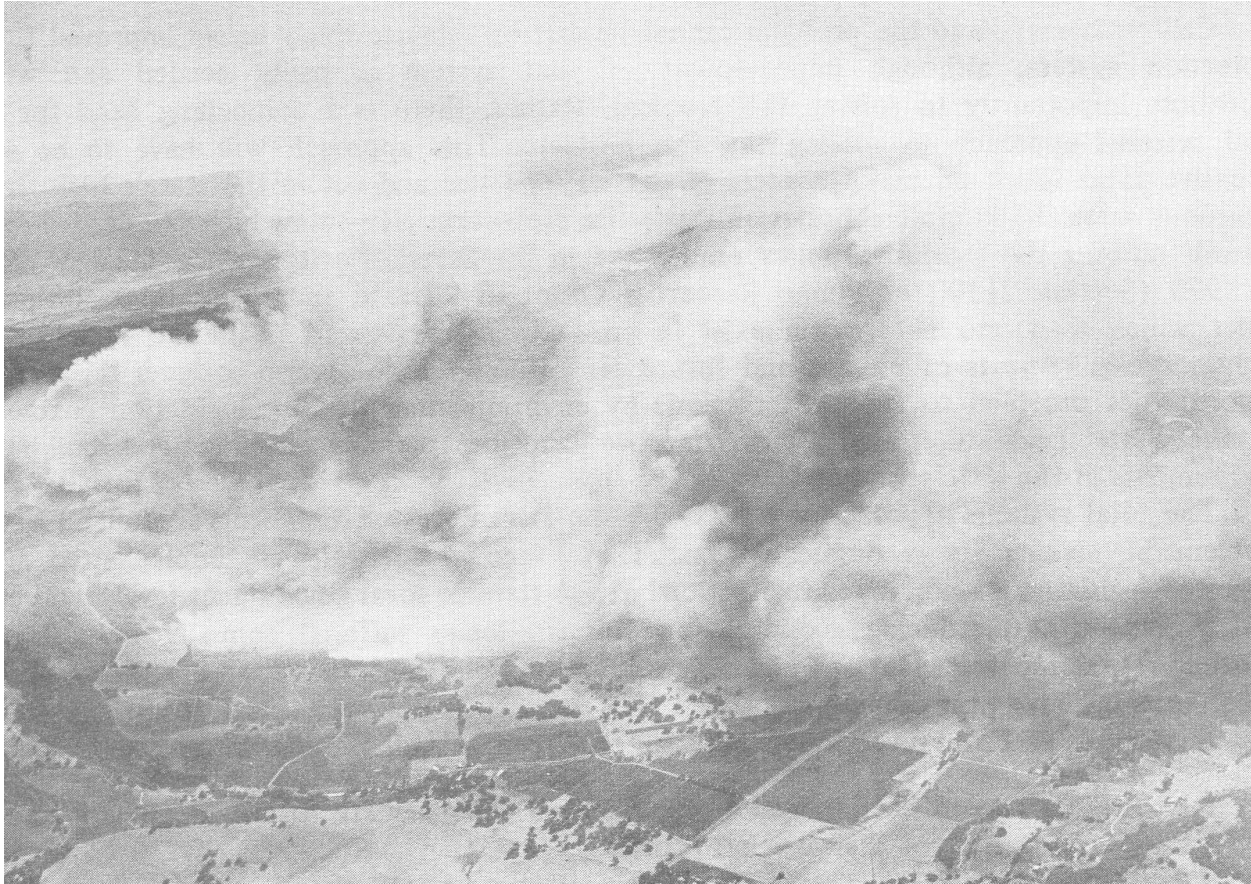


Figure I - Annually, about 10,000 wildfires take an intolerably heavy toll of life, property, and natural resource values in California. Photograph courtesy of *Santa Rosa Press-Democrat*.

Under these conditions wildland fires start easily and spread rapidly. In 1961 the Bel Air Fire swept out of the Santa Monica Mountains into the Bel Air-Brentwood area, destroying 484 residences and 21 other buildings in less than two days. In 1964 the Hanley, Nuns Canyon, and Roadside No. 42 Fires raced through a total of 71,601 acres of heavy brush and timber into the cities of Santa Rosa, Calistoga, Napa, and Boyes Hot Springs, consuming a total of 306

¹ The term "wildland" refers to mountains and hills in an uncultivated, more or less natural state, and covered by timber, woodland brush or grass.

² A "wildfire" is uncontrolled fire burning in wildland vegetation, structures, and other improvements.

residences and other structures within five days of critical fire weather. In November 1966 the

Loop Fire started near the City of Los Angeles and spread over 2,028 acres of valuable watershed area in 32 hours; in just one minute of that period, the fire flashed up a narrow canyon and killed 12 experienced firefighters. In 1970, within a 13-day period of extreme weather conditions, fires raged through more than half a million acres of brush and timber covered wildlands from one end of California to the other; these fires moved rapidly into adjacent urban areas, destroying 722 homes and taking the lives of 16 people. These and many similarly destructive fires have occurred in California over the years despite the state's having the best financed and most effective wildland fire protection organization in the world.

California's wildland fire problem cannot be met by reliance solely on an improved fire protection system, although improvement of that system is badly needed and will contribute importantly to solving the problem. Rather, there is a compelling need for a total systems approach to solving the fire problem. This approach will have to be so extensive as to touch on major aspects of the way we live and act in the state's high fire hazardous areas.³ It must consider all those fire protection elements which can contribute toward fulfilling the legislative policy enunciated in the State's Environmental Quality Act of 1970 (Section 21100 of Public Resources Code) to "Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations." It must also consider the many opportunities provided to local governments by environmental planning legislation enacted by the State Legislature in 1971 to improve land use planning, zoning, and building requirements in the state's wildlands.

The total systems approach was taken by the Task Force on California's Wildland Fire Problem in making its recommendations. These recommendations, if implemented by suggested legislative or administrative actions at the state or local government levels, will go a long way toward reducing economic and human losses suffered annually because of wildfires. These recommendations and suggestions for their implementation are discussed in more detail beginning on page 16.

In the area of **Fire Prevention**, the Task Force recommends that we must:

- A1. Provide fire protection standards for local governments to use in preparing the safety element of their general plans.
- A2. Devise a formalized "Wildland Fire Hazard Alert" system for alerting and activating wildland fire protection agencies whenever critical fire weather is predicted..
- A3. Help solve the incendiarism problem by improving present law enforcement and investigation equipment, adapting equipment available in other fields, and developing new equipment where needed.
- A4. Enlist the aid of courts, prosecuting attorneys, and the general public to make present laws more effective in dealing with the problems of illegal use of fire and fire-causing practices.

³ "High fire hazardous areas" are those wildland areas where the combination of vegetation, topography, weather, and the fire threat to life and property creates most difficult fire problems.

- A5. Suspend all debris burning operations and alert the public to the potential risk for wildfire from any cause during critical fire weather.
- A6. Curtail all off-the-road use of machines and mechanical or power-driven equipment during critical fire weather.
- A7. Provide fire prevention personnel in numbers that are adequate to properly inspect wildland structures and activities and to make personal contacts with wildland residents and other users, especially during critical fire weather.
- A8. Intensify mobile fire prevention patrols immediately before and during critical fire weather.
- A9. Improve power line inspections.
- A10. Urge all power utility companies to institute special operating instructions for their field personnel during critical fire weather.
- A11. Request all power utility companies to make underground installations of relatively low voltage transmission and distribution lines in high fire hazardous areas.
- A12. Determine the specific causes and locations of roadside fires.
- A13. Establish an ad hoc Fire Prevention Action Committee to coordinate implementation of these fire prevention recommendations.

In the area of **Fuel Management and Hazard Reduction**, the Task Force recommends that we must:

- B1. Prepare hazard reduction standards for wildland subdivisions.
- B2. Encourage land management agencies to use prescribed burning techniques to selectively reduce fuel hazards consistent with management objectives and laws and with due concern for environmental quality.
- B3. Provide standards for locating and constructing fuelbreaks and greenbelts.
- B4. Increase the number of men available for building fuelbreaks and other fire control facilities.
- B5. Urge fire prevention organizations to give increased emphasis to fuel management and fuel hazard reduction.
- B6. Investigate current insurance practices covering prescribed burning operations on privately owned wildlands and determine the fiscal liability of private individuals for costs of suppression and damages in the event of the escape of a prescribed fire.
- B7. Determine the legal responsibility of public fire protection agencies for fuel hazard reduction on private lands.
- B8. Demonstrate fuel management techniques in high fire hazardous areas.
- B9. Implement fuel management programs in the California State Park and Recreation System for fire prevention and hazard reduction purposes.
- B10. Urge county road departments to implement fuel hazard reduction programs for all county-maintained roads located in high fire hazardous areas.
- B11. Strengthen legal requirements for clearance of hazardous wildland fuels adjacent to structures beyond property lines.
- B12. Strengthen research and action programs related to "fire resistant" plants.
- B13. Find new ways of controlling brush growth.
- B14. Synthesize and summarize all fuel management and hazard reduction

information for all wildland vegetative types in California and recommend action programs for each type.

- B15. Establish an ad hoc Fuel Management and Hazard Reduction Action Committee to coordinate implementation of these fuel management and hazard reduction recommendations.

In the area of **Zoning, Subdivision Codes and Land Use**, the Task Force recommends that we must:

- C1. Provide guidance and technical assistance to local governments in their efforts to integrate a wildland fire protection element into their general plans.
- C2. Provide local governmental planning professionals an environmental resource data system and consulting assistance in natural resource protection and management fields.
- C3. Require local government to consider land use capability in terms of fire and other natural hazards.
- C4. Strengthen the State Planning Law to provide for better wildland use regulations and better fire protection, particularly in regards to "lot splitting" in fire hazardous wildlands.
- C5. Make land developers responsible for providing a fuel management program consistent with wildland fire protection requirements in the interim period between individual lot sales and residence construction.
- C6. Require that firefighting equipment be provided access to water contained in all privately-owned swimming pools located in or adjacent to the wildlands for onsite fire protection.
- C7. Establish an ad hoc Fire Protection in Land Use Planning Action Committee to coordinate implementation of these zoning, subdivision codes, and land use recommendations.

In the area of **Building Codes and Construction Material Requirements**, the Task Force recommends that we must:

- D1. Offer to local governments standards for building location and density in the wildlands.
- D2. Require that all buildings constructed in high fire hazardous wildland areas comply with specifications in six specific areas of concern to reduce the chances of wildfire spreading from burning wildland vegetation to the buildings.
- D3. Develop standards for numbering buildings located in the wildlands.
- D4. Establish an ad hoc Building Construction Action Committee to coordinate implementation of these building code and construction material requirements recommendations.

In the area of **Fire Control**, the Task Force recommends that we must:

- E1. Develop a fire command structure for controlling fire suppression operations on conflagrations spreading through the jurisdictions of several fire protection agencies.
- E2. Update the Federal Rural Fire Defense Plan to recognize recent changes in state and federal wildland fire protection legislation.

- E3. Update the State Fire Disaster Plan to recognize changing needs and new legislation related to the Office of Emergency Services.
- E4. Improve firefighting communications systems to meet multi-agency needs, especially during large fire situations.
- E5. Develop new equipment and techniques to increase the effectiveness of the individual firefighter or to replace manpower.
- E6. Develop and test new techniques to improve the tactical use of organized firefighting forces, including the use of the modular "Task Force."
- E7. Improve the utility of state and federal military forces on conflagration fires.
- E8. Provide standards for road construction in the wildlands adequate for fire protection requirements.
- E9. Develop standards for water supply required for fire protection in the wildlands.
- E10. Establish an ad hoc Fire Control Action Committee to coordinate implementation of these fire control recommendations.



Figure 2 - Local governments require technical assistance in preparing safety plans which will establish the conditions under which California' s wildlands can be developed for residential and recreational use.

CALIFORNIA' S WILDLAND FIRE PROBLEM

California experiences large, destructive wildland fires almost every year, a situation that is unique in the world. The state' s continuous expanses of highly flammable brush and other vegetation, rugged terrain, long and summers, dry north and east winds during the critical part of the year, and a population that insists on seeking living space and recreation in nature' s beautiful but flammable and hazardous wildland, all add up to a recipe for fiery disaster.

The state' s geography contributes much to the fire problem. California is third in size among the states, only Alaska and Texas being larger. Its 158,693 square miles is roughly equivalent to the area of the eight northeastern states (including Pennsylvania but not New Jersey) or the combined area of Illinois, Indiana, Ohio, and West Virginia. From Oregon to Mexico, California stretches more than 700 latitudinal miles, roughly equal to the distance across Illinois and Wisconsin or from the south border of Georgia through Maryland. The state' s west coast enjoys the cooling influence of the Pacific Ocean; to the east it faces the dry deserts of the Great Basin - indeed, nearly a quarter of the state' s land area is desert.

This large land area, complicated by a rugged mountainous terrain, often means long travel time for firefighters responding to wildland fires and complicates the problem of containing wildfires in their initial stages. It also means a wide range of climatic and vegetative types, varying from the moist redwood forests of northwestern California to the dry Colorado Desert mesquite in the southeastern part of the state. While one section of the state may be experiencing a raging wildfire under hot and dry conditions, another part may be receiving rain or snow or be bathed in coastal fog.

The wildland fire problem is reflected in the budgets of those governmental agencies responsible for protecting the state' s 61 million acres of wildland from fire. Each year about one-third the total expenditure for fire protection on privately-owned wildlands in the United States is by state and local governments or private parties in the State of California. In addition, the U. S * Forest Service allots about 40 percent of its nationwide budget for fire protection to the National Forests in California. To understand the necessity of these expenditures, one must understand the elements that contribute to the start and spread of wildfires in California and also recognize the threat that such wildfires pose to life, property, and natural resource values.

Forest, brush, and grass fires bum according to a complex set of physical and chemical laws. The principal ingredients are fuel (the living and dead vegetation that covers the wildlands), topography, and weather.

Fuels

Only 14 percent of California' s land area is occupied by cities or by agricultural crops. Another 25 percent is in desert or in barren mountain areas high above timberline. The remaining wildland, some 61 percent, is mountains and hills covered by timber, woodland, brush or grass. All this wildland vegetation reaches some degree of flammability during the dry summer months and, under the right weather conditions, during the winter months.

The drier the fuel, the more readily fires ignite and spread. The greater the

accumulation of dead fuels in proportion to living fuels, the greater will be the fire's intensity.

Adding to the complexity of the wildland fire problem are the many subdivisions, individual homes, and recreational developments located in the hills and mountains. People build homes there because it is more attractive than living in large urban areas. Unfortunately, despite recent efforts by state and local governments to impose fire safety regulations on such homesites, wildland residents rarely prepare for the inferno that can sweep through the volatile brush and timber and destroy their homes in minutes. More often than not, the firefighter finds himself having to protect lives and homes while the wildfire's perimeter spreads rapidly out of control, involving many additional structures. The problem is a major one, commonly faced in California but only rarely experienced elsewhere in the world.

Topography

California's rugged topography has considerable effect on wildland fire behavior and on the ability of firefighters and their equipment to take suppression action on those fires.

The northern two-thirds of the state has much steep and mountainous terrain. The Great Central Valley forms the only major area of flat land in the state. To the east of the Valley lie the Cascade and Sierra Nevada Ranges, rising to more than 14,000 feet; to the west are the lower mountains of the Coast Ranges which continue into southern California. The mountains are slashed by deep canyons with near vertical sides, often rising 2,000 feet or more to the ridges.

This rough topography greatly limits road construction and road standards, and hence accessibility by ground equipment. Initial attack ⁴travel time from suppression station⁵ to fire may often exceed two hours or more by road and trail.

Such rough topography also channels air flow, creating extremely erratic winds on lee slopes and in canyons. Fire starting in the bottom of a canyon may rush quickly to the ridge and become large - before initial attack forces can arrive - simply because of topography.

Fire Weather

California's Mediterranean climate (cool, moist winters followed by long, dry summers) is the delight of tourists but the bane of wildland firefighters. Total winter precipitation (snow and rain) is greatest in the northern part of the state and in the high mountains where timber grows. Rainfall decreases sharply with a drop in elevation from the mountains to the lower foothills and valleys; it also decreases latitudinally from northern to southern California. The lesser rainfall supports a growth of brush in the foothill areas of northern California and throughout most of southern California. The long summer period of little or no precipitation is accompanied by relatively high temperatures and low humidity (dry air) away from the immediate coastline. The long rainless periods, heat, and dry air draw moisture out of the large accumulations of dead fuel and place living vegetation under increased moisture stress.

⁴ -initial attack" refers to the first firefighting forces that arrive at a wildfire for the purpose of controlling (or "suppressing") the fire.

⁵ "suppression station" is a strategically located facility where firefighting forces are regularly assigned, awaiting "dispatch" to a wildfire. It is similar to the "fire house" of the urban structural fireman.

The most important weather element is wind. It supplies fresh oxygen to a wildland fire; bends flames forward into new fuels so that fire spreads more quickly; and carries burning brands perhaps miles ahead of the main front so that the fire advances in a leap-frog fashion.

The prevailing wind in California generally blows from west to east, bringing marine air from the Pacific Ocean to the interior valleys and coastal mountains. This general wind pattern is modified locally by topography. Occasionally, and especially between September and May, a high pressure ridge of air may move inland over the Great Basin area while a low pressure trough lies along the length of California. At these times air flow is reversed, with the wind blowing generally from east to west in southern California and from northeast to southwest in northern California. Dry air moves from the high, inland plateau at great speeds, often exceeding 100 miles per hour through the mountain passes. As the air descends to the coast, it also warms and becomes even drier, desiccating the wildland fuels. Air temperature rises sharply along the coast. In southern California these easterly winds are given a special name: "The Santa Anas" or "Devil Winds."

Occurrence of the dry north or east winds in combination with a winter drought can mean a 12-month wildland fire season in parts of California. This occurs rather commonly in southern California where firefighters sometimes spend Christmas on the fireline.

In their potential effect on the start and spread of wildland fires, these weather elements are commonly unfavorable in California. Destructive forest, brush, and grass fires occur almost every year. Although such fires can and do happen in every month of the year, the most crucial part of the fire season is generally from May through November. During a relatively few days of that period, fuel and weather conditions are often so critical that small fires frequently escape initial attack and become large, destructive conflagrations.⁶ With increasing frequency these conflagrations threaten and destroy not only natural resource values, but also life and property.

During the ten year period, 1960-69, 118 large wildland fires (300 acres or larger) destroyed over 2,000 structures. Major structural losses occurred in 1961 in the Harlow Fire (Mariposa and Madera Counties) and in the Bel Air Fire (Los Angeles County); in the North Coast and Santa Barbara fires of 1964; again in the North Coast in 1965; and in southern California in 1967. Most of these destructive fires occurred during a few days of especially **critical fire weather dominated by high velocity wind.**

THE 1970 DISASTER

From September 22 to October 4, 1970, fire raged through more than half a million acres of brush and forest covered wildlands in California. These were 13 days of uncontrolled flames which killed people, consumed hundreds of homes built in or on the edge of the wildlands, and damaged thousands of other structures.

The 1970 fire disaster was unique in modern times, primarily in terms of the geographical area involved, the total acreage burned, the wildland-urban nature of the fires, the large number of homes completely destroyed, and the large number of agencies, people, and equipment involved. Control of California's 1970 catastrophe depended upon the nationwide strength of the United States Forest Service, the statewide strength of the California Division of Forestry, and the execution of California's State Fire Disaster Plan under which men and equipment from many communities converged upon the various fires and provided assistance to local firefighting forces.

These were 13 days of severe peril and trial to the people of California. It was a time of extreme drought - little or no rain had fallen since mid-March. A time of low humidity - usually below 10 percent and occasionally only 1 and 2 percent. A time of heat - temperatures soared above 100 degrees for several days on end. A time of strong, gusty winds - they blew for most of the 13 days, frequently at speeds up to 80 miles per hour. During this time 773 separate wildfires burned nearly 580,000 acres of grass, brush, and timber covered wildlands throughout California. The burned area equaled a strip of land about 1.2 miles wide stretching diagonally from the Oregon border to the Mexico border. The fires completely destroyed 722 homes as they burned from the hills into urban communities and isolated clusters of buildings. Sixteen lives were lost, attributed directly to the fires. Suppression costs and structural damages together were estimated at \$233 million dollars. Potential downstream damage by winter floods and erosion could add many millions of dollars in damage.

TASK FORCE ON CALIFORNIA'S WILDLAND FIRE PROBLEM

Secretary for Resources Norman B. Livermore, Jr., assigned to the Department of Conservation the responsibility of developing a response to the state's wildland fire problem as illustrated by the September - October 1970 disastrous fires in California. Director of Conservation James G. Stearns was requested by Secretary Livermore to form and head a Task Force on California's Wildland Fire Problem. This Task Force was charged with identifying the wide array of factors considered to be most instrumental in contributing to the wildland fire problem and with recommending action programs to mitigate those factors in the future. The Task Force was requested to report to Secretary Livermore by July 1, 1971. The Task Force's objectives were as follows:

- (1) Explore the reasons why the 1970 wildland fires caused so much damage to homes, resources, and lives.
- (2) Develop recommendations to minimize future damages from fires burning under similar conditions.
- (3) Describe procedures to implement the Task Force's recommendations.

State Forester L. A. Moran was requested by Director Stearns to act as chairman of this Task Force. The initial meeting of this group was held in Sacramento on January 21, 1971. Task Force members included:

Lewis A. Moran, State Forester, Chairman
California Division of Forestry

Clinton B. Phillips
Assistant Deputy State Forester
Recorder and Executive Secretary
California Division of Forestry

Ralph Andersen
League of California Cities

Albert E. Hole
State Fire Marshal

Karl Baker
Assistant Agricultural Commissioner
San Diego County Department of Agriculture

Walter Meagher, Division Chief
Los Angeles County Fire Department

Raymond Banks, President
California Rural Fire Association
State Forest Ranger, Tulare Ranger Unit
California Division of Forestry

Robert L. Miller, President
California Fire Chiefs Association
Chief, Marysville Fire Department

Richard Barrows, Chief
Fire and Rescue Division
California Office of Emergency Services

Howard Moore, Deputy. State Forester
California Division of Forestry

Harry Bigglestone, Chief Engineer
Public Protection Engineering Dept.
Insurance Services Office

Ray Murphy, Visitor Protection
Specialist
U. S. National Park Service

Robert A. Dellberg
U. S. Soil Conservation Service

Neil Pfulb, Planning Director
San Bernardino County

Normal Farrell, Assistant Regional Forester
United States Forest Service
Region 5 Headquarters

E. "Pete" Thompson
Deputy Chief
Los Angeles City Fire Department

Donald G. Halsey, Resources Manager
Bureau of Land Management

Carl C. Wilson, Assistant Director
Pacific Southwest Forest and Range
Experiment Station
United States Forest Service

Kenneth D. Harp, Chief
Kings County Fire Department

John Hastings, Deputy State Forester
California Division of Forestry

Don Woolfe, Planning Director
Tulare County

Dr. John A. Zivnuska, Dean
School of Forestry and Conservation
University of California at Berkeley

At the January 21 meeting, five subcommittees were appointed, as follows (subcommittee members and the organizations they represented are listed in the Appendix):

(1) **Fire Prevention**, Chairman Howard Moore, Deputy State Forester, California Division of Forestry. Charged with studying those fire problem factors related to the start and initial spread of wildland fires and to the enforcement of fire laws, regulations, and ordinances.

(2) **Fuel Management and Hazard Reduction**, Chairman Carl Wilson, Pacific Southwest Forest and Range Experiment Station, U. S. Forest Service. Charged with studying those fire problem factors related to the characteristics of flammable wildland vegetation and to techniques for managing the vegetation so as to reduce the rate of spread and the intensity of wildland fires.

(3) **Zoning, Subdivision Codes and Land Use**, Chairman Don Woolfe, Planning Director, Tulare County. Charged with studying those fire problem factors related to man's use of California's wildlands, including subdivision of the wildland for residential and other developmental purposes.

(4) **Building Codes and Construction Material Requirements**, Chairman Al Hole, State Fire Marshal. Charged with studying those fire problem factors related to the siting and construction of homes and other structures in the wildlands.

(5) **Fire Control**, Chairman John Hastings, Deputy State Forester, California Division of Forestry. Charged with studying those fire problem factors related to wildland firefighting organization, tools, and techniques.

The Task Force subcommittees explored the reasons for the widespread damages caused by the 1970 wildland fires and identified the most important factors as "Needs" (Objective No. 1). Each "Need" was then answered by a "Recommendation" for remedial action (Objective No. 2) and a procedure for "Implementation" of each recommendation (Objective No. 3). For the most part, these "Needs" and "Recommendations" were above and beyond current operational practices being performed by the various agencies involved in the areas of concern.

Following are the Task Force's recommendations resulting from the subcommittee reports. These recommendations are summarized in the accompanying table which shows both the public agencies assigned to assist with implementing each recommendation and the agency which will direct or lead specific implementation actions.

SUMMARY OF RECOMMENDATIONS TO SOLVE CALIFORNIA'S WILDLAND FIRE PROBLEM

No.	RECOMMENDATION BRIEF DESCRIPTION	Page No.	Due Date	Agencies Participating in Remedial Action Programs*																								Method of Implementation									
				BLM	CCA	CCPDA	CDCS	CDF	CDH	CDRC	CFB	CFCA	CPR	CRFA	DC	ICBO	ISO	KCFD	LACFD	LAFD	NPS	NWS	OES	PGE	SBC	SCE	SDC	SFM	SR	UCB	UCD	US-PSW	US-R5	WRAC	Legislative	Administrative	Cooperative
A1.	<u>FIRE PREVENTION</u> Provide fire protection standards for local governments.	19	3-1-73					X																								X					X
A2.	Devise a "Wildland Hazard Alert" System.	19	10-1-72					X									X	(X)			X										X				X		
A3.	Provide proper equipment to solve incendiariism problem.	20	11-1-72					(X)									X	X													X				X		
A4.	Make more effective use of laws to curb incendiariism.	21	9-1-72					(X)									X	X													X					X	
A5.	Suspend debris burning during critical weather.	22	12-1-72					X									X	X			X								X			(X)				X	
A6.	Curtail equipment use during critical weather.	23	10-1-72					X									X	X			X											(X)				X	
A7.	Provide adequate number of fire prevention personnel.	24	10-1-72					(X)						X																						X	
A8.	Intensify fire prevention patrols during critical weather.	24	10-1-72					X									X	X			X											(X)				X	
A9.	Improve power line inspections.	25	10-1-72					(X)									X	X														X				X	
A10.	Improve power utility operations during critical weather.	26	12-1-72					X									X	X															X			X	

*Participating agencies are shown on last page of Summary (Coordinating agency indicated by (X)).

SUMMARY OF RECOMMENDATIONS TO SOLVE CALIFORNIA'S WILDLAND FIRE PROBLEM (Cont.)

No.	RECOMMENDATION BRIEF DESCRIPTION	Page No.	Due Date	Agencies Participating in Remedial Action Programs*																												Method of Implementation																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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A11.	<u>FIRE PREVENTION</u> Install low voltage transmission lines underground.	26	11-1-72				X															X			(X)							X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

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SUMMARY OF RECOMMENDATIONS TO SOLVE CALIFORNIA'S WILDLAND FIRE PROBLEM (Cont.)

No.	RECOMMENDATION BRIEF DESCRIPTION	Page No.	Due Date	Agencies Participating in Remedial Action Programs*																								Method of Implementation									
				BLM	CCA	CCPDA	CDCS	CDF	CDH	CDRC	CFB	CFCA	CPR	CRFA	DC	ICBO	ISO	KCFD	LACFD	LAFD	NPS	NWS	OES	PGE	SBC	SCE	SDC	SFM	SR	UCB	UCD	US-PSW	US-R5	WRAC	Legislative	Administrative	Cooperative
B6.	<u>FUEL MANAGEMENT & HAZARD REDUCTION</u> Investigate liability insurance requirements for prescribed burning.	31	10-1-72	(X)			X									X		X								X		X		X					X		
B7.	Determine legal role of public agencies in prescribed burning on private land.	32	10-1-72				X				X					X		(X)	X									X		X				X			
B8.	Demonstrate fuel management techniques.	32	12-1-72	X			X				X					X		X	X										(X)		X				X		
B9.	Implement fuel management program in State Park & Recreation System.	33	12-1-72				X				(X)									X								X		X		X			X		
B10.	Implement hazard reduction programs on county roads.	34	10-1-72				(X)																					X			X		X			X	
B11.	Strengthen requirements for hazard reduction around structures.	34	11-1-72				X									(X)												X			X		X			X	
B12.	Strengthen research in "fire resistant" plants.	35	10-1-72	X			X										X											X			X		(X)			X	
B13.	Find new ways of controlling brush growth.	35	10-1-72	X			X										X			X								X			X		(X)			X	

*Participating agencies are shown on last page of Summary (Coordinating agency indicated by (X)).

SUMMARY OF RECOMMENDATIONS TO SOLVE CALIFORNIA'S WILDLAND FIRE PROBLEM (Cont.)

No.	RECOMMENDATION BRIEF DESCRIPTION	Page No.	Due Date	Agencies Participating in Remedial Action Programs*																												Method of Implementation						
				BLM	CCA	CCPDA	CDCS	CDP	CDH	CDRC	CFB	CFCA	CPR	CRFA	DC	ICBO	ISO	KCFD	LACFD	LAFD	NPS	NWS	OES	PGE	SBC	SCE	SDC	SFM	SR	UCB	UCD	US-PSW	US-R5	WRAC	Legislative	Administrative	Cooperative	
B14.	FUEL MANAGEMENT & HAZARD REDUCTION Summarize fuel management & hazard reduction information & recommend action programs for each vegetation type.	35	2-1-73			X										X										X			X	X	X				X			
B15.	Establish a Fuel Management & Hazard Reduction Action Committee.	36	6-1-72										X																						X			
C1.	ZONING, SUBDIVISION CODES, LAND USE Help local governments establish wildland fire protection standards.	37	11-1-72			X	X																						X							X		
C2.	Provide resource data & fire protection consulting help to local governments.	38	12-1-72			X	X																						X							X		
C3.	Require local government to consider land use in terms of fire & other hazards.	39	11-1-72			X	X																												X			
C4.	Strengthen State Planning Law to provide for better fire protection.	42	12-1-72			X	X																												X			

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SUMMARY OF RECOMMENDATIONS TO SOLVE CALIFORNIA'S WILDLAND FIRE PROBLEM (Cont.)

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C5.	ZONING, SUBDIVISION CODES, LAND USE Require land developers to provide an interim fuel management program.	43	12-1-72			X	(X)	X	X			X					X						X					X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</

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E1.	<u>FIRE CONTROL</u> Develop a fire command structure.	49	11-1-73	X				X				X						X		X		X										X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</

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E10	<u>FIRE CONTROL</u> Establish a Fire Control Action Committee	55	6-1-72																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</

*Participating agencies (coordinating agency indicated by (X)):

BLM: U. S. Bureau Land Mngt.
 CCA: Calif. Cattlemen's Assoc.
 CCPDA: Calif. Co. Planning Dir. Assoc.
 CDCS: Calif. Div. Codes & Stds.
 CDF: Calif. Div. Forestry
 CDH: Calif. Div. Highways
 CDRC: Calif. Div. Resource Conserv.
 CFB: Calif. Farm Bur.
 CFCA: Calif. Fire Chiefs Assoc.

CPR: U. S. Bureau Land Mngt.
 CRFA: Calif. Cattlemen's Assoc.
 DC: Calif. Co. Planning Dir. Assoc.
 ICBO: Calif. Div. Codes & Stds.
 ISO: Calif. Div. Forestry
 KCFD: Calif. Div. Highways
 LACFD: Calif. Div. Resource Conserv.
 LAFD: Calif. Farm Bur.
 NPS: Calif. Fire Chiefs Assoc.

NWS: National Weather Service
 OES: Calif. Office Emergency Serv.
 PGE: Pacific Gas & Elect. Co.
 SBC: San Bernardino Co.
 SCE: Southern Calif. Edison
 SDC: San Diego Co.
 SFM: State Fire Marshal
 SR: Secretary for Resources
 UCB: Univ. Calif., Berkeley

UCD: Univ. Calif., Davis
 US-PSW: U. S. Forest Serv., Pacific SW
 US-R5: Forest & Range Exp. Sta.
 WRAC: U. S. Forest Serv., Reg. 5
 Watershed Resources Adv. Comm.

TASK FORCE RECOMMENDATIONS

A. FIRE PREVENTION

A1. NEED - To provide local government bodies with standards for community fire protection that must be included in general plans.⁷

Senate Bill 1257 (1971), Section 1, added Section 65302.1 to the Government Code to provide that the general plan must include a safety element for the protection of communities from fires, including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, and clearances around structures. Also Assembly Bill 1301 (1971), Section 10, added Section 65451 to the Government Code to provide that specific plans for subdivisions shall include standards for the protection of watershed areas and the conservation of natural resources, including forests, vegetation, and soils.

RECOMMENDATION - That fire prevention and fire control standards required to provide protection to communities from the ravages of wildland fires be prepared in detail to guide local governments in California in the preparation of the safety element for their general plans and the preparation of specific plans for subdivisions.

IMPLEMENTATION - The Fire Prevention Action Committee (recommended in A13.) and the Fire Control Action Committee (recommended in E10.) would jointly prepare the needed fire protection standards by March 1, 1973.

Implementation of this particular charge of the Fire Prevention and Fire Control Action Committees would be led by the Kings County Fire Department's committee representative.

A2. NEED - To establish a more formal basis and system of alerting and activating wildland fire protection agencies whenever critical fire weather is predicted.

Such an "Early Warning System" would permit increased readiness measures to be taken by the protection agencies, before fires start, to improve fire prevention measures and fire control response capability and, hopefully, to reduce the number of fires that escape initial attack and become large and destructive.

RECOMMENDATION - That a statewide "Wildland Fire Hazard Alert" system be devised to alert all wildland fire protection agencies to the probable occurrence of critical fire weather.

⁷ A "general plan" is a systematic plan of county-wide land use and developmental regulation required of each county by state law.

The State of California should be divided into three zones, running generally east and west, following county lines, that would be defined as Southern, Central, and Northern California Hazard Alert Zones. A Zone Alert Officer would be appointed for each Zone to activate and communicate the alert through specified channels to all fire protection agencies. A statewide alert would be rare, but in some cases, as would likely have occurred in September 1970, an alert might exist in more than one Zone. The statewide wildland fire hazard alert program should be based upon critical fire weather forecasts and the National Fire Danger Rating System.

IMPLEMENTATION - Before October 1, 1972, the Fire Prevention Action Committee would plan and implement a "Wildland Fire Hazard Alert" system to meet fire prevention and fire control needs. The present Los Angeles County Fire Hazard Alert System and the National Weather Service "Red Flag" fire weather forecast criteria would be considered as model inputs. Possibly, several planned levels of responses would be developed based upon the expected severity of the situation. Particular attention would be given to the probability of north and east wind conditions. In addition to weather criteria, other considerations in implementing the alert system would be going fires, forces committed, holidays and weekends, civil disturbances, etc. Any warning or alert information would be made available to any fire protection agency which may choose to use it.

Implementation of this particular charge of the Fire Prevention Action Committee would be led by the Los Angeles County Fire Department's representative.

A3. NEED - To improve or develop equipment needed for fire investigation.

Conservative estimates are that incendiary fires are responsible annually for over 22 percent of the wildland fires in California. Two factors contribute to an annual increase in the number of incendiary fires. First, as the population increases, the number of incendiary fires tends to increase at least proportionately. Secondly, the social unrest of our times has caused crime, including incendiarism, to increase at a much greater rate than population growth.

Incendiary fires can be apprehended whenever sufficient manpower, time and equipment can be devoted to the investigation of cases. However, because of budgetary pressures, most public agencies cannot hire enough additional personnel to handle the increasing investigative workload and therefore must develop more effective ways of utilizing existing personnel. Better tools provide one way of making existing personnel more effective. Also interagency pooling of law enforcement personnel into task forces during extreme fire conditions can be helpful.

RECOMMENDATION - That steps be taken to improve present equipment, adapt equipment available in other fields, and develop new equipment suitable for use by fire investigators to solve or alleviate the incendiarism problem. Also, that plans be formalized for joint agency formation of law enforcement task forces for fire cause investigation during extreme fire conditions.

IMPLEMENTATION - By November 1, 1972, the Fire Prevention Action Committee would plan and initiate a program of research and development of equipment to aid in the prevention and investigation of incendiary fires.

This project would include:

1. Gathering information from experienced fire investigators on equipment they are now using and on additional equipment which they believe would assist them in conducting more effective prevention and apprehension operations without an increase in manpower.
2. Testing and evaluating existing equipment used for other purposes and which appears to have application to fire investigation.
3. Researching and developing new equipment that would assist fire investigators to conduct more effective investigation and prevention operations without increased manpower requirements.
4. Exploring fund sources available for developing and testing equipment to assist in fire prevention patrol and investigation without using increased manpower.
5. Issuing descriptive bulletins to wildland fire protection agencies on new equipment or procedures that have been found to have application to the field of prevention and investigation of incendiary fires.

Implementation of this particular charge of the Fire Prevention Action Committee would be led by the California Division of Forestry's committee representative.

A4. NEED - To increase prosecution and penalties for incendiarism and arson.

Deliberately set fires (incendiary or arson) account for over 22% of all wildfires occurring annually in California's wildlands; the same proportion exists for the long-term occurrence of conflagrations. Such illegal activity can be reasonably charged with \$25,000,000 of property loss, \$5,000,000 of suppression costs, and three or four lives lost in the September-October 1970 fires. Willful negligence with fire accounts for similar losses and costs. Neither the general public nor the courts seem to be aware of the magnitude and seriousness of this problem to the extent of wanting to exercise the full range of legal sanctions available against those persons responsible for the malicious or willful setting of fires.

RECOMMENDATION - That steps be taken which will be effective in making the courts, prosecuting attorneys and the general public more fully aware of the serious anti-social consequences of the illegal use of fire and fire-causing practices.

Adequate laws already exist, but the will to make full use of them needs to be generated in the interests of public and private safety and protection.

IMPLEMENTATION - Letters would be prepared by the State Forester by September 1, 1972, for the Governor to send to the Judicial Council of California, the District Attorney's Association and the California Bar Association describing the nature and seriousness of the incendiary and fire negligence problem and enlisting the help of these organizations in coping with it.

The wildland fire protection organizations, working through the general direction of the Fire Prevention Action Committee, would jointly and individually distribute to the general public through the mass media (press, radio, TV, magazines, etc.) factual information regarding the impact of incendiarism and fire negligence on life, property and resources.

Implementation of this particular charge of the Fire Prevention Action Committee would be led by the California Division of Forestry's committee representative.

A5. NEED - To decrease the number of wildfires started by the public's use of fire to dispose of debris and solid waste.

During the past decade 6.1% of all conflagrations occurring in California during periods of predicted or actual critical fire weather have been caused by debris burning. This debris burning varied in type from dooryard incinerators⁸ to waste disposal in established dumps or solid waste disposal (brush, slash and debris burning) for land clearing and construction purposes. All such burning is controlled by permit. The problem is three-fold: 1) Proper location and practices of waste disposal by fire; 2) Effective administration of burning permits during periods of critical fire weather; and 3) Education of the public to the risk of using fire to dispose of debris and waste during these critical periods.

RECOMMENDATION -

1. That the agencies providing fire protection to the wildlands of California and the National Weather Service define critical fire weather conditions, by county or other logical geographic or political unit, that can be used by governmental agencies as a basis for suspending all debris burning operations.
2. That the public be informed through prearranged channels when critical fire weather is predicted in order to gain their voluntary participation in the curtailment of burning of any solid waste materials and to alert them to the potential risk for wildfire from any cause.

IMPLEMENTATION - The Fire Prevention Action Committee would develop by December 1, 1972, standards and procedures to dispose of solid waste by fire and, whenever critical fire weather is predicted by fire weather forecasters of the National

⁸ "Dooryard incinerators" are devices - located adjacent to residences, industrial plants, schools, or other places of human activity - used to destroy flammable material by fire.

Weather Service, to automatically place into effect burning permit suspensions and public information alerts.

A similar plan of action would be extended to all local fire districts to affect dooryard and other solid waste disposal by fire within each district during critical fire weather. Communication would be through the California Office of Emergency Services to the Regional and Operational Area Fire Coordinators, and thence to local fire department chiefs.

The Fire Prevention Action Committee would draft proposed legislation for introduction by the Secretary for Resources which would provide for burning permit suspensions at the operational jurisdiction level rather than relying on such action on a regional or statewide basis.

Implementation of these particular charges of the Fire Prevention Action Committee would be led by the U.S. Forest Service' s Regional Office committee representative.

A6. NEED - To curtail machine use in wildlands during critical fire weather.

California is the most mechanized state in the nation. Increased use of machines and power-driven equipment in industry, wildland subdivision developments, road construction, agriculture and recreation, for example, has been the cause of a large percentage (16%) of the state' s conflagrations during the past 10 years.

RECOMMENDATION -

1. That all off-the-road use of machines and power-driven equipment be curtailed when the fire danger rating is extreme and accompanied by sustained winds over 25 miles per hour.
2. That machines or mechanical equipment involved in operations concerned with public health and safety be exempted.
3. That the primary target be machines operating on: (a) All forest, brush or grass-covered lands, and (b) any area adjacent to the above lands and receiving high recreational use.

IMPLEMENTATION - The Fire Prevention Action Committee would (1) initiate an interim program by October 1, 1972, aimed at voluntary acceptance of controlled use of machines in the state' s wildlands through education, (2) draft proposed statutes for introduction by the Secretary for Resources to the 1973 Legislature to accomplish the objective through legislation, and (3) provide a program to educate all persons necessary for acceptance and passage of the proposed legislation and follow through until successful.

Implementation of this particular charge of the Fire Prevention Action Committee would be led by the U.S. Forest Service' s Regional Office committee representative.

A7. NEED - To provide complete fire hazard inspections of the exteriors and the perimeters of all wildland structures at least once each year.

RECOMMENDATION - That current fire prevention plans for the California Division of Forestry and the U.S. Forest Service be implemented as soon as possible with special emphasis on providing fire prevention and other personnel and vehicles to inspect residences and other structures located in California' s wildlands for compliance with Public Resources Code Section 4291 and related local ordinances.

IMPLEMENTATION - The State Forester and the Director of Conservation would recommend to the Secretary for Resources by October 1, 1972, that the Division of Forestry' s budget for 1973-74 Fiscal Year include provision for an increased number of fire prevention inspection personnel and vehicles for Division of Forestry direct protection areas and for those areas contracted to the U.S. Forest Service and the Contract Counties for the purpose of accomplishing the above recommendation.

A8. NEED - To intensify fire prevention mobile patrols during and immediately before periods of critical fire weather.

During and immediately preceding periods of extreme fire danger, the prevention of wildfires is of critical importance. Some additional and unusual steps must be taken to contact people, detect potential fire risks and deter incendiarism.

RECOMMENDATION - That intensified "Fire Prevention Patrol" activities be initiated when extreme fire danger is predicted and be continued throughout the duration of such periods.

Early detection of fires during those critical periods when wildfires tend to become major incidents would decrease initial attack response time and increase the chance for early containment.

If the extreme fire danger existed in certain counties, the local Board of Supervisors or local, state or federal fire protection officers could put the plan into operation. If a major portion of the state were affected by the adverse weather, a program of intensified patrol activities could be initiated by the Governor.

IMPLEMENTATION - By October 1, 1972, the Fire Prevention Action Committee would produce a plan of intensified fire prevention patrol to be implemented by local, state, or federal authorities, somewhat in the following manner. Upon receipt of an announcement from proper authorities of the prediction or existence of extreme fire weather conditions, all available personnel and vehicles from fire stations and other locations and activities within and adjacent to the affected wildlands would be dispatched to pre-assigned patrol areas during these periods. In addition to fire protection agency vehicles, various agencies of the local, state or federal- governments and public utility agencies would cooperate to supply additional vehicles and personnel for such patrol activity. Removable signs would be attached to vehicles otherwise not readily identified as fire department vehicles. Also, radio-equipped helicopters

would be utilized for surveillance, spotting and reporting activities, especially in remote areas with few roads and difficult terrain.

Designated information exchange centers would be set up to collect and disseminate information received from the "Fire Prevention Patrols."

Implementation of this particular charge to the Fire Prevention Action Committee would be led by the U.S. Forest Service' s Regional Office committee representative.

A9. NEED - To improve power line inspections.

During the period of 1961 to 1970, 23% of the state' s wildland conflagrations were caused by power line failures. While some of these fires were caused by power line mechanical failures, most were caused by insufficient conductor clearance from hazardous trees or limbs which fell into the power lines during high winds (25 miles per hour or more). In general, fires from power lines may be attributed to the lack of or poor quality of inspections by utility companies and fire protection agencies. Guidelines for properly inspecting power lines are contained in the publication, "Hazard Reduction Guide for Power Lines."⁹

RECOMMENDATION - That power line inspections be improved by publicly and privately owned utility companies and by fire protection agencies.

Utilities must be responsible for initial and follow-up inspections pertaining to their operation and should not rely upon fire protection agencies to initiate fire prevention action. Fire protection agencies must improve the quality of fire prevention inspections and follow-up for compliance with fire prevention guidelines and laws. Companies and fire protection agencies should jointly revise power line inspection guidelines to reflect new technology.

It is recommended that the State Forester and Regional Forester write a joint letter to all power companies in California noting the urgent need for preventing fires caused by power lines in high fire hazardous areas, particularly during periods of critical fire weather and high wind velocity. The letter should recommend that each company appoint a "Fire Control Representative" who would be responsible for assuring his company' s strict adherence to guidelines specified in the publication, "Hazard Reduction Guide for Power Lines."

IMPLEMENTATION - Fire protection agencies, coordinated and led by the California Division of Forestry, would work through power company associations to 1) update and establish new power line inspection guidelines, and 2) provide means for training power company and fire protection agency personnel for inspection. work.

⁹ Publications related to each subcommittee' s findings are contained in a bibliography at the end of this report.

The State Forester and the Regional Forester would develop a joint letter by October 1, 1972, with all power utility companies similar to that prepared with the Southern Pacific Company in 1972.¹⁰

The State Forester would take the lead in preparing the joint letter and initiating this program.

A10. NEED - To improve power utility company operations during critical fire weather periods.¹¹

Power lines have accounted for only about 3% of all man-caused wildfires. However, they have been the cause of almost 23% of the wildland conflagrations that have occurred during critical fire weather periods in the past ten years. This deviation from the normal arises from the fact that the same high velocity wind conditions that lead to rapid fire spread also contribute to breaks and other faults in power line circuits, particularly distribution lines.

RECOMMENDATION - That all power utilities in the state, both public and private, institute special operating inspections for their field personnel to be activated in a particular operating area during critical fire weather and when the sustained wind velocity exceeds 25 miles per hour during the fire season.

IMPLEMENTATION - The Fire Prevention Action Committee would work with representatives of a public power utility and a private power utility to develop by December 1, 1972, a set of special operating instructions, as recommended above, and a feasible system of notification to activate them.

This particular charge of the Fire Prevention Action Committee would be led by the Pacific Gas and Electric Company's committee representative.

The committee's report would be sent by the Secretary for Resources to all utilities operating in California urging its adoption in company or agency regulations. By April 1, 1973, assigned members of the committee would visit each utility to explain the program and work out local arrangements.

A11. NEED - To reduce the potential for fire ignitions from power lines in high fire hazardous areas during critical fire weather.

The Public Utilities Commission requires placing all utilities underground in new

¹⁰ Joint letter of understanding which described mutual wildland fire problems and which was signed by the Regional Forester, Region 5, U.S. Forest Service; the State Forester, California Division of Forestry; and the Chief Engineer, System, Southern Pacific Company.

¹¹ Recommendations A2, AS, A6, A8, and A10 all specify certain actions to be taken by various agencies during "critical fire weather". Further deliberation may show that the definition of "critical fire weather", as a triggering mechanism for implementing planned fire prevention measures, should be the same for all five recommendations. Such weather occurs only during a few days of each fire season and is broadly characterized by a period of prolonged drought, low moisture content in wildland vegetation, high air temperature, low relative humidity, high wind velocity, and/or instability in the low level atmosphere.

subdivisions. However, many miles of power line elevated on poles or towers exist throughout the state' s wildland and pose a continuing threat to the starting of wildfires.

RECOMMENDATION - That all power utilities make underground installation of relatively low voltage transmission and distribution lines in high fire hazardous areas, where feasible and consistent with a projected plan of implementation and with provisions of local ordinances. The objectives will be to reduce the potential for wildfires and to maintain a high environmental quality.

IMPLEMENTATION - The State Forester and Regional Forester would send a joint letter to all power utilities in California by November 1, 1972, describing the need for underground installation of low voltage power lines to prevent fires and to reduce their detrimental impact on the environment. Also, the State Forester would work through the State Office of Intergovernmental Management to suggest to local governments that they require implementation of a systematic plan of underground installation of power utilities in wildland fire hazardous areas.

The Southern California Edison Company' s representative on the Action Committee would take the lead in implementing this recommendation.

A12. NEED - To acquire more accurate knowledge on location of fire starts along state highways and county roads.

RECOMMENDATION - That research and administrative studies be undertaken by California' s wildland fire protection agencies to determine specific points of origin of roadside fires, including distance from edge of pavement and location with reference to curves, grade breaks, cuts and fills. Moreover, that special studies be conducted along high fire occurrence routes of travel to determine the specific firebrands causing ignitions.

IMPLEMENTATION - The Fire Prevention Action Committee, together with the State Division of Highways, would plan and conduct joint administrative and research studies along selected sections of state highways and county roads to determine specific points of origin and specific firebrands. There would be three studies initiated by March 1, 1973: In southern California, central California, and northern California.

Implementation of this particular charge of the Fire Prevention Action Committee would be led by the representative of the U.S. Forest Service' s Pacific Southwest Forest and Range Experiment Station.

A13. NEED - To form an ad hoc committee composed of representatives from wildland fire protection agencies and related agencies hi California to direct and oversee the implementation of the Task Force' s fire prevention recommendations.

RECOMMENDATION - That a Fire Prevention Action Committee be appointed by the Director of the California Department of Conservation to provide continuing leadership and coordination to implementing the Task Force' s fire prevention recommendations and to determining further needs and changes in the wildland fire prevention program.

IMPLEMENTATION - The Director of the California Department of Conservation would appoint an ad hoc Fire Prevention Action Committee, to be responsible to him, by June 1, 1972.



Figure 3 - Roadside fires, many of them deliberately ignited by incendiaries, must be abated by new tools and techniques.

B. FUEL MANAGEMENT AND HAZARD REDUCTION

B1. NEED - To provide local government bodies with standards and guidelines for hazard reduction in and around subdivisions located in high fire hazardous areas.

RECOMMENDATION - That hazard reduction standards and guidelines, needed to provide wildland subdivisions located in high fire hazardous areas a reasonable degree of safety from losses to wildfires, be drawn up for use by the California Real Estate Commissioner, the California Division of Forestry, and other agencies.

Assembly Bill 1300 (1971) added Section 11025 to the Business and Professions Code which provides that the Real Estate Commissioner shall not issue a public report on any land project ¹²unless the offsite and onsite measures are adequate to prevent damage to property by reason of natural occurrences which are usual or predictable for the area. If the land project is located in a "high fire hazardous area," as defined by the California Office of Planning and Research, then it can be presumed that hazard reduction measures should be taken to ensure safety from wildfire.

Assembly Bill 1302 (1971) added Section 11550.1 to the Business and Professions Code to provide for local government bodies to submit tentative subdivision maps (mandatory submittal in the case of land projects) through the California Office of Intergovernmental Management (OIM) to appropriate state agencies for evaluation of the environmental impact of the proposed subdivision. The California Division of Forestry should be assisted in preparing hazard reduction standards and guidelines for use in such evaluations as may be requested by local governments through OIM' s State Clearinghouse.

IMPLEMENTATION - The Fuel Management and Hazard Reduction Action Committee (recommended in B14) would prepare such hazard reduction standards and guidelines by January 1, 1973.

Implementation of this particular charge of the Fuel Management and Hazard Reduction Action Committee would be led by the California Division of Forestry' s committee representative.

B2. NEED - To reduce wildland fuel hazards by strengthening prescribed burning action programs in timber-covered areas.¹³

RECOMMENDATION - That land management agencies be encouraged to use prescribed burning and other acceptable techniques to selectively reduce fuel hazards in the forests of California consistent with management objectives, local ordinances on specific land areas, state and federal laws, and with due concern for environmental quality, including clean air.

¹² A "Land Project" is a subdivision that has 50 or more parcels and also meets certain other building and residency requirements.

¹³ "Prescribed burning" or "prescribed fire" is the controlled use of fire to reduce the volume of wildland fuel or, to convert one type of wildland vegetation to another (for example, burning brush and replacing it with grass or trees). Such prescribed burning is done under a -prescription" which specifies the ranges of fuel moisture content, air temperature, relative humidity, wind, and manpower, and equipment requirements under which the burning can be conducted with relative safety and assurance that it will not escape established control lines.

This program would be similar to work which has been done by the University of California at Whitaker's Forest in Tulare County, by the National Park Service at Sequoia-Kings Canyon and Yosemite National Parks, and by the U.S. Forest Service on the Stanislaus and Sequoia National Forests.

IMPLEMENTATION - The Secretary for Resources would write to major public and private forest land agencies and owners by November 1, 1972, suggesting selective prescribed burning for hazard reduction be expanded consistent with agency policies and with due consideration for environmental quality, including the need to minimize air pollution. The Secretary for Resources would be assisted in his endeavor by the Fuel Management and Hazard Reduction Action Committee with leadership provided by the U.S. Forest Service's Pacific Southwest Forest and Range Experiment Station's committee representative.

B3. NEED - To provide fuelbreak and greenbelt standards to local governments for use in specific subdivision and other land development plans.¹⁴

In 1971 the state added Section 65302.1 to the Government Code to provide that each local government general plan shall include a safety element for the protection of the community from fires, including clearances around structures and other similar practices.

In 1971 the state also added Section 65451 to the Government Code to provide that specific plans shall include regulations and conditions necessary for "the location of areas, such as floodplains or excessively steep or unstable terrain, where no building will be permitted in the absence of adequate precautionary measures being taken to reduce the level of risk to that comparable with adjoining and surrounding areas." This law does not specifically refer to risk related to "fire" and needs to be broadened to include "fire," per se.

Standards for hazard reduction are needed by local governments for fulfilling the requirements of the above laws.

RECOMMENDATION - Standards and guidelines should be provided to local governments through the State Office of Intergovernmental Management describing the proper location and construction of fuelbreaks and greenbelts for the purpose of reducing the risk of damages to lives and property from wildland fires.

The standards should include consideration for multiuse of the fuelbreaks and greenbelts for fire hazard reduction, recreation, wildlife, and other purposes. They should also include consideration of aesthetics and overall improvement of the wildland environment.

¹⁴ A "fuelbreak" is a strip of land along which the natural vegetation has been reduced in volume to a point where the break can be used in relative safety by firefighting forces to control a wildfire. The fuelbreak is generally located strategically along ridges or valleys and includes a road for access. A fuelbreak "system" is designed to break up large, continuous expanses of wildland fuels so that wildfires can be controlled more readily. A "greenbelt" is a fuelbreak on which the vegetation is kept in a "green" or "living" state through irrigation, such as the use of treated effluent water from community waste disposal systems.

IMPLEMENTATION - The Fuel Management and Hazard Reduction Action Committee would prepare the required fuelbreak and greenbelt standards and guidelines by December 1, 1972. The Action Committee would also suggest remedial legislation to the Secretary for Resources to broaden Section 65451, Government Code, to specifically include "high fire hazardous areas," as defined and delineated by the State Office of Planning and Research in its Land Use Policy, as a criterion for constraining building construction in wildland areas.

The U.S. Forest Service' s Pacific Southwest Forest and Range Experiment Station representative on the Action Committee would provide leadership to implementing this recommendation.

B4. NEED - To increase the manpower available to construct and maintain fuelbreaks, firebreaks, and other fire control facilities on private and public lands.

RECOMMENDATION - That appropriate governmental heads strongly support all efforts to obtain additional personnel for conservation work under the supervision of wildland fire protection agencies.

Such efforts would be similar to the U.S. Forest Service' s current effort to secure \$5 million to contract for men and equipment to perform hazard reduction on national forests throughout the United States, with the bulk of the funds to be allocated to national forests in southern California.

IMPLEMENTATION - The Secretary for Resources, with appropriate approval, and administrative heads of other appropriate federal, state, and local governmental agencies would correspond with appropriate legislators and congressmen by September 1, 1972, strongly urging the passage of any legislation designed to accomplish the above recommendation. They would be assisted by the Fuel Management and Hazard Reduction Action Committee with leadership provided by the U.S. Forest Service' s Regional Office committee representative.

B5. NEED - To give greater recognition and emphasis to fuel management and fuel hazard reduction in all fire prevention programs.

IMPLEMENTATION - The State Forester, Chairman of the California Fire Prevention Committee, and the Regional Forester, U.S. Forest Service, would solicit in a joint letter the support of "Keep California Green," the Redwood Region Conservation Council, the Watershed Fire Council of Southern California, and the National Cooperative Forest Fire Prevention (Smokey Bear) organizations in fire prevention programs emphasizing the extreme importance of fuel management and hazard reduction in fire prevention programs.

The State Forester would initiate action to prepare the joint letter by September 1, 1972.

B6. NEED - To find a feasible way for a landowner to insure himself against liability for suppression costs associated with prescribed fires, escapes, and wildfires.

RECOMMENDATION - That the appropriate legislative committee investigate current insurance practices covering prescribed burning operations on wildlands in private ownership and determine the extent of fiscal liability of individuals under state and federal laws for costs of suppression, damages, etc., in the event of the escape of a prescribed fire. The investigation should include a series of public hearings.

IMPLEMENTATION - By October 1, 1972, the Secretary for Resources would request the recommended investigation by appropriate legislative committees of the Senate and/or Assembly during 1972-73.

The Secretary and the legislative committees would be assisted by the Fuel Management and Hazard Reduction Action Committee, with leadership by the California Cattlemens' Association committee representative.

B7. NEED - To determine the role and responsibility of public agencies for fuel management and hazard reduction on wildlands in private ownership.

Considering that fuel management and hazard reduction on wildlands under private ownership provides much benefit to the general public (enhancement of wildlife, aesthetics, and recreation, increased water production, reduction of wildfire intensity and rate of spread, etc.), the question must be asked: "To what extent can public funds be used for fuel management and hazard reduction on privately owned wildlands?"

RECOMMENDATION - That the appropriate legislative committee investigate the legal responsibility of the public fire protection agencies such as the California Division of Forestry, the Contract Counties, and the U. S. Forest Service for fuel hazard reduction on private lands, including the use of publicly owned fire equipment to standby during all prescribed burning projects and to be immediately available in case of escapes.

IMPLEMENTATION - By October 1, 1972, the Secretary for Resources would request the investigation by appropriate legislative committees of the Senate and/or Assembly during 1972-73.

The Secretary and the legislative committees would be assisted by the Fuel Management and Hazard Reduction Action Committee, with leadership by San Diego County's committee representative.

B8. NEED - To begin a cooperative program among land management and fire control agencies of development and demonstration of currently available fuel management techniques.

RECOMMENDATION That all concerned land management agencies, other agencies, and selected private individuals be urged to begin a cooperative program of development and demonstration of currently available fuel management techniques.

Such experiments and tests should be on a full-scale basis (up to 100,000 acres) in high fire hazardous areas. The program could include areas where brush is converted to grass, to

trees, or to introduced shrubs having desirable characteristics; it could also include areas where brush is maintained young and vigorous for purposes of wildlife enhancement and watershed protection but without the highly flammable characteristics of older brush. Maintenance of new vegetative types with fire, fertilization, grazing, and chemicals should be included. Above all, treatments should be monitored and measured for the purpose of developing fuel management standards and guides conducive to the prevention or control of wildland fires. Enhancement and improvement of environmental quality should be a prime consideration in all work done in the implementation of this recommendation.



Figure 4 - If people are to live and recreate in California' s wildlands relatively safe from potentially destructive wildfires, then the volume of flammable vegetation must be reduced drastically.

IMPLEMENTATION - By December 1, 1972, large-scale demonstration areas would be established by public land management and service agencies and the University of California on public and private lands to show and compare fuel management techniques in various wildland vegetation types. Particular attention would be given to those areas where local government will assist in the program.

The Fuel Management and Hazard Reduction Action Committee would lend assistance to this program with leadership by the University of California' s committee representative.

B9. NEED - To strengthen the fuel management program in the State Park and Recreation System.

RECOMMENDATION - That resources be made available to implement intensive fuel management programs in the California State Park and Recreation System.

The primary objective of fuel management within the State Park and Recreation System is, first, to protect the parks and recreation areas from major fires sweeping in from the outside, and second, to do selective hazard reduction consistent with overall management objectives for fire prevention and aesthetic purposes.

IMPLEMENTATION - By December 1, 1972, the Director of the Department of Parks and Recreation would formulate fuel management policies for the State Park System and present them to the Secretary for Resources.

The Fuel Management and Hazard Reduction Action Committee would assist the Director of Parks and Recreation to the degree that he would determine to be necessary. Liaison between the Action Committee and the Director would be provided by the University of California's committee representative.

B10. NEED - To make more effective use of the publication, "Fire Hazard Reduction Guide for Roadsides."

Reports from major fire agencies indicate that almost one-third of the wildland fires in California still occur along roads and highways.

RECOMMENDATION - That administrative action be taken at the state level to urge county road departments to implement selective fuel hazard reduction programs for all county-maintained roads in high fire hazardous areas.

IMPLEMENTATION - By October 1, 1972, the Secretary for Resources would encourage and request the County Supervisors' Association of California to urge all county road departments to establish suggested selective fuel hazard reduction programs along county-maintained roads.

The Secretary would be assisted in this endeavor by the Fuel Management and Hazard Reduction Action Committee with leadership by the California Division of Forestry's committee representative.

B11. NEED - To provide for adequate clearance of hazardous wildland vegetation adjacent to structures for up to 100 feet where necessary.

RECOMMENDATION - That the Resources Agency and the Governor submit new legislation to strengthen Public Resources Code 4291, to require clearance of hazardous wildland fuels adjacent to structures beyond property lines to accomplish needed clearance, and to permit the State Forester to delegate authority to require clearance from 30 to 100 feet.

IMPLEMENTATION - The Secretary for Resources would initiate appropriate legislation to the 1973 Legislature which could be patterned after that in the County of Los Angeles Fire Code, County Ordinance No. 2947.

The Secretary would be assisted by the Fuel Management and Hazard, Reduction Action Committee, led by the Los Angeles County Fire Department' s committee representative.

B12. NEED - To strengthen research and action programs concerning low growing, low fuel volume, and/or slow-burning ("fire resistant") plants.

RECOMMENDATION - That research and action programs related to low growing, low volume, and/or slow burning vegetation should be strengthened by appropriate federal, state, and local agencies.

IMPLEMENTATION - By October 1, 1972, the Fuel Management and Hazard Reduction Action Committee would prepare a letter for the Secretary for Resources to send to the U. S. Forest Service' s Pacific Southwest Forest and Range Experiment Station, Los Angeles County Fire Department, Los Angeles State and County Arboretum, U. S. Soil Conservation Service, and the University of California at Berkeley, Riverside, and Davis outlining the need for additional funding for this important research and action program. In addition, adequate funds for the tri-partite cooperative agreement among the California Division of Resource Conservation, Pacific Southwest Forest and Range Experiment Station, and the U. S. Soil Conservation Service would be sought.

Action on this recommendation would be led by the U. S. Forest Service' s Pacific Southwest Forest and Range Experiment Station' s representative on the Action Committee.

B13. NEED - To find substitutes for vegetative growth-inhibiting chemicals or devise new methods for controlling brush regrowth consistent with requirements for environmental quality.

RECOMMENDATION - That wildland research agencies allocate additional resources for the purpose of finding new methods of brush control.

Research should not be limited to chemicals but should include mechanical and biological control, the use of fire, and other means. Some chemicals currently used are considered by some people as being hazardous to the environment, and acceptable substitutes must be found through controlled testing.

IMPLEMENTATION - The Fuel Management and Hazard Reduction Action Committee would prepare a letter by October 1, 1972, for the Secretary for Resources to recommend to appropriate governmental and private agencies that they support research in controlling brush regrowth,

Action on this recommendation would be led by the U. S. Forest Service' s Pacific Southwest Forest and Range Experiment Station' s representative on the Action Committee.

B14. NEED - To secure funds to synthesize the widely scattered information on fuel management and hazard reduction.

RECOMMENDATION - That legislation be proposed enabling the University of California School of Forestry and Conservation to summarize and the fuel management and hazard reduction information for all wildland vegetative types in California. The final product would recommend action by specific groups and agencies.

IMPLEMENTATION - By February 1, 1973, the Secretary for Resources would request the Governor and the State Legislature to finance a study at the University of California, Berkeley, to gather and synthesize fuel management and hazard reduction information into a detailed summary with recommendations for implementation of the work required.

The Fuel Management and Hazard Reduction Action Committee would assist the Secretary in this endeavor, with leadership by the University of California's committee representative.

B15. NEED - To form an ad hoc committee composed of representatives from wildland fire protection agencies and related agencies in California to direct and oversee the implementation of the Task Force's fuel management and hazard reduction recommendations.

RECOMMENDATION - That a Fuel Management and Hazard Reduction Action Committee be appointed from representatives of appropriate public and private agencies to provide leadership and coordination for an expanded fuel management program in California.

IMPLEMENTATION - The Director of the California Department of Conservation would appoint a Fuel Management and Hazard Reduction Action Committee, to be responsible to him, by June 1, 1972.

C. ZONING, SUBDIVISION CODES AND LAND USE

C1. NEED - To establish statewide policies which integrate a broad range of natural resource protection and management programs with comprehensive land use planning in and adjacent to California's fire hazardous wildlands, thereby eliminating the single-purpose land use planning approach.

Wildland fire problems have strong ties to a broad range of significant ecological issues, including resource management and protection policies, at both the state and local level. There is a need for a more coordinated approach both within and between levels of government.

RECOMMENDATION - That the state provide technical assistance to local governments in their efforts to integrate a wildland fire protection element into their general plan.

Several new pieces of state legislation were passed in California in recent years which give the wildland fire protection agencies opportunities to provide a broad range of natural resource protection and management programs to local government bodies for inclusion in their general plans and in specific plans for subdivisions and land projects.

New laws mandate that general plans shall include (1) a land use element which designates the uses of the land for open space, scenic beauty, natural resources, and recreation; (2) a conservation element which provides for the conservation of natural resources, including forests, soils, and wildlife; and (3) a safety element which shall provide for the protection of a community from fires. In addition the law now requires that every city and county **shall** by June 30, 1973, prepare, adopt, and submit to the Secretary of the Resources Agency a local open-space plan within its jurisdiction.

All these laws provide opportunities for wildland protection and management agencies to give assistance to local government bodies. First, however, it is necessary that all appropriate state and federal resources agencies establish policies, standards, and guidelines which can be used by local governments. An example of this kind of assistance is that being given currently by various state and federal government agencies to Tulare County in that county's effort to develop a pilot model open space plan.

In 1971, Section 11550.1 was added to the Business and Professions Code making it permissive for local government to submit tentative subdivision maps to the State Office of Intergovernmental Management (OIM) for review by various state agencies; the same law made it mandatory that such map submittals be made in the case of land projects. This law should be amended to provide for mandatory review of maps for subdivisions, not just land projects. State wildland resource protection and management agencies, acting through OIM's State Clearinghouse, should be assisted, as necessary, in developing protection standards and guides to enable them to evaluate properly the probable impact of all subdivisions on the wildland environment. These same standards should also be incorporated in the preparation of Development Guidelines by the State Department of Environmental Protection, as proposed by Governor Reagan in his report, "Environmental Goals and Policy."

IMPLEMENTATION - The Secretary for Resources, assisted by the Land Use Planning Action Committee (recommended in C8.), by November 1, 1972, would initiate a formal structure for natural resource protection and management agencies to provide guidelines and standards to local governments through the OIM State Clearinghouse and to the State Office of Planning and Research for integrating a broad range of environmental protection concerns into comprehensive wildland use planning. He would also seek modification of Section 11550.1 of the Business and Professions Code to require review by state agencies through the OIM State Clearinghouse for the purpose of evaluating all subdivision maps against a broad range of public wildland resource protection criteria.

Implementation of this particular charge of the Fire Protection in Land Use Planning Action Committee would be led by the California Division of Forestry's committee representative.

C2. NEED - To provide local governmental professionals ready access to a broad range of environmental protection and management resource data and cost/benefit techniques.

RECOMMENDATION - That the State:

1. Develop an environmental resource data management system containing that quality and magnitude of fire protection and other information necessary to evaluate the impact of wildland development in terms of regional significance. Included would be the delineation of relative degrees of fire hazardous areas and land use practices that should be associated with them. The State Office of Planning and Research has begun planning for a resource data bank but will require considerable assistance from wildland protection and management agencies in the formulation of policy and information gathering.
2. Provide assistance in the form of fire protection consulting services for project impact analysis to those local governmental units whose activities modify the character of the regional environment. This assistance would enable local government professionals to explain their program needs, including wildland fire protection, to legislators with increased accuracy, validity, and clarity. Enabling legislation to accomplish part of this recommendation was approved in 1971 when Section 12038 was added to the Government Code. This Section enables various state agencies to provide technical assistance to local governments, upon request to the State Office of Intergovernmental Management, in evaluating proposed subdivision maps; this type of assistance should be broadened to all types of wildland use impacts.

IMPLEMENTATION - The Fire Protection in Land Use Planning Action Committee would consult with the State Office of Planning and Research and with the State Office of Intergovernmental Management to help establish policies and procedures for a resource data bank and for technical assistance to local governments by December 1, 1972. The Action Committee would also assist the Secretary for Resources to seek further legislation in 1973 enabling a broader range of technical assistance to local governments from state and federal

fire protection and resource management professionals.

Implementation of this charge of the Action Committee would be led by the California Division of Forestry's committee representative.

C3. NEED - To identify critical watershed and fire hazardous areas in terms of their ability to tolerate urbanization and to relate those findings to the formulation of regulatory conditions under which additional residential and commercial development can occur in those areas.

This need has been met partially by the California Division of Forestry submitting to the State Office of Planning and Research its recommendations for the delineation of "high fire hazardous areas" in California's wildlands. Even this delineation, however, needs to be reflected further in terms of State policy and in terms of land use planning in specific local areas identified as high fire hazardous areas, such as has been proposed by Governor Reagan in his report, "Environmental Goals and Policy."

RECOMMENDATION - That the State require local government to include in their general plans the concept of land use capability in terms of appropriateness for urbanization and with due consideration to high fire hazardous areas.

Such planning may well be new and creative additions to traditional land use and zoning ordinances and should recognize the concept of "environmental capacity" as a means of measuring the quality of man's relationship with his environment. Not only should it designate those specific wildland areas where all measurable development is to be controlled because of extreme hazards from fire, flood, and earthquake (such areas have been identified by or for the State Office of Planning and Research), but also it should designate those areas where development should be constrained because of ecological fragility. Legislation in 1971 added Section 11549.5 to the Business and Professions Code which says that a governing body shall deny approval of a subdivision map if the site is not physically suitable for the type of development. Also, 1971 legislation added Section 65451 to the Government Code which states that specific plans for land development shall provide for the designation of areas such as excessively steep or unstable terrain where no building will be permitted in the absence of adequate precautionary measures. The Task Force recommends that standards be defined by appropriate agencies to identify those areas "not physically suitable for the (proposed) type of development" and those areas which are "excessively steep" or have "unstable terrain." These areas must be protected from the ravages of wildfire to prevent soil movement and downstream damages caused by siltation, flooding, and transported debris.

General plans should also designate those wildland areas that are particularly suitable for development. This designation should include standards for desirable development intensities and patterns, depending on relative fire and other hazards and ecological fragility, in keeping with the provisions of Section 65451 of the Government Code to the effect that specific development plans shall include standards for population density and building density, lot size, type of construction, and water supply. It should also include consideration of permitting development only around the periphery of well-balanced communities able to provide minimum standards of public services such as fire and police protection, sewer and water systems, and solid waste disposal.



Figure 5 - Fire protection and the probability of wildland fires spreading into communities are factors that must be considered by local governments when planning the conditions under which subdivisions can be located in the wildlands.

Non-traditional planning approaches should include consideration of the following recommendations:

1. Utilize a concept similar to the Land Ownership System, currently employed by the U. S. ' Forest Service to consolidate land ownership patterns, where development of privately-owned lands would produce significant and untenable fire hazards and risks that could not be modified reasonably from an economic or environmental impact standpoint. Such acquisition should result in substantial savings in fire prevention and fire suppression expenditures and eliminate the need for most other local governmental services. In many cases monetary savings and other public benefits should compensate for reductions in land tax revenues.

2. Pursue the use of "less than fee" ownership (that is, dedicated open space easements on private land) to help provide fuelbreaks and greenbelts for fire protection purposes in hazardous areas.
3. Use "fee acquisition" in those specific areas where any development is incompatible with fire hazard and watershed management considerations and where "less than fee" ownership is not appropriate. Fee acquisition of private land is particularly appropriate within the boundaries of established management areas such as the National Forests, State Parks, etc., where considerable public lands are already present.
4. Impose a land tax system on a variable scale for all new wildland developments, dependent on distance from an established urbanized area providing public services. Revenues derived from these taxes should be used by local government to provide public services, including fire protection, and to repair environmental damage.
5. Encourage, and in some areas require, new subdivision design concepts, such as house clusters and condominiums, which take into account the need to protect fragile areas and to reduce the exposure of buildings to the potential of encroaching wildland fires.

IMPLEMENTATION - The Fire Protection in Land Use Planning Action Committee would determine by November 1, 1972, which of the above recommendations could be implemented through recent State legislation, such as Section 11549.5, Business and Professions Code, and Section 65451, Government Code. Where such legislation is adequate, the Action Committee would develop by April 1, 1973, standards and guidelines for local governments to use in defining and designating such areas as high fire hazardous areas, areas not physically suitable for the proposed type of development, and areas which may be deemed as too steep or too unstable for development. As an alternative, the Action Committee could work with the Department of Environmental Protection in preparing Development Guidelines for use by local governments, if and when the proposed Department has been implemented.

Where additional legislation is required to implement the above recommendations, the Action Committee would assist the Secretary for Resources to prepare legislation for introduction to the State Legislature in 1973.

Where cost/benefit studies seem to be required (such as for Recommendation I., above), the Action Committee would arrange for such studies.

Implementation of this particular charge of the Fire Protection in Land Use Planning Action Committee would be led by the California County Planning Directors' Association committee representative.

C4. NEED - To prevent "lot splitting"¹⁵ or to develop more precise planning policy for "lot splitting" in wildland areas, including provisions for adequate fire protection.

RECOMMENDATION - That the State Planning Law should be strengthened to provide appropriate tools for wildland use regulations and for fire protection pertaining to lot splitting.

Lot splitting is a circumvention of the objectives of California' s Subdivision Map Act. It results in systematic breakdown of orderly and appropriate land use and resource protection in wildland areas. Many counties estimate that lot splitting creates as many lots as do subdivisions under the Subdivision Map Act.

Precise fire protection and land use planning criteria should be adopted for wildland areas where lot splitting occurs, particularly for fire hazardous areas. Each county should design and implement a lot splitting ordinance which would prescribe minimum design and improvement standards required for adequate fire protection, rendering lot splitting compatible with the subdivision approval process.

Some regulation could possibly occur under the provisions of 1971 State legislation, although the nature of such possible regulation is not clear at this time. Section 11540.1, Business and Professions Code, was amended to enable local governments to regulate the division of land which is not a subdivision in regard to the dedication of right-of-way, easements, and the construction of reasonable offsite and onsite improvements. Presumably, right-of-way and easements could be so regulated as to provide for adequate ingress and egress of fire protection equipment. Also, presumably, "the construction of reasonable offsite and onsite improvements" may include adequate water supply for fire protection, vegetation modification and hazard reduction, and other fire protection measures.

Similarly, Section 11535, Business and Professions Code, was amended in 1971 to read that, when local ordinance provides, the governing body may require the improvement of public or private streets or easements as may be necessary for local traffic. Presumably, "local traffic" could include fire protection vehicular equipment.

These laws require clarification in regards to their impact on wildland fire protection requirements. Where it is found that they are applicable to areas of "lot splitting," then standards and guidelines should be developed for use by local governments.

IMPLEMENTATION - The Fire Protection in Land Use Planning Action Committee would determine what laws and ordinances already provide for regulation of lot splitting in respect to adequate fire protection measures in wildland areas and, where applicable, develop by December 1, 1972, standards and guidelines for use by local governments or for inclusion as Development Guidelines by Governor Reagan' s proposed Department of Environmental Protection.

Where adequate laws and ordinances are lacking, the Action Committee would assist the Secretary for Resources to develop new legislation for introduction to the 1973 State

¹⁵ "Lot splitting" is the process of breaking up a larger lot, which has previously been approved as meeting all minimum standards and criteria of the Subdivision Map Act, into a series of smaller lots (not to exceed four), each of which may or may not meet the minimum standards of the Act. Such "lot splitting" may also result in building densities or spacing contrary to good practices required in fire hazardous areas.

Legislature, giving particular attention to the need for strengthening the State Planning Law.

Implementation of this recommendation would be led by the California County Planning Directors' Association representative on the Fire Protection in Land Use Planning Action Committee.

C5. NEED - To assure the provision of an interim fuel management program for fire protection purposes for all substantial residential developments in wildland areas.

RECOMMENDATION - That land developers be made responsible for providing a fuel management program consistent with wildland fire protection requirements in the interim period between individual lot development and sales and the construction of a reasonable number of residences.

Recent new State legislation may provide for establishing the land developer's responsibility in this matter. For example, Section 11025 was added to the Business and Professions Code in 1971 to provide that the State Real Estate Commissioner shall not issue a Public Report¹⁶ on any land project unless offsite and onsite measures are adequate to prevent damage to property by reason of natural occurrences which are usual or predictable for the area. If the State Office of Planning and Research's designation of "high fire hazardous areas" can be accepted as valid for locating areas where destructive wildfires are predictable, then local government Planning Commissions should use the established criteria to require land project developers to take adequate offsite and onsite measures, such as fuel management, to reduce the probability of damages from wildfire during the early growth period of the land project.

Section 65451 was added to the Government Code in 1971 to read that specific plans shall include standards for the conservation of natural resources, forests, vegetation, and soils, and the protection of watershed areas. Again, this law should provide for an interim fuel management program, although the required "standards" must be developed.

Section 65302.1 was added to the Government Code in 1971 to provide that the local government general plan shall include a safety element for the protection of the community from fires. Fuel management is not specified but could be implied.

These laws should be investigated further to determine if they are adequate to meet the intent of this recommendation. If not adequate, new legislation should be pursued.

IMPLEMENTATION - The Fire Protection in Land Use Planning Action Committee would determine by December 1, 1972, what laws already apply to making a land developer responsible for providing an interim period fuel management program for fire protection purposes. Where such laws apply, the Fire Protection in Land Use Planning Action Committee would be responsible for developing, in cooperation with the Fuel Management and Hazard Reduction Action Committee, standards and guidelines for local governments to use to implement the applicable laws.

¹⁶ The "Public Report of the Real Estate Commissioner" is a report issued by the California Department of Real Estate for each subdivision which lists services, etc., to be provided by subdivision developers to each lot owner. This report must be given to each prospective purchaser by the subdivider.

If the Action Committee determines that additional or remedial legislation is required to implement this recommendation, it will assist the Secretary for Resources in preparing legislation for introduction to the 1973 State Legislature.

The California Division of Forestry' s representative on the Action Committee will lead the Committee in implementing this particular charge.

C6. NEED - To make the water in swimming pools, located in the yards of private homes built in or adjacent to wildlands, accessible to firetrucks for use in onsite fire protection.

RECOMMENDATION - That the water in all privately owned swimming pools, existing or constructed in the future, located in or adjacent to wildlands, be made accessible to firetrucks by way of a driveway and gate or an independent motor-driven pump with suitable plumbing, including a fire department connection at the accessible end of the pipe, or by some other appropriate means, -for use in protecting onsite values from damage by fire.

IMPLEMENTATION - The Fire Protection in Land Use Planning Action Committee would assist the Secretary for Resources to introduce legislation to the State Legislature in 1973 to implement the above recommendation.

Implementation of this particular charge of the Action Committee would be led by Los Angeles County Fire Department' s committee representative.

C7. NEED - To form an ad hoc committee composed of representatives from wildland fire protection agencies and other agencies having jurisdiction in land planning, zoning and subdivision activities to direct and oversee the implementation of the Task Force' s zoning, subdivision codes, and land use recommendations.

RECOMMENDATION - That a Fire Protection in Land Use Planning Action Committee be appointed to provide continuing leadership and coordination for implementing the Task Force' s zoning, subdivision codes, and land use recommendations and for determining further needs and changes in wildland use planning related to needs in fire protection.

IMPLEMENTATION - The Director of the California Department of Conservation would appoint an ad hoc Fire Protection in Land Use Planning Action Committee, to be responsible to him, by June 1, 1972.

D1. NEED - To provide standards and guidelines to local governments for implementation of recent state legislation referring to building location and density in the wildlands.

RECOMMENDATION - That the Building Construction Action Committee (recommended in D4.) prepare standards and guidelines for building location and density in high fire hazardous wildland areas to be offered to local government Planning Commissions through the State Clearinghouse.

Standards should be prepared to partially satisfy Section 65302 of the Government Code which requires local governments to include in the land use element of their general plan, regulations and conditions in regards to the location of housing and a statement of the standards of building density recommended for various districts including, presumably, those districts located in high fire hazardous areas. "Building density" is a prime factor contributing to the spread of wildland conflagrations and to the destruction they create to life and property. These standards could also be used in specific subdivision plans when such plans are required by Section 65451 of the Government Code to have standards for building density.

IMPLEMENTATION - The Building Construction Action Committee, led by the Los Angeles County Fire Department's committee representative, would prepare standards and guidelines by December 1, 1972, for use by local governments in planning building location and density in the wildlands.

D2. NEED - To adopt through legislation appropriate building code and construction requirements to adequately protect buildings or structures constructed in wildland areas of high fire hazard.

RECOMMENDATION - That legislation provide for the following recommendations for all buildings constructed in high fire hazardous wildland areas:

1. That in any area designated by the political subdivision having jurisdiction as a high fire hazardous area or as a buffer zone surrounding such high fire hazardous area, any building or structure erected, constructed, or moved into such fire area, or buffer zone, shall meet at least the basic requirements of the 1970 Uniform Building Code for the occupancy group and type construction intended.
2. That roof covering shall be "Fire Retardant" roofing as specified in Section 3203(e), 1970 Uniform Building Code, except that in Type V buildings housing Group H, 1, or J occupancies, the roofing may be any Class "C" built-up roofing assembly or Class "C" prepared roofing. (See Uniform Building Code for definitions of these terms). Tile roofs shall be fire-stopped at the eave ends to preclude entry of flame or embers under the tile.
3. That buildings or structures shall have the underside of combustible eaves, balconies, unenclosed roofs and floors, and other similar horizontal surfaces protected by at least one-hour fire-resistive construction. Unprotected vertical or horizontal wooden

supports, for stilt type or cantilevered structures or buildings, shall be of not less than five and one-half inches (5 1/2") in least dimension.

4. That all openings into the interior of a building or structure for ventilation purposes shall be protected by non-corrosive metallic screening having a mesh no larger than one-quarter inch (1/4"). Access openings to under floor areas shall be protected by either non-corrosive metallic screening having a mesh no larger than one-quarter inch (1/4") or by a three-quarter inch (3/4") solid wood door or equivalent.

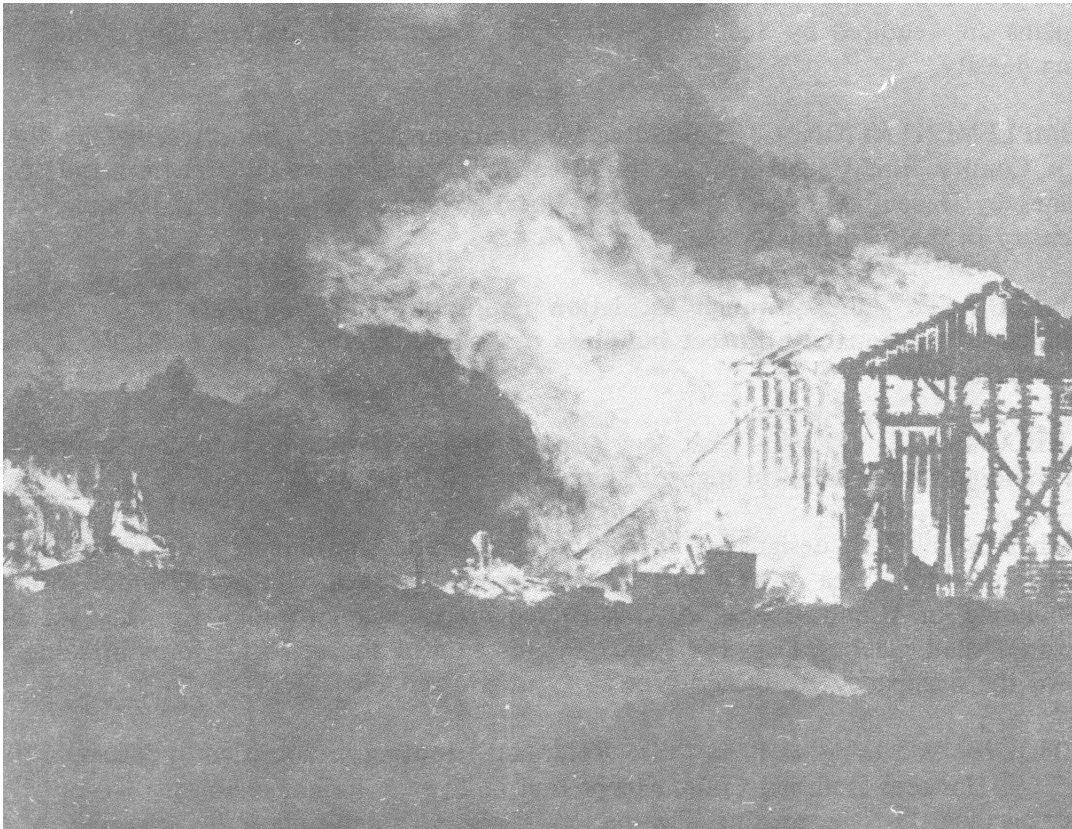


Figure 6 - Buildings constructed in the wildlands must meet specifications that will reduce the chance of their being destroyed by wildfire. Photograph courtesy of *Riverside Press Enterprise*.

5. That architectural consideration shall be given to the design of buildings and structures constructed in high fire hazardous areas so that glazed openings (windows) will not be exposed to radiated heat from adjacent burning vegetation, or such glazed openings shall be protected by heat-resistive and wind-resistive glass or plastic that will not transmit sufficient radiant heat to ignite interior trim and furnishings.
6. That every chimney or stovepipe attached to any fireplace, stove or other device that burns any solid or liquid fuel be provided with a screen constructed of non-flammable material with openings not more than one-half inch (1/2") in size.

Such legislation should integrate with and help satisfy the requirements of Section 65451, Government Code, which reads that specific subdivision plans shall include standards for permissible types of construction.

IMPLEMENTATION - The State Fire Marshal and the Director of the Department of Housing and Community Development would prepare and sponsor legislation by February 1, 1973, to make the above recommendations minimum standards on a statewide basis, but allow local jurisdictions the authority to adopt more restrictive requirements within their areas of jurisdiction.

D3. NEED - To ensure that all residences and other buildings constructed in the wildlands be readily identified by a prominent numbering system.

Fire protection agencies responding to reported wildfires must be able to quickly and easily identify the location of buildings to minimize initial attack time and damages by fire.

RECOMMENDATION - That local governments be informed about the critical need to use numbers to identify buildings located in the wildlands for fire protection purposes and be provided standards for this practice. Inclusion of this practice in the circulation element of general plans is presently permissive (Section 65303, Government Code) but should be made mandatory.

IMPLEMENTATION - The Building Construction Action Committee would provide standards for building numbering by December 1, 1972, for use by local governments in the circulation element of their general plans.

The State Fire Marshal and the Director of the Department of Housing and Community Development would submit legislation to the 1973 Legislature making the numbering of buildings mandatory rather than permissive in the circulation element of the general plan.

Leadership for these particular charges of the Building Construction Action Committee would be given by the committee representative from the California Division of Codes and Standards.

D4. NEED - To form an ad hoc committee composed of representatives from wildland fire protection agencies and from other agencies having jurisdiction in building codes and construction material requirements to direct and oversee the implementation of the Task Force' s recommendations in building codes and construction material requirements.

RECOMMENDATION - That a Building Construction Action Committee be appointed to provide continuing leadership and coordination for implementing the Task Force' s building codes and construction material requirements recommendations and for determining further needs and changes in the construction of buildings in the wildlands.

IMPLEMENTATION - The Director of the California Department of Conservation would appoint an ad hoc Building Construction Action Committee, to be responsible to him, by June 1, 1972.

E. FIRE CONTROL

E1. NEED - To provide a recognized command structure for large fires involving the protection area of several jurisdictions.

When wildfires spread over large geographical areas and involve the protection jurisdiction of several fire protection agencies or when multiple large fires burn in several areas, available firefighting resources cannot always meet all the demands. At such times a General Headquarters must be established, composed of representatives from the protection jurisdictions involved with fire control needs, to unify command, to establish priorities of need, and to allocate available resources according to those priorities.

RECOMMENDATION - That a command structure for large fires be developed which can be accepted by the state' s fire services. An appropriate training program should also be developed.

Emphasis should be upon establishing a General Headquarters (GHQ) or Joint Fire Command organization to meet the problems of conflagrations burning over several jurisdictions and requiring numerous agencies to control.

IMPLEMENTATION - The Fire Control Action Committee (recommended in E10.) would work with representatives of other appropriate agencies, such as the State Fire Training Division, to develop a command structure that could be applicable not only to wildfires but also to fire service involvement in other types of disasters with similar problems of command and control.

The proposed command structure would be presented to and discussed with fire services groups before final adoption. Training needs appropriate to the command structure would be determined and an appropriate training program developed by November 1, 1973.

Implementation of this particular charge of the Fire Control Action Committee would be led by the Los Angeles County Fire Department' s committee representative.

E2. NEED - To update the Federal Rural Fire Defense Plan (U. S. Department of Agriculture) Standard Operating Procedures.

RECOMMENDATION - That the responsible agencies revise and update the Standard Operating Procedure for the Federal Rural Fire Defense Plan to recognize new State Office of Emergency Services legislation, new federal disaster legislation (Public Law 91-606), and the current organizational structures of the Office of Emergency Services and the state' s major wildland fire protection organizations.

IMPLEMENTATION - By January 1, 1973, the Fire Control Action Committee would develop a Rural Fire Defense Plan Standard Operating Procedure and a Rural Fire Defense Subcommittee that would intermember with the State Fire Disaster Plan so that the total state capability of federal, state and local government forces could be mobilized within the framework of one system and plan. Consideration would be given in the development of

this plan for the need to establish local, regional, and state level command groups for the purpose of resource allocation and priority determination.

This charge to the Action Committee would be led by the U. S. Forest Services' s Regional Office committee representative.

E3. NEED - To update the State Fire Disaster Plan and Mutual Aid System.

RECOMMENDATION - That the State Fire Disaster Plan and Mutual Aid System be updated in recognition of changing times and of new State Office of Emergency Services legislation of 1970 and that the Governor' s Emergency Fund be authorized for use by the Office of Emergency Services for the necessary establishment of equipment pools, apparatus move-up with adequate manpower, and for costs involved in apparatus travel to and from fire emergencies to meet requests of fire protection agencies.

IMPLEMENTATION - The Fire Control Action Committee, led by the Office of Emergency Services' representative, would accomplish the above recommendation by January 1, 1973.

E4. NEED - To improve large fire or conflagration communications.

RECOMMENDATION - That government communications personnel, with fire services experience, determine how to improve communications during large fire situations.

Advantage should be made of the current communications study being made by and for the Los Angeles City Fire Department under a grant from the Federal Office of Fire Research and Safety.

IMPLEMENTATION - By July 1, 1973, the Fire Control Action Committee would be responsible for having a plan developed to improve fire agency communications. The Committee would consider command structure and the alternatives related to the need for additional radio frequencies, for additional hardware and/or mobile command centers., for use of the nationwide mutual aid fire frequencies, for the use and role of OES mutual aid mobile communications units, and for other available resources. Costs, practicability, and feasibility would be included as criteria in all considerations.

Implementation of this charge of the Action Committee would be led by Los Angeles City Fire Department' s committee representative.

E5. NEED - To improve the effectiveness of manpower and/or replace manpower with equipment.

Manpower and capital outlay costs are rising rapidly, and all technological avenues need to be explored to increase efficiency with existing and/or reduced levels of personnel. Some work of this nature is being done currently by most of the wildland fire protection agencies, but the program needs strengthening.

RECOMMENDATION - That research be strengthened in the development of equipment and techniques to increase the effectiveness of the individual firefighter or replace manpower with equipment.

IMPLEMENTATION - The Secretary for Resources, assisted by the Fire Control Action Committee, would encourage all wildland fire protection agencies to support this recommendation as a high priority research and development item and as a part of the "Wildland Research Plan for California."¹⁷

This recommendation would be implemented by December 1, 1972, with the Action Committee' s actions being led by the U.S. Forest Service' s Regional Office committee representative.

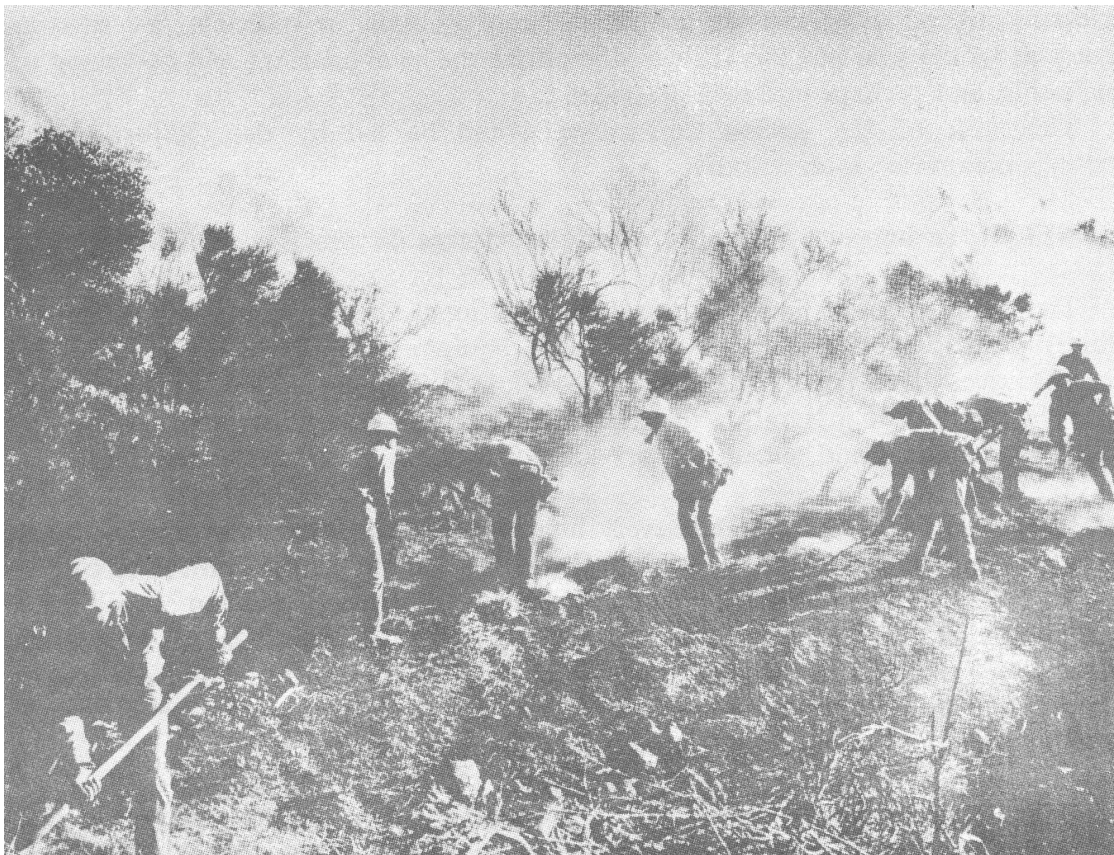


Figure 7 - The effectiveness and productivity of the individual firefighter must be improved through the development of new and better tools.

¹⁷ The "Wildland Research Plan for California" (Rev. December 1969) is a publication of the California Division of Forestry in cooperation with the University of California School of Forestry and Conservation, the U. S. Forest Service, the U. S. Bureau of Land Management, and the National Park Service.

E6. NEED - To improve the tactical use of organized firefighting forces.

RECOMMENDATION - That greater emphasis be placed on adopting and testing new concepts of wildland firefighting tactics.

Particular attention should be given to the modular "Task Force"¹⁸ for response to conflagration fires, particularly where there are multiple fire situations or a rapidly moving large fire. The wildland fire protection organizations should evaluate the opportunity to improve their operations through the use of the "modular response" concept in combination with the present perimeter control organization.

IMPLEMENTATION - The Fire Control Action Committee would develop and test by July 1, 1973, standard practices for the use of Task Forces or modular units which can be given wide distribution throughout California's fire services as the established practice for maximum utilization of outside aid during conflagration or multiple fire situations. The Committee would also include in its deliberations the establishment and operation of staging areas, pools, and perhaps move-up practices.

This task of the Action Committee would be led by the California Division of Forestry's committee representative.

E7. NEED - To improve the utility of military forces on conflagration fires.

The military forces in California (State National Guard, Army, Air Force, Navy, and Marines) provide a huge reservoir of men and equipment available for firefighting after all other resources have been exhausted. The wildland fire protection agencies need to do a more effective job of integrating this resource into firefighting duty and need to arrange for broader development and use of military aircraft, bulldozers, and other equipment.

RECOMMENDATION - That everything possible be done to maximize the capability to use state and federal military personnel and equipment in the control of conflagrations.

Major emphasis should be upon transferring military mission capabilities to the conflagration fire problem with a minimal need for training, time delay, or equipment modification. Capabilities would include hand tool crews, fire detection and mapping, personnel and equipment ground transport, personnel and equipment aerial transport, fuel and water supply, air and ground attack, communications, etc.

IMPLEMENTATION - Members of the Fire Control Action Committee would meet with representatives of the State Military Department and federal military commands by October 1, 1972, to seek alternative courses of action and opportunities in this area. From

¹⁸ The modular "Task Force" concept is the movement of units of equipment in pre-established numbers and organization. For example, a Firetruck Task Force is commonly five firetrucks under the supervision of a Task Force Commander who travels in a separate vehicle. The Task Force stays together on the fire and when off-duty. The Fire Boss therefore deals with one Task Force rather than with five firetrucks and a firetruck boss; he also plans his tactics in terms of equipment modules, rather than in terms of a large number of individual pieces of equipment.

these meetings the need to contact high command channels would be determined.

This particular task of the Action Committee would be led by the U. S. Forest Service' s Regional Office committee representative.

E8. NEED - To provide local governments with road construction standards adequate to meet wildland fire protection requirements.

New state legislation provides for the inclusion of adequate roads in land projects, specific plans, and the safety element of general plans.

RECOMMENDATION - That road construction standards provided in the Fire Safety Guides for California Watersheds and developed by the County Supervisors Association of California in cooperation with the wildland fire protection agencies, should be reviewed, revised if necessary, and communicated to state and local government agencies for their use in connection with the following new laws passed in 1971:

Section 11025 was added to the Business and Professions Code to read that the State Real Estate Commissioner shall not issue a public report on any land project unless roads will be adequate to serve the projected population of the area. Presumably, "adequate" could be interpreted to include the requirements for wildland fire protection equipment, stated in the Fire Safety Guides for California Watersheds. .

Section 11510, B & PC, was amended to define land planning "design" as referring to street alignment, grades, and widths, among other features.

Section 11535, B & PC, was amended to provide that, in specified instances, local government may require the improvement of public or private streets, highways, or easements as may be necessary for local traffic. Presumably, "local traffic" would include fire protection equipment and "improvement of roads" should be at least to a standard that would accommodate such equipment.

-%Section 65451 was added to the Government Code to provide that specific plans shall provide for the systematic implementation of regulations pertaining to the location and extent of existing or proposed streets and roads, their names or numbers, and the tentative proposed widths with reference to prospective standards for their construction and maintenance.

Section 65302.1 was added to the Government Code to provide that each local government' s general plan shall include a safety element for the protection of the community from fires, including features necessary for such protection as evacuation routes and minimum road widths.

Section 65303, GC, was amended to add to the circulation element (a mandatory part of each local government' s general plan) a permissive provision that would include a system of street naming, house and building numbering, and such other matters as may be related to the improvement of circulation of traffic. Section 65303 also was amended to add a transportation element (pensive in the general plan) which would show a comprehensive transportation system, including grade separations.

IMPLEMENTATION - The Fire Control Action Committee would review the road standards portion of Fire Safety Guides for California Watersheds, revise those standards if and where necessary, relate those standards to specific legislation, and communicate its findings through the proper channels to local governments for inclusion in their general plans, specific plans, and ordinances.

This task of the Action Committee would be completed by November 1, 1972, and would be led by the U. S. Forest Service' s Regional Office representative.

E9. NEED - To provide local governments with water supply standards adequate to meet wildland fire control requirements.

New state legislation provides for the inclusion of water supply standards in local government general plans and specific plans.

RECOMMENDATION - That water supply standards, provided in the Fire Safety Guides for California Watersheds and developed by the County Supervisors Association of California in cooperation with the wildland fire protection agencies, should be reviewed, revised if necessary, and communicated to state and local government agencies for their use in connection with the following new laws passed in 1971:

Section 65451 was added to the Government Code for the systematic implementation of regulations pertaining to standards for water supply.

Section 65302.1 was added to the Government Code to provide that each local government' s general plan shall include a safety element for the protection of the community From fires, including features necessary for such protection as peak load water supply requirements.

IMPLEMENTATION - The Fire Control Action Committee would review the water supply standards of Fire Safety Guides for California Watersheds, revise those standards if and where necessary, relate those standards to specific legislation, and communicate its findings through proper channels to local governments for inclusion in their general plans, specific plans, and ordinances.

This task of the Action Committee would be completed by November 1, 1972, and would be led by Los Angeles County Fire Department' s committee representative.

E10. NEED - To form an ad hoc committee composed of representatives from wildland fire protection agencies to direct and oversee the implementation of the Task Force' s recommendations in fire control.

RECOMMENDATION - That a Fire Control Action Committee be appointed to provide continuing leadership and coordination for implementing the Task Force' s fire control recommendations and for determining further needs and changes in wildland fire control operations.

IMPLEMENTATION - The Director of the California Department of Conservation would appoint an ad hoc Fire Control Action Committee, to be responsible to him, by June 1, 1972.

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APPENDIX A

SUBCOMMITTEES TASK FORCE ON CALIFORNIA' S WILDLAND FIRE PROBLEM

FIRE PREVENTION

Chairman: Howard Moore, Deputy State Forester - Fire Prevention
California Division of Forestry
1416 Ninth Street, Room 1506
Sacramento, CA 95814

Members: Deane Bennett, Law Enforcement Coordinator
California Division of Forestry
1416 Ninth Street, Room 1506
Sacramento, CA 95814

Wm. Folkmann, Fire Prevention Researcher
Pacific Southwest Forest & Range Experiment Station
P. O. Box 245
Berkeley, CA 94701

Gerald Gause, Information and Education
U. S. Forest Service
630 Sansome Street
San Francisco, CA 94111

Kenneth D. Harp, Fire Chief
Kings County Fire Department
1332 West Lacey Blvd.
Hanford, CA 93230

Oliver Holmes, Fire Control
U. S. Forest Service
630 Sansome Street
San Francisco, CA 94111

Emil Koledin, Fire Control
U. S. Forest Service
630 Sansome Street
San Francisco, CA 94111

Sam Tanksley, Fire Prevention
Los Angeles County Fire Department
Box 3009, Terminal Annex
Los Angeles, CA 90054

James Taylor, Fire Prevention Engineer
California Division of Forestry
1416 Ninth Street, Room 1506
Sammento, CA 95814

FUEL MANAGEMENT AND HAZARD REDUCTION

Chairman: Carl C. Wilson, Assistant Director
Pacific Southwest Forest and Range Experiment Station
P. O. Box 245
Berkeley, CA 94701

Members: Arthur Arndt, Forester
Los Angeles County Fire Department
Box 3009, Terminal Annex
Los Angeles, CA 90054

Karl H. Baker
Assistant Agricultural Commissioner
Department of Agriculture
San Diego County
5555 Overland Avenue
San Diego, CA 93123

Lester J. Berry
University of California
Agricultural Extension Service
Davis, CA 95616

David A. Crane, Assistant Maintenance Engineer
Division of Highways
P. O. Box 1499
Sacramento, CA

Maurice E. Croson, Fire Control Representative
Southern California Edison Co.
P. O. Box 429
Alhambra, CA 91802

Lawrence A. Daley, Chairman
Watershed Resources Advisory Commission
San Diego County
Daley Enterprises
P. O. Box 4067
San Diego, CA

Robert A. Dellberg, State Woodland Conservationist
Soil Conservation Service
2020 Milvia Street
Berkeley, CA 94704

Ralph E. Dickinson
California Cattlemens' Association
Box 8
Fagan Canyon
Santa Paula, CA 93060

FUEL MANAGEMENT AND HAZARD REDUCTION (CONT)

Members: William Dresser, Forest Supervisor
Angeles National Forest
10 15 No. Lake Avenue
Pasadena, CA 91104

William I. DuBois, Director of Natural Resources
California Farm Bureau
I I th and L Streets
Sacramento, CA 95814

Peter Gaidula, Resources Protection Specialist
Department of Parks and Recreation
P. O. Box 2390
Sacramento, CA 95811

Lisle R. Green, Project Leader
Riverside Forest Fire Laboratory
P. O. Box 5007
Riverside, CA 92507

Harold T. Heady
University of California
School of Forestry and Conservation
145 Walter Mulford Hall
Berkeley, CA 94720

Ray Murphy, Resources Protection
Western Region
National Park Service
P. O. Box 36063
San Francisco, CA 94102

Michael O. Schori, Deputy State Forester
California Division of Forestry
P. O. Box 1067
Riverside, CA 92502

Russ Stallings
Los Angeles County Fire Department
3422 Louise Drive
Newbury Park, CA 91320

Bill Templeton
Bureau of Land Management
1414 University Avenue
Rivet-side, CA 92507

ZONING, SUBDIVISION CODES, AND LAND USE

Chairman: Don Woolfe, Planning Director
Tulare County
Room 107, Courthouse
Visalia, CA 93277

Members: Raymond Banks, President
California Rural Fire Association
1968 South Lovers Lane
Visalia, CA 93277

Dean Lloyd, Assistant Supervisor
Sequoia National Forest
900 West Grand Avenue
Porterville, CA 93257

Neil Pfulb, Planning Director
San Bernardino County
316 Mountain View Avenue
San Bernardino, CA 92401

Charles M. Sparks, Captain
Fire Prevention Section
Los Angeles County Fire Department
P. O. Box 3009, Terminal Annex
Los Angeles, CA 90054

Harry Tow, City Manager
City Hall
707 West Acequia
Visalia, CA 93277

H. J. Williams, Forest Lands Officer
San Bernardino National Forest
175 West 5th Street
San Bernardino, CA 92401

BUILDING CODES AND CONSTRUCTION MATERIAL REQUIREMENTS

Chairman: Albert E. Hole
State Fire Marshal
1215 ' 0' Street, Room 101
Sacramento, CA 95814

Members: Ralph Andersen
League of California Cities
1108 ' 0' Street
Sacramento, CA 95814

Harry Bigglestone, Chief Engineer
Public Protection Engineering Department
Insurance Services Office
465 California Street
San Francisco, CA 94101

Arthur E. Dreyer
Housing Standards Coordinator
California Division of Codes and Standards
1121 ' 0' Street, Room 3344
Sacramento, CA 95814

Walt Meagher, Division Chief
Los Angeles County Fire Department
P. O. Box 3009, Terminal Annex
Los Angeles, CA 90054

E. Thompson, Staff Deputy Chief
Los Angeles City Fire Department
217 South Hill Street
Los Angeles CA 90012

FIRE CONTROL

Chairman: John Hastings, Deputy State Forester - Fire Control Officer
California Division of Forestry
1416 Ninth Street
Sacramento, CA 95814

Members: Raymond Banks, President
California Rural Fire Association
California Division of Forestry
1968 S. Lovers Lane
Visalia, CA 93277

Richard Barrows, Chief
Fire and Rescue Division
Office of Emergency Services
2800 Meadowview Road
P. O. Box 9577
Sacramento, CA 95823

Norman Farrell, Assistant Regional Forester
U. S. Forest Service
630 Sansome St.
San Francisco, CA 94111

Don Halsey, Protection Specialist
Office of the State Director
Bureau of Land Management
2800 Cottage Way
Sacramento, CA 95825

Walt Meagher, Division Chief
Los Angeles County Fire Department
P. O. Box 3009, Terminal Annex
Los Angeles, CA 90054

Robert Miller, President
California Fire Chiefs' Association
Chief, Marysville Fire Department
107 Ninth Street
Marysville, CA 95901

Ray Murphy, Resources Protection
Western Region
National Park Service
P. O. Box 36063
San Francisco, CA 94102

E. Thompson, Staff Deputy Chief
Los Angeles City Fire Department
217 South Hill Street
Los Angeles, CA 90012