APPENDIX G

APPENDIX G

FIRE MANAGEMENT ANALYSIS

This is a summary of the results from the updating of the Fire Management Analysis and planning for the Pike and San Isabel National Forests. The results show very little change from the analysis that was done during the first half of Fiscal Year 1980.

This analysis used Fire Management planning zones. The original analysis was by fuel types and slopes. This plan used the Forest fire weather stations with similar fuel types for historical fire and weather data and these were called Fire Management Analysis Zones 1 through 7.

Fire Management Analysis Level I is an analysis of the management situation. The analysis uses information describing the current situation and inventories; current and historical fire and weather information; and program costs. Fire Management Analysis Level II is an evaluation of Fire Program options and program mixes. This process was used to find the most cost-efficient program. The most cost-efficient program is used in the implementation of the Fire Management Planning Level III. Fire Management Planning Level IV is the operational project evaluation. The analysis and planning process is found in the Fire Management Analysis and Planning Handbook (FSH 5109.19).

The Forest was divided into two major fuel models, G & H for the high country and C, K, U for the remainder of the Forest. There are seven Fire Management Analysis zones, 2 in the G-H fuel model and 5 in the C-K-U fuel models. Fuel models G & H represent dense conifer stands and short needled conifers respectively. Fuel model C typifies open pine stands. Fuel model K is used to represent light thinnings and partial cuts in conifer stands. Fuel model U represents closed stands of western long-needled pines. (More complete detail on fuel models is found in USDA Report INT-39.) The Grasslands were not used in this analysis. "C" is the primary fuel model for the lower elevations and "G" is the primary fuel model for the higher elevations.

Attached are forms showing the most cost-effective option of the five programs, alternatives and mixes used at the Forest level. The non-dollar values shown on Table II-A determine the relative impacts of fire on the environmental values and the social, public and technical values that were considered for this plan.

The Level II part of this analysis required a projection of the number and types of personnel, engines (pumpers), air tankers, helicopters and heavy equipment involved in the suppression of these modeled fires. The travel time, amount of work produced, and the fire intensity level at which these resources were dispatched was an essential part of the analysis. Detailed data and comparisons are filed under 5190 at the Pike and San Isabel Forest Supervisor's Office.

The following table shows the Fire Management Zone name, number, fuel model, weather station name and number, and average slope.

Name	Number	Fuel Model	Weather Station and Number		Average Slope
Bailey	PSI01	C-K	Buffalo Cr.	053101	20 to 30 (2)
Monument	PSI02	C-U	A.F.A.	053602	10 to 20 (1)
Tarryall	PSI03	C-K	Lake George	053002	10 to 20 (1)
Buffalo Peaks	PSI04	G-H	Fairplay	053003	20 to 30 (2)
Aspen Ridge	PSI05	C-U	Red Deer	052902	10 to 20 (1)
Hardscrabble	PSI06	C-K	Buffalo Cr.	053101	20 to 30 (2)
Greenhorn	PSI07	G-H	Lake Isabel	054002	20 to 30 (2)

Volunteer Fire Department personnel were used more often as appropriated fire funding was decreased. The Forest has depended largely on seasonal personnel that work in other functions for initial attack as shown in option 001. Ninety percent of the initial attack ground crews were these seasonal employees. The engines were manned by trained seasonal personnel who generally had one or more years experience in fire fighting as a Forest worker on a District. Reduction in seasonal forces hired primarily for non-fire work will have definite effect on initial attack crews.

Wildfires are spread throughout the Forest with more than 60 percent of them occurring in FMAZ 1, 3, and 6. Zone 5 has the least fires with approximately 3 percent. We are normally faced with three fire seasons. First one starting about the first of May to the fifth of June, second season June 25 to July 12, and the third season from approximately August 25 to October 31.

Option 001	Is the cost efficient level identified in 1980 (Base Level)
Option 002	Is minus 20 percent of Base Level
Option 003	Is plus 20 percent of Base Level
Option 004	Is minus 40 percent of Base Level
Option 005	Is plus 40 percent of Base Level

Net value change at the different options is as follows:

	Value Change + or -	
001	0%	Base
002	-109%	-20%
003	+48%	+20%
004	-258%	-40%
005	+80%	+40%

TABLE I-A HISTORICAL FIRE PROGRAM DATA

YEAR	COSTS			TOTAL AREA BURNED	TOTAL NUMBER OF FIRES	COMMENTS, RESOURCES
	TOTAL FFP BUDGET (1)	SUPPRESSION (2)	TOTAL FIRE PROG. (1+2)			
	M$	M$	M$	Acres		
1971	135	90	225	640	140	Number of acres and number of fires have not changed significantly during the past 20 years. Suppression costs have risen an estimated 5% per year since 1971 through 1980.
1980	268	168	436	632	137	

TABLE 1-B PROJECTED FIRE PROGRAM - PREFERRED ALTERNATIVE (LEVEL I)

FOREST PLAN TIME PERIOD	COSTS			EXPECTED AREA BURNED	COMMENTS, EXPECTED CHANGE IN RESOURCES, ETC.
	TOTAL FFP BUDGET (1)	SUPPRESSION (2)	TOTAL FIRE PROG. (1+2)		
	M$	M$	M$	Acres	
1985	495	198	693	429	During this period of 65 years, suppression type resources will be modified for quicker initial attack time which should result in approximately 20% reduction in average acres burned. Costs have been increased by 1% per year. These are "real" cost increases and do not reflect inflation.
2050	816	327	1143	400	

TABLE II-A SUMMARY OF RESULTS OF FMA LEVEL II OPTIONS

OPTION	COSTS		TOTAL NET VALUE CHANGE (3)	COSTS & NVC (1+2+3)	EXPECTED ACRES BURNED	TOTAL NON DOLLAR VALUE	COMMENTS, RESOURCES ETC.
	TOTAL FFP BUDGET (1)	SUPPRESSION (2)					
	M$	M$	M$	M$	ACRES	+ OR -	
001	495	198	43	736	429	-66	Option 001 is the cost efficient level
002	396	353	89	838	909	-103	Option 002 is the -20% of this base.
003	594	130	22	748	236	-19	Option 003 is the +20% of this base.
004	297	602	153	1052	1566	-137	
005	693	74	9	776	108	+10	

TABLE II-B PROJECTED FIRE PROGRAM-PREFERRED ALTERNATIVE AND OPTION (LEVEL II)

FOREST PLAN TIME PERIOD	COSTS		TOTAL NET VALUE CHANGE (3)	COSTS & NVC (1+2+3)	EXPECTED ACRES BURNED	COMMENTS, CHANGES IN RESOURCES, RESOURCE MIXES OVER TIME
	TOTAL FFP BUDGET (1)	SUPPRESSION (2)				
	M$	M$	M$	M$	ACRES	
1985	495	198	43	736	429	Costs for FFP, FFF & NVC have been increased 1% per year. Acreage reflects a prevention program for education of the general public and for faster and improved techniques of fire suppression for the projected time period.
2050	816	327	71	1214	400	

TABLE III

FIRE MANAGEMENT EFFECTIVENESS