

# CORONADO NATIONAL FOREST

## FIRE MANAGEMENT PLAN

2003



## TABLE OF CONTENTS

<b>TABLE OF APPENDICES</b> .....	vi
<b>TABLE OF FIGURES</b> .....	vii
I. Introduction .....	1
II. Relationship to Land Management Planning and Fire Policy.....	3
A. Current Land And Resource Management Plan – Fire Management Direction .....	3
Coronado National Forest Plan (1986) .....	3
Issues, Concerns, and Management Opportunities .....	3
Fire and Air Quality Management Prescriptions Applicable to all Areas of the Forest .....	4
Summary of Fire Management Activities.....	4
Forest LRMP Specific Management Areas Standards and Guidelines for Fire and Fuels Management.....	5
Management Area 1 .....	5
Management Area 2.....	6
Management Area 2A.....	6
Management Area 2B .....	7
Management Area 3.....	7
Management Area 3A and 3B.....	8
Management Area 4.....	8
Management Area 7, Prescription A.....	9
Management Area 7, Prescription B.....	9
Management Area 8.....	10
Management Area 8A.....	10
Management Area 9.....	11
Management Area 14.....	12
Management Area 15.....	12
Mexican Spotted Owl – Region-wide Standard and Guidelines (Forest LRMP Amendment No. 8, 1996).....	13
Protected Areas – 600 acres around activity center .....	13
Restricted Areas (Mixed conifer, pine-oak, & riparian forests outside of protected areas).....	14
Other Forest and Woodland Types (Ponderosa pine, spruce-fir, woodland, and aspen forests outside protected and restricted areas) .....	14
Northern Goshawk – Region-wide Standard and Guidelines (Amendment No. 8, 1996)	14
B. Policies Concerning Fire Management .....	15
1995/2001 Federal Wildland Fire Management Policy .....	15
Guiding Principles .....	16
The Policy .....	17
<i>The Endangered Species Act, 1973</i> .....	18
The National Fire Plan, August 2000 .....	19
<i>A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the             Environment: 10-Year Comprehensive Strategy, May 2002</i> .....	20
Region 3 Supplement to FSM 5140, 5100-2000-2, Effective date December 22, 2000 .....	21
<i>Standards for Fire and Aviation Operations Handbook, April 1, 2002</i> .....	22
C. Forest-wide Desired Conditions, Goals, and Objectives.....	23

Desired Condition for Vegetation Types on the Forest .....	23
Forest Goals and Objectives .....	25
Fires Management Analysis Zones .....	26
III. Wildland Fire Management Strategies.....	27
A. General Fire Management Considerations.....	27
B. Wildland Fire Management Goals .....	27
C. Wildland Fire Management Options.....	28
Wildland Fire Suppression.....	28
Wildland Fire Use .....	29
Prescribed Fire .....	30
Non-Fire Application .....	31
D. Description of Wildland Fire Management Strategies by Fire Management Unit .....	31
1. Delineate Fire Management Units on the Map.....	31
2. Provide a Summary listing of the Identifiers for the FMUs. ....	33
a. Fire Management Unit Identifier .....	33
b. FMU Characteristics.....	33
Wildland Fire Use Fire Management Unit.....	37
Wilderness Characteristics.....	37
Wildland Fire Suppression Fire Management Unit .....	46
Fire Management Analysis Zones .....	48
c. Strategic and Measurable Management Objectives Specific to the FMU .....	50
Wildland Fire Use FMU .....	50
Wildland Fire Suppression FMU .....	51
d. Management Constraints or Criteria Affecting Operational Implementation .....	51
Wildland Fire Use FMU .....	51
Wildland Fire Suppression FMU .....	52
e. Historical Fire Occurrence.....	53
Coronado Fire History 1970 through 2001 .....	54
Fire Occurrence by EMA, 1982 – 2001 .....	57
f. Fire Management Situation .....	63
Southeastern Arizona Climate .....	63
Southeastern Arizona Fire Season .....	63
Weather Patterns Influencing Fire Behavior Forest-wide .....	65
Fuel Conditions in the FMU Likely to Influence Fire Behavior .....	67
Fire Regime Alterations.....	68
Ponderosa Pine.....	68
Mixed Conifer.....	69
Spruce-Fir .....	69
Woodland.....	69
Chaparral.....	70
Desert Shrub.....	70
Control Problems and Dominate Topographic Features.....	72
Other Elements of the Fire Environment Affecting Management.....	72
IV. Wildland Fire Management Program Components .....	73
A. General Implementation Procedures.....	73
Setting Out Implementation Procedures .....	74

B. Wildland Fire Suppression .....	75
1. Range of Potential Behavior .....	76
2. Preparedness Actions .....	77
a. Fire Prevention, Community Education, Community Risk Assessment, and Other Community Assistance Activities (Firewise) .....	77
i. Annual Prevention Program.....	78
ii Fire Restrictions and Closures .....	78
Fire Investigations.....	79
iii. Industrial Operations and Fire Precautions .....	80
b. Annual Fire Training Activities .....	81
Fire Safety Refresher Training.....	82
Helitack Refresher Training.....	82
Physical Fitness Standards.....	83
Qualifications and Need Assessment.....	84
30-Mile Accident Prevention Action Plan Items .....	84
c. Fire Season Readiness;.....	85
i. Annual Preparedness Reviews.....	87
ii. Season Start and Stop Criteria with Typical Dates.....	88
iii. District-Level Fire Cache Considerations, Stocking Levels, and Management.....	88
Fire Cache Management .....	88
Resource Management.....	89
Equipment and Supply Management .....	90
d. Detection .....	91
Fixed Detection.....	91
Aerial Detection .....	92
e. Fire Weather and Fire Danger.....	92
i. Weather Station.....	92
ii. NFDRS .....	95
NFDRS Fuel Models compared to FBPS Fuel Models .....	96
NFDRS Definitions.....	96
Ignition Component (IC): .....	97
Energy Release Component (ERC): .....	97
Burning Index (BI):.....	98
f. Policy and Forest Service Manual and Handbook Direction .....	101
Wildland Fire Safety .....	101
Code of Conduct 2002, Thirty-mile Hazard Abatement Plan.....	101
Fire Shelters .....	101
Forest Pocket Card, Incident Response Pocket Guide, Fireline Handbook, Standard for Fire and Aviation Operations 2002 “Red Book” .....	102
Engines.....	102
Southeast Zone Coordination Center Operations .....	102
Communications, Radio Use, and Frequency Management.....	103
International Agreement .....	105
Cooperative Agreements and Coordination.....	107
Fire Preparedness Plan.....	108
Preparedness Level 1 (Low) .....	108

Preparedness Level II (Moderate).....	109
Preparedness Level III (High).....	109
Preparedness Level IV (Very High) .....	110
Preparedness Level V. (Extreme) .....	111
g. Aviation Management.....	113
Modular Airborne Fire Fighting Systems (MAFFS) .....	113
Use of Military Helicopters .....	113
3. Initial Attack .....	114
a. Information Used to Set Initial Attack Priorities .....	114
b. Criteria for the Appropriate Initial Attack Response.....	114
LRMP Fire Management/Suppression Zones.....	114
c. Confinement as an Initial Attack Suppression Strategy.....	115
d. Response Times .....	115
e. Restrictions and Special Concerns.....	115
f. Social and Political Concerns.....	116
4. Extended Attack and Large Fire Suppression.....	117
a. Determine Extended Attack Needs .....	117
b. Implementation Plan Requirements – WFS Development. ....	117
c. Complexity Decision Process From Initial Attack to Extended Attack.....	118
d. Unit Example of “Delegation of Authority” for the Incident Commander .....	119
5. Exceeding Existing WFIP – Selecting a New Strategy .....	119
6. Minimum Impact Suppression Tactics (MIST) Requirements.....	121
7. Other Fire Suppression Considerations .....	122
C. Wildland Fire Use .....	122
1. Objectives .....	125
2. Factors Affecting Decision Criteria for Wildland Fire Use.....	125
3. Preplanned Implementation Procedures .....	129
4. Impacts of Plan Implementation .....	129
Social Impacts.....	129
Resource and Environmental Impacts .....	129
5. Required Personnel .....	131
6. Public Information .....	132
7. Records .....	132
8. Cost Tracking.....	133
D. Prescribed Fire .....	133
1. Planning and Documentation.....	133
2. Exceeding Existing Prescribed Fire Burn Plans. ....	136
3. Air Quality and Smoke Management .....	136
Prescribed Fire: .....	138
Wildland Fire Use:.....	139
E. Non-Fire Fuel Applications.....	139
Mechanical Treatment and Other Applications .....	140
F. Fuel Treatment Funding and Projects.....	142
G. Emergency Rehabilitation and Restoration.....	143
V. Organizational, and Budgetary Parameters.....	144
A. Current fiscal year budget and the ability to support planned and unplanned actions.....	144

B. Organization chart supported by the current fiscal year budget.....	144
C. Cooperative agreements and interagency contacts.....	144
D. Emergency Equipment rental agreements.....	146
E. Contract suppression and prescribed fire resources .....	146
VI. Monitoring and Evaluation .....	147
A. Annual Monitoring Requirements .....	147
B. Reporting Requirements.....	147
FS-5100-29 Fire Report .....	147
Statistical Wildfires.....	147
Non-statistical Wildfires .....	148
ICS-209 Incident Status Summary.....	148
R3-FS-5100-30 Prescribed Fire Report .....	149
FS-5100-29t Fire Use Report.....	149
VII. Action Items .....	150
VIII. Works Cited and References.....	152

## **TABLE OF APPENDICES**

### Section I

- A. Definitions
- B. History of the Federal Fire Policy

### Section III

- C. Vegetation from each Ecosystem Management Area (EMA)
- D. Mexican Spotted Owl Protected Activity Centers (PAC) Map
- E. Fire Occurrence Map of the Forest and for each EMA
- F. Weather Observation and Weather Patterns
- G. Fuel Loading Maps

### Section IV

- H. Decision Criteria Checklist and Fire Situation Forms
- I. SafeNet and SafeCom
- J. Southeast Zone Training Needs
- K. Preparedness Review Form
- L. Firefighter Pocket Card
- M. Aviation Risk Assessment
- N. Wildland Fire Situation Analysis (WFSA) and R3 Cost Estimating Guide
- O. Net Value Change (NVC) Tables
- P. Cost Risk Assessment Form
- Q. Southwest Area Complexity Analysis
- R. Delegation of Authority and Line Officer Direction
- S. ICT5 & ICT3 Incident Review Form
- T. Wildland Fire Use Complexity Rating Worksheet and Guide
- U. Coronado Risk Assessment Chart
- V. Prescribed Fire Complexity Analysis Worksheet and Guide
- W. Prescribed Fire Burn Plan
- X. Arizona and New Mexico Smoke Management Maps
- Y. ADEQ Burn Plan, Daily Burn Request, and Accomplishment Forms
- Z. Forest Five-Year Fuel Treatment Projects
- AA. Burn Area Emergency Rehabilitation (BAER) Assignment and Responsibilities

### Section V

- BB. Coronado National Fire Management Analysis (NFMAS) Summary
- CC. 5100-2, Current Year Budget Spreadsheet

### Section VI

- DD. Coronado Fire Management Monitoring Plan, 2002
- EE. Incident Status Summary, ICS 209 Form

## TABLE OF FIGURES

### Section II

1. Vegetation and Historical Fire Frequency

### Section III

2. Fire Management Options and Land Resource Management Plan Management Areas
3. Map of Forest Fire Management Units
4. Map of Southeastern Arizona and the Coronado National Forest
5. Biotic Communities Occurring on the Coronado by EMA and Fire Management Unit
6. Map of Vegetation used in the 1986 Land and Resource Management Plan (LRMP)
7. Fire Suppression Zones used in the 1986 LRMP
8. Fire Management Analysis Zones, 1998 NFMAS
9. Fire Occurrence and Acres Burned
10. Fire Occurrence by Month – Lightning vs. Human Caused
11. Lightning Fires and Acres Burned from 1970 – 2001
12. Energy Release Component (ERC) Graph using Fuel Model H
13. Fuel Loading in Tons per Acres
14. Vegetation Type Crosswalk and Fire Frequencies

### Section IV

15. Range of Suppression – Oriented Appropriate Management Responses
16. industrial Fire Precaution Plan
17. Burning Index – Fire Danger – Staffing Class
18. Protection Resources at 100% Most Efficient Level (MEL)
19. Zone Resources
20. Available Forest Equipment Resources
21. Remote Automated Weather Stations
22. Haines Index
23. Adjective Rating for ERC using Fuel Model H
24. 90 and 97 percentiles for Various Fuel Models
25. Burning Index and Associated Fire Variables
26. Fuel Model Descriptions for Lower Foothills/Valley Fuels
27. Fuel Model Descriptions for Upper Mountain Fuels
28. Staffing and Response Level Guide
29. Approvals for Mechanical Use in Wilderness and Special Management Areas
30. Wildland Fire Implementation Plan Stages, Requirements, Status, and Timelines
31. Wildland Fire Relative Risk Rating
32. Coronado Risk Assessment Chart
33. ERC Values and Adjectives Ratings for Coronado Risk Assessment Chart
34. Prescribed Fire Burn Plan Complexity Rating Approval Authority
35. Coronado Fuel Treatment Funding Trend

## I. INTRODUCTION

For all areas subject to wildland fires, a Fire Management Plan must be developed in compliance with the *1995/2001 Federal Wildland Fire Management Policy and Program Review* (FSM 5101.4, FSH 5109.19 chapter 50), the *Wildland and Prescribed Fire Management Policy and Implementation Procedures Reference Guide* (FSM 5140.32, 5108), *Managing Impacts of Wildfire on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy* (FSM 5101, 5103, and 5108), the Interagency Fire Management Plan template, and *A Collaborative Approach for Reducing Wildland Fire Risks to Communities, and the Environment: 10-Year Comprehensive Strategy Implementation Plan*.

The Forest Supervisor will review the Fire Management Plan annually by February 1 for approval. An approved copy will then be provided to the Regional Forester (FSH 5109.19 chapter 50).

One of the key items in the National Fire Plan (NFP) is the emphasis on working together with other Federal, State, Tribal, and local agencies to plan, prioritize, and implement NFP projects. When the Secretaries of the Departments of Agriculture and Interior (DOI) signed the 10-Year Comprehensive Strategy, they agreed with the Governors that collaboration will be an important part of the planning process, and is key to the successful implementation of the NFP.

As a result of that commitment, the Forest Service and the Interior Bureaus are using a “Fuel Treatment Program Development and Collaboration Process.” The intent of this process is to encourage local discussion of common fuel treatment opportunities across landscapes to improve project efficiencies and effectiveness. Additionally, this process outlines the steps and methods the Forest will use to coordinate with all ownerships to effectively protect communities and restore and maintain ecosystems. The Fire and Aviation Management staff is preparing an Interim Directive to incorporate this process into the FS 5150 Manual. (Letter from Tom L. Thompson, Deputy Chief, National Forest Systems and Joel D. Holtrop, Deputy Chief, State and Private Forestry, April 12, 2002)

Line Officers are to implement this process immediately and to take any reasonable measures to assure that current planning efforts conform to the process outlined in the enclosed interagency memorandum.

This Fire Management Plan formally documents the fire program based on the Coronado National Forest Land and Resource Management Plan (LRMP). The Fire Management Plan is the fire manager’s tool for implementing fire-related policy direction on the ground, mainly by expanding strategic Forest plan policy into specific direction for each fire management unit delineated in the Fire Management Plan.

The Fire Management Plan does not make decisions; rather it provides the operational parameters whereby fire managers implement the goals and objectives in the Forest LRMP.

The Fire Management Plans follows the goals and objectives identified in the LRMP. These goals and objectives should be achieved by implementing the fire management options of

appropriate suppression response strategy and fire use. The Forest LRMP meets National Environmental Policy Act (NEPA) requirements as well as other State and Federal regulatory requirements (36 CFR 219, 40 CFR 1500, FSM 1950, FSH 1909.15, FSM 1905).

Both the *National Forest Management Act* of October 22, 1976 (16 U.S.C. 1600 et seq.) and the *Clean Air Act*, as amended (42 U.S.C. 7401 et seq.), are applicable to the use of fire on National Forest System lands. These acts are summarized in FSM 5101.1. In addition, the *Wilderness Act* of September 3, 1964 (16 U.S.C. 1131, 1132), directs that wilderness be protected and managed to preserve its natural condition and be affected primarily by the forces of nature (FSM 5140, FSM 2320).

The Federal Wildland Fire Management Policy adopted December 18, 1995, by the Secretaries of Agriculture and Interior directs agency heads and other officials to implement the principles, policies, and recommendations in the Final Report of the “Federal Wildland Fire Management Policy and Program Review” (FSM 5101.4). Additional direction is in the *Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide* (FSM 5140.32, 5108).

See **Appendix A** for Definitions.

See **Appendix B** for a brief review of the History of the Federal Fire Policy.

## II. RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

The Fire Management Plan will describe strategies to implement the *1995/2001 Federal Wildland Fire Management Policy and Review* while achieving the goals and objectives identified in the Forest LRMP. Through the appropriate management response for wildland fires as defined in the Forest LRMP, the Forest will achieve the Forest Direction and Goals defined in the LRMP. (See Section IV)

Fire management policy is complex, dynamic, and involves many layers of direction and strategy, such as the *Federal Wildland Fire Management Policy and Program Review*, the *Wildland and Prescribed Fire Management Policy and Implementation Procedures Reference Guide*, *Managing Impacts of wildfires on Communities and the Environment*, and *Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy*, and *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implantation Plan*. A strategic fire management document consists of the following main components:

- ❑ Firefighter and public safety is the first priority.
- ❑ Fire, as a critical natural process, should be reintroduced into the ecosystem.
- ❑ Where fire cannot be safely reintroduced, pretreatment should be considered.
- ❑ Wildland fire management decisions are in concert with other resource management decisions.

### A. CURRENT LAND AND RESOURCE MANAGEMENT PLAN – FIRE MANAGEMENT DIRECTION

The following summarizes Coronado National Forest LRMP programmatic direction, by Management Areas, as it pertains to relevant fire management activities.

#### CORONADO NATIONAL FOREST PLAN (1986)

The 1986 Land and Resource Management Plan (LRMP) calls for an appropriate suppression response to wildland fires and to allow natural ignitions to play, as nearly as possible, their natural ecological role within wilderness areas.

#### *Issues, Concerns, and Management Opportunities*

Many years of intensive fire control has resulted in significant changes in vegetative composition (*and structure [vertical and horizontal]*) of the Coronado NF. In most cases, this shift has been towards a less desirable plant community with attendant increase in fire hazard, a decrease in forage production, and declining wildlife habitat. As management philosophies have evolved toward fire “management” (as opposed to “control”), there has been increasing support for allowing fire to play a more natural role in the ecosystem. Use of fire as a tool for changing and maintaining vegetative diversity continues to enjoy strong local support. Proposed fire management policies address the following issues:

1. Use of fire as a management tool, including planned ignitions, prescribed natural fire, and management of wildfires.

2. Appropriateness of suppression actions under varying conditions and locations.

*Fire and Air Quality Management Prescriptions Applicable to all Areas of the Forest*

1. Develop the most cost-efficient operation for fire management activities depending on the resources, property, and lives to be protected.
2. Keep the level of prevention and suppression activities commensurate with the increasing risks and hazards.
3. Conduct fire suppression activities in a way to protect watershed and visual resource values.
4. Appropriate fire suppression responses will protect life and property.
5. All management practices are planned to meet local, State and Federal air quality standards.

*Summary of Fire Management Activities*

The Forest has been divided into two fire suppression zones. These zones are based on resource management objectives that consider property and resource values to be protected. These fire suppression zones are shown on the Fire Management Map for the Forest LRMP (see Section III.D, Figure 7).

Once the final alternative is selected and the final plan is implemented, any fire suppression zone boundaries not coinciding with management area boundaries (*map is filed with the Forest LRMP*) will be used to further subdivide the management areas as necessary to clearly incorporate the zones into management areas.

Each wildland fire ignition requires an appropriate suppression response. This response will be one that most efficiently meets fire management direction under current and expected burning conditions. The response may range from a strategy of prompt control to one of containment or confinement. Life and property will be protected in all suppression responses.

Fire Management Zone 1:

The appropriate suppression response in this zone is predicated upon preventing fires from reaching or damaging high value resources and improvements. Containment and control accomplishes this objective during very high and extreme fire danger.

<b>Fire Danger Class</b>	<b>Appropriate Response</b>
(1) Low	Confinement, Containment or Control
(2) Medium	Confinement, Containment or Control
(3) High	Confinement, Containment or Control
(4) Very High	Containment, Control
(5) Extreme	Containment, Control

Control for Danger Classes “Very High” and “Extreme” is accomplished by maximum use of people and equipment needed to control and suppress any wildfire as quickly as possible and by the most direct method possible.

## Fire Management Zone 2:

The appropriate suppression response in this zone is predicated on responses that will suppress wildfires at the least cost with acceptable damage to improvements, while maintaining sufficient forage to sustain livestock grazing operations and ground cover to keep watersheds in satisfactory condition. Confinement, containment, and control will be used to meet these objectives.

Fire Danger Class	Appropriate Response
(1) Low	Confine
(2) Medium	Confine
(3) High	Confine
(4) Very High	Confine, Contain, Control
(5) Extreme	Confine, Contain, Control

The appropriate response is accomplished by minimum use of people and equipment.

For each fire, the responsible line officer shall evaluate and document the suppression response prior to each subsequent burning period. If the response is no longer consistent with fire management direction, or is anticipated to become inappropriate, the fire shall be considered an “escaped fire”.

*Confine:* To limit fire spread within a predetermined area principally by use of natural or preconstructed barriers or environmental conditions. Suppression actions may be minimal and limited to surveillance under appropriate conditions.

*Contain:* To surround a fire, and any spot fires therefrom, with control line as needed, which can reasonably be expected to check the fire’s spread under prevailing and predicted conditions.

*Control:* To complete the control line around a fire, any spot fires therefrom, and any interior islands to be saved, burn out any unburned area adjacent to the fire side of the control line, and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions.

*Escaped Fire:* A fire, which has exceeded, or is anticipated to exceed, pre-planned initial action capabilities or the fire management direction.

### *Forest LRMP Specific Management Areas Standards and Guidelines for Fire and Fuels Management*

#### MANAGEMENT AREA 1

**Emphasis and Intensity:** Manage for visual resource and semi-primitive dispersed recreation opportunities, including those related to wildlife. Visual quality objectives will be met.

**Description:** Steep, rugged lands that may be visible from major travel routes. These lands have generally been determined as incapable of or unsuitable for sustained wood harvest and livestock

grazing. Slopes are generally greater than 40%. This includes all vegetative types, except major riparian areas. The total area of Management Area 1 is 97,772 acres.

- ❑ The management area is divided into fire suppression zones 1 and 2 based on resource protection and cost objectives.
- ❑ Natural fuel treatment may consist of broadcast burning or wood gathering for fuelwood.
- ❑ Prescribed fire will be used to reduce fuel hazards, enhance wildlife values, and enhance visual resources.

#### MANAGEMENT AREA 2

**Emphasis and Intensity:** Manage for dispersed recreation opportunities. Uses such as electronic sites and observatories will be permitted on special sites. Sawtimber and fuelwood harvest will be used to enhance recreation, visual quality, and wildlife values. Visual quality objectives will be met. Watershed conditions will be maintained or improved.

**Description:** Coniferous forest lands suitable for a wide variety of recreational and special uses. Slopes are generally less than 40%. This includes both suitable and unsuitable timber producing lands. Located in the Chiricahua, Pinaleno, Santa Rita, and Santa Catalina Mountain Ranges, the total area of Management Area 2 is 27,663 acres. (NOTE: Actual acreage should be 26,443. Management Area 2B of 1,220 acres was not subtracted from this Management Area 2 when Amendment 9 (July 1998) added Management Area 2B in the Pinaleno Mountains).

- ❑ This management area is in fire suppression zone 1 based on resource objectives.
- ❑ Require 100% slash treatment within cleared right-of-way boundaries.
- ❑ Within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies), require 100% treatment of all activity slash.
- ❑ Fuel treatment may consist of chipping, broadcast burning, piling and burning, or lopping and scattering.
- ❑ Prescribed fire will be used to reduce fuel hazard and enhance wildlife habitat.
- ❑ All projects that include prescribed fire will include specific burning prescriptions to insure that fire can be controlled within established boundaries and that burning meets the desired resource objectives.
- ❑ Burn logging slash and debris piles in locations and at times that will minimize scorching of adjacent trees and shrubs.

#### MANAGEMENT AREA 2A

**Emphasis and Intensity:** Manage to provide opportunities for astronomical and biological research, perpetuation of wilderness values, and unique wildlife and vegetative species. Provide for an increase in habitat for the endangered Mt. Graham red squirrel while allowing for a minimum level of astrophysical facilities development.

**Description:** Coniferous forest lands that have been determined to be suitable for both astronomical research and habitat for old growth forest dependent species, such as the Mt. Graham red squirrel. Slopes are generally less than 40% in the spruce-fir vegetative type and generally greater than 40% in the mixed conifer vegetative type. Located in the Pinaleno

Mountain Range, total acreage is 3,071 acres, (442 acres recommended for inclusion in the Wilderness Preservation System, 1,616 acres for Biological Research (Red Squirrel Refugium), 134 acres for Astronomical/Biological Research, 16 acres for Astronomical Use, 863 acres for Dispersed Recreation.)

- ❑ The observatory permittee would be notified of schedule, size and location of all prescribed fires in the Pinaleno Mountains.
- ❑ Utilize prescribed fire to reduce risk from wildfire and enhance wildlife values, with emphasis on red squirrel habitat.
- ❑ Allow fire to assume its natural role in wilderness areas.
- ❑ This management area is within fire suppression zone 1.

#### MANAGEMENT AREA 2B

**Emphasis and Intensity:** Manage to perpetuate the unique wildlife and vegetative species – in particular, the Wet Canyon talussnail – present within this management area. Provide for an increase in habitat stability for the Wet Canyon talussnail, while allowing for other uses in the area. Dispersed and developed recreation activities and other uses will be allowed to the extent they do not degrade the unique values of the management area. Facilities may be allowed and maintained as long as the unique resource values are protected.

**Description:** Located in the Pinaleno Mountain Range, this management area includes the Wet Canyon watershed downstream to the mouth of Twilight Creek, but does not include Twilight Creek or its associated watershed. Total acreage for Management Area 2B is 1,220 acres. This Management Area was added in Amendment 9, July 1998. (This area was in Management Area 2, but the acres were not subtracted from that total. See notes in Management Area 2.)

- ❑ Wet Canyon is within Fire Suppression Zone 1 (i.e. immediate suppression action to protect high value resources).
- ❑ Evaluate fuel-loading situation and prescribe action that reduces potential fire hazards related to talussnail protection.

#### MANAGEMENT AREA 3

**Emphasis and Intensity:** Manage for a variety of dispersed recreation opportunities while protecting or maintaining the unique physical, biological and cultural resources. Visual quality objectives will be met. Other activities should maintain or enhance the recreational opportunities. Watershed conditions will be improved or maintained. Cave Creek, outside the South Fork, will be managed with an emphasis on wildlife habitat. Habitat for species shown under standard and guidelines will be maintained or improved primarily through coordination with other resource activities. Wildlife oriented recreation is also an important part of the management for dispersed and developed use in Cave Creek.

**Description:** Undeveloped grasslands, woodlands, coniferous forest and riparian areas that have a high attraction to recreationists, much of which is near developed recreation sites and is influenced by the presence of these sites. This area includes all slope ranges, as well as known

essential habitats for threatened and endangered plants and animals. Total acreage for Management Area 3 is 14,772 acres.

- ❑ The management area is divided into fire suppression zones 1 and 2 based on resource protection and cost objectives.
- ❑ Fuel treatment may consist of chipping, broadcast burning, piling and burning, or lopping and scattering.
- ❑ Prescribed fire will be used to reduce fuel hazard and to maintain or improve wildlife habitat and watershed conditions.
- ❑ A project that includes prescribed burning will include specific burning prescriptions that will insure that fire can be controlled within established boundaries and that the burning meets the desired resource objectives.
- ❑ Burn slash and debris piles in locations and at times that will minimize scorching of adjacent trees and shrubs.

#### MANAGEMENT AREA 3A AND 3B

**Emphasis and Intensity:** Manage for a variety of developed recreation opportunities while mitigating the impact on the unique physical, biological, and cultural resources. Visual quality objectives will be met. Other activities will maintain or enhance the recreational opportunities. Watershed conditions will be improved or maintained.

**Description:** Land suitable and capable of supporting recreational developments. Average slopes less than 15%. Total acreage in Management Area 3A and 3B is 4,165.

- ❑ This management area is in fire suppression zone 1 based on objectives for resource protection.

#### MANAGEMENT AREA 4

**Emphasis and Intensity:** Manage for a sustained harvest of livestock forage and fuelwood while maintaining and improving game animal habitat. Fully mitigate the impacts on cultural resources and non-game wildlife habitats. Visual quality objectives will be met or exceeded. Dispersed recreation activities may occur except for those that adversely affect the productivity of the land or resource. Watershed and soil conditions will be improved or maintained.

**Description:** Land capable and suitable for fuelwood harvest, livestock grazing, and game habitat management. Average slopes are 0-40%. Includes desert scrub, grassland, chaparral, and woodland vegetative types.

- ❑ This management area is divided into fire suppression zones 1 and 2 based on resource protection and cost objectives.
- ❑ Reduce slash from fuelwood harvest to a level that is compatible with Forest Service ability to protect remaining resources.
- ❑ Within foreground distance zones of sensitivity levels 1 and 2 (trails, roads, use areas, and water bodies), require 100% treatment of all slash and debris.

- ❑ Fuel treatment may consist of chipping, broadcast burning, piling and burning, or lopping and scattering.
- ❑ Prescribed fire will be used to reduce fuel hazard, enhance wildlife habitat, and improve range conditions.
- ❑ All projects that include prescribed burning must also include specific burning prescriptions that ensure fire can be controlled within established boundaries and that burning meets the desired resource objectives.
- ❑ Burn fuelwood slash and debris piles in locations and at times that will minimize scorching of adjacent trees and shrubs.

#### MANAGEMENT AREA 7, PRESCRIPTION A

**Emphasis and Intensity:** Manage to perpetuate the unique wildlife or vegetative species. Improve and manage riparian areas (as defined by FSM 2526, Riparian Watershed Management) to benefit riparian dependent resources. Dispersed recreation activities and other uses may be allowed to the extent they do not degrade the unique values. Facilities may be allowed and maintained for the purpose of protecting these resources. Visual quality objectives will be met.

**Description:** Undeveloped lands that have been identified as supporting flora and fauna associations that are unique enough to require special management practices. Includes identified riparian ecotypes (deciduous and coniferous forest types). Includes know essential habitats for threatened and endangered plants and animals. Management Area 7 (A) is 24,423 acres.

- ❑ The management area is divided into fire suppression zones 1 and 2 based on resource protection and cost objectives.
- ❑ Require 100% slash treatment within cleared right-of-way boundaries.
- ❑ Within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies), require 100% treatment of all activity slash.
- ❑ Fuel treatment may consist of chipping, broadcast burning, piling and burning, or lopping and scattering.
- ❑ Prescribed fire will be used to reduce fuel hazard and enhance wildlife habitat.
- ❑ All projects that include prescribed fire will include specific burning prescriptions to ensure that fire can be controlled within established boundaries and that burning meets desired resource objectives.
- ❑ Burn logging slash and debris piles in locations and at times that will minimize scorching of adjacent trees and shrubs.

#### MANAGEMENT AREA 7, PRESCRIPTION B

**Emphasis and Intensity:** Manage to perpetuate the unique wildlife or vegetative species while producing livestock forage and fuelwood on a sustained basis. Recreation activities and other uses may occur to the extent they do not degrade the unique values. Visual quality objectives will be met. Facilities may be allowed and maintained for the purpose of protecting these resources.

**Description:** Undeveloped lands that have been identified as supporting flora and fauna associations unique enough to require special management practices. This includes identified

higher ecosystem extensions, such as oak and mesquite bottoms. Also includes known essential habitats for threatened and endangered plants and animals. The total area of Management Area 7 (B) is 17,124 acres.

- ❑ This management area is divided into fire suppression zones 1 and 2 based on resource protection and cost objectives.
- ❑ Reduce slash from fuelwood harvest and right-of-way clearing to a level compatible with the Forest Service's ability to protect remaining resources and still provide needed wildlife habitat.
- ❑ Fuel treatment may consist of chipping, broadcast burning, piling and burning, or lopping and scattering.
- ❑ Prescribed fire will be used to reduce fuel hazard and maintain or improve wildlife habitat, livestock forage, and watershed conditions.
- ❑ All projects that include prescribed fire will include specific burning prescriptions to ensure fire can be controlled within established boundaries and that burning meets desired resource objectives.
- ❑ Burning fuelwood slash and debris piles in locations and at times that will minimize scorching of adjacent trees and shrubs.

#### MANAGEMENT AREA 8

**Emphasis and Intensity:** Manage to provide opportunities for nondisruptive research and education. Restrictions on use will be imposed as necessary to keep areas in their climax state. No harvest of forest products is allowed, including fuelwood collection.

**Description:** Includes those lands that have been determined to be suitable for designation as research natural areas. Includes the following established areas: Butterfly (1,000 acres), Goudy Canyon (370 acres), Elgin (280 acres), Goodding North End (7 acres). New RNA Proposals include the following: Canelo (350 acres), Goodding North Extension, and Research Ranch (1,635 acres). Total area of Management Area 8 is 3,805 acres.

- ❑ The management area is divided into fire suppression zones 1 and 2 based on objectives for resource protection and cost of suppression.
- ❑ Use prescribed fire to reduce risk and to permit lighting to more nearly play its natural role.

#### MANAGEMENT AREA 8A

**Emphasis and Intensity:** Manage for wilderness values and uses while providing opportunities for nondisruptive research and education. Restrictions on use will be imposed as necessary to keep areas in their climax state. No harvest of forest products is allowed, including fuelwood collection.

**Description:** Includes those lands that have been determined to be suitable for both wilderness designation and designation as research natural areas. Includes the following areas: Existing RNA – Pole Bridge, 460 acres; Santa Catalina (reduced), 890 acres; Goodding, 538 acres; and Goudy Canyon, 190 acres. New RNA Proposals include Goodding extension South (1,470

acres), Goodding extension North (47 acres), and Pole Bridge extension (90 acres). Total area of Management Area 8A is 3,685 acres.

- ❑ The management area is divided into fire suppression zones 1 and 2 based on objectives for resource protection.
- ❑ Use prescribed fire to reduce risk and to permit lightning to more nearly play its natural role.

#### MANAGEMENT AREA 9

Emphasis and Intensity: Manage for wilderness values while providing livestock grazing and providing recreation opportunities that are compatible with maintaining wilderness values and protecting resources. The emphasis of fire management is to permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness.

Description: Includes all vegetative and land form types that have been determined to be suitable for wilderness designation. Includes the following areas:

#### Existing Wilderness

- ❑ Chiricahua (87,150 acres) and Pole Bridge RNA (550 acres)
- ❑ Pusch Ridge (56,043) and the Santa Catalina RNA (890 acres)
- ❑ Galiuro (76,317 acres)
- ❑ Miller Peak (20,190 acres)
- ❑ Mt. Wrightson (25,260 acres)
- ❑ Pajarita (5,365 acres) and the Goodding RNA (2,055 acres)
- ❑ Rincon Mountain (38,590 acres)
- ❑ Santa Teresa (26,780 acres)

Total area of Management Area 9 is currently 335,695 acres, while the newly proposed Mt. Graham Wilderness Area would add 61,810 acres.

- ❑ Fire management emphasis permits lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness.
- ❑ Prescribed fire is used to reduce to an acceptable level the risks and consequences of wildfire within the wilderness or escaping from wilderness.
- ❑ This management area is divided into fire suppression zones 1 and 2 based on objectives for resource protection and cost of suppression.
- ❑ Conduct suppression in a manner compatible with overall wilderness management objectives. Preference will be given to the method that will cause the least:
  - Alternation of wilderness landscape.
  - Disturbance of the land surface.
  - Disturbance to visitor solitude.
  - Reduction of visibility during periods of visitor use.
  - Adverse effect on other air quality related values.

#### MANAGEMENT AREA 14

**Emphasis and Intensity:** Manage to perpetuate unique wildlife or vegetative species. Improve and manage riparian areas (as defined by FSM 2526, Riparian Watershed Management) to benefit riparian dependent resources. Recreation activities and other uses may occur to the extent they do not degrade the unique values. Facilities may be allowed and maintained for the purpose of protecting these resources. Visual quality objectives will be met or exceeded.

**Description:** Land within the South Fork of Cave Creek (Chiricahua Mountains) (762 acres) and Guadalupe Canyon (Peloncillo Mountains) (3,478 acres) that have been identified as supporting flora and fauna associations that are unique enough to require special management practices, including formal designation as a zoological or botanical area. Includes known, essential habitats for threatened and endangered plants and animals. Total acres for Management Area 14 equals 4,240 acres.

- ❑ The South Fork Area is within fire suppression zone 1 and the Guadalupe Canyon Area is within fire suppression zone 2.
- ❑ Use prescribed fire to maintain or improve unique vegetation or wildlife species.
- ❑ Fuel treatment may consist of broadcast burning, piling and burning, lopping and scattering, or fuelwood gathering.
- ❑ All projects that include prescribed fire will include specific burning prescriptions to ensure fire can be controlled within established boundaries and that burning meets desired resource objectives.
- ❑ Prescribed fire will be used to reduce fuel hazard and enhance wildlife habitat.
- ❑ Within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas and water bodies) requires 100% treatment of all activity slash.
- ❑ Burn debris piles in locations and at times that will minimize scorching of adjacent trees and shrubs.
- ❑ Outbreaks of insects or disease will be controlled if there is a significant danger to recreation uses, to unique vegetation or wildlife species, or if uses outside the zoological area are threatened.

#### MANAGEMENT AREA 15

**Emphasis and Intensity:** This area is an administrative delineation that provides for additional notoriety, protection and research on wild relatives of economically important crops, in particular, wild chile (*Capsicum annuum* var. *aviculare*). General forest management will continue under the multiple-use sustained yield principles that guided this area previous to the Management Area 15 delineation.

**Description:** Lands within the Rock Corral Canyon sub-watershed located on the Nogales Ranger District that have been identified as supporting flora that are unique enough to require special management practices, including formal designation as a botanical area. The vegetation consists of 2,344 acres of oak woodland, 421 acres of desert grassland, and 71 acres of deciduous riparian habitat. Slopes are less than 15% on 74 acres, and greater than 40% on 1,948 acres. The Botanical Area contains about 3½ miles of unimproved roads (Level 2). The management area contains no suitable timber land, as well as 888 acres of suitable livestock grazing land. All land

located within this management area is National Forest System land. The new management area was carved out of existing Management Areas 1, 4, and 7. The total area of Management Area 15 is 2,836 acres.

- ❑ The Rock Corral Watershed is in Fire Suppression Zone 2. Fire Suppression should be conducted to protect and promote botanical values. Prescribed fire may be used prior to chile flowering and fruiting.

*Mexican Spotted Owl – Region-wide Standard and Guidelines (Forest LRMP Amendment No. 8, 1996)*

#### PROTECTED AREAS – 600 ACRES AROUND ACTIVITY CENTER

Allow no timber harvest except for fuelwood and fire risk abatement to established protected activity centers (PAC). Allow for no timber harvest except for fire risk abatement in mixed conifer and pine-oak forests on slopes greater than 40% where timber harvest has not occurred in the last 20 years. Treat fuel accumulations to abate fire risk.

- ❑ Select for treatment 10% of the PACs where nest sites are known in each recovery unit having high fire risk conditions. Select another 10% of the PACs in which nest sites are known as a paired sample to serve as control areas.
- ❑ Designate a 100-acre “no treatment” area around the known nest site of each selected PAC. Habitat in the no treatment area should be as similar as possible in structure and composition as that found in the PAC.
- ❑ Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel treatment, and prescribed fire to abate fire risk in the remainder of the selected PAC outside the 100 acre “no treatment” area.
- ❑ Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.
- ❑ Select and treat additional PACs in 10% increments if monitoring of the initial sample shows there were no negative impacts or if there were negative impacts which can be mitigated by modifying treatment methods.
- ❑ Use light prescribed burns in non-selected PACs on a case-by-case basis. Burning should avoid a 100-acre “no treatment” area around the activity center. Large woody debris, snags, clumps of broad-leafed woody vegetation should be retained and hardwood trees larger than 10 inches diameter at the root collar.
- ❑ Pre- and post-treatment monitoring should be conducted in all PACs treated for fire risk abatement.

In PACs with steep slopes, treat fuel accumulations to abate fire risk.

- ❑ Use combination of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.
- ❑ Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.
- ❑ Pre- and post-treatment monitoring should be conducted in all PACs treated for fire risk abatement.

In Reserved Lands (Wilderness, Research Natural Areas, Wild and Scenic Rivers, and Congressionally Recognized Wilderness Study Areas), allow prescribed fire where appropriate.

RESTRICTED AREAS (MIXED CONIFER, PINE-OAK, & RIPARIAN FORESTS OUTSIDE OF PROTECTED AREAS)

- ❑ Attempt to mimic natural disturbance patterns by incorporating natural variation, such as irregular tree spacing and various patch sizes, into management prescriptions.
- ❑ Encourage prescribed fire and prescribed natural fire to reduce hazardous fuel accumulation. To reduce ladder fuels and the risk of crown fire, thinning from below before burning may be desirable or necessary.

OTHER FOREST AND WOODLAND TYPES (PONDEROSA PINE, SPRUCE-FIR, WOODLAND, AND ASPEN FORESTS OUTSIDE PROTECTED AND RESTRICTED AREAS)

- ❑ Apply ecosystem approaches to manage for landscape diversity mimicking natural disturbance patterns by incorporating natural variation in stand conditions and retaining special features such as snags and large trees, utilizing appropriate fires, and by retention of existing old growth in accordance with forest plan old growth standards and guidelines.

*Northern Goshawk – Region-wide Standard and Guidelines (Amendment No. 8, 1996)*

Specific vegetation management for landscapes outside Goshawk post-fledging family areas, within post-fledging family areas, and within nesting areas are addressed on page 20 and 21 of the Forest LRMP.

- ❑ The order of preferred treatment of woody debris for landscapes outside Goshawk post-fledging family areas is 1) prescribed burning, 2) lopping and scattering, 3) hand piling or machine grapple piling, and 4) dozer piling.
- ❑ The preferred treatment to maintain the desired structure for landscapes within nesting areas is to thin from below with non-uniform spacing and to use handtools and fire to reduce fuel loads. Lopping and scattering of thinning debris is preferred if prescribed fire cannot be used. Piling of debris should be limited. When necessary, hand piling should be used to minimize compaction within piles and to minimize displacement and destruction of the forest floor and the herbaceous layer. Do not grapple or Dozer pile debris.
- ❑ Low intensity ground fires are allowed at any time in all forested cover types, but high intensity crown fires are not acceptable in the post-fledging family area or nest areas. Avoid burning the entire home range of a goshawk pair in a single year. For fires planned in the occupied nest area, a fire management plan [prescribed fire plan] should be prepared. The fire management plan [prescribed fire plan] should minimize the risk of goshawk abandonment with low intensity ground fire burns in the nesting area. Prescribed fire within nesting areas should be planned to move with prevailing winds away from the nest tree to minimize smoke and the risk of developing a crown fire, thereby driving the adults off or consuming the nest tree.

## B. POLICIES CONCERNING FIRE MANAGEMENT

The following law and policies address or affect fire management direction and program guidance:

- ❑ *Mexican Spotted Owl – Region-wide Standard and Guidelines* (Forest LRMP Amendment No. 8, 1996)
- ❑ *Northern Goshawk – Region-wide Standard and Guidelines* (Forest LRMP Amendment No. 8, 1996)
- ❑ *1995/2001 Federal Wildland Fire Management Policy*
- ❑ *The Endangered Species Act, 1973*
- ❑ *Region 3 Supplement to FSM 5140, 5100-2000-1, Effective date December 22, 2000*
- ❑ *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy, May 2002*
- ❑ *The National Fire Plan, August 2000*
- ❑ *Standards for Fire and Aviation Operations Handbook, April 1, 2002*
- ❑ *Forest Fire Management Zones, 1995*

### 1995/2001 FEDERAL WILDLAND FIRE MANAGEMENT POLICY

The events of the 1994 wildland fire season, which resulted in 34 fatalities, created a renewed concern about the impacts of wildland fire among Federal land management agencies and various constituent groups. As a result of these concerns, and in response to the specific recommendation of the South Canyon Fire in Colorado where 14 firefighters perished, the *Federal Wildland Fire Management Policy and Program Review* was finalized and signed by the Secretaries of Interior and Agriculture in December 1995. For the first time, one set of Federal fire policies was established, creating a change in policy for both Departments. The Land Management agencies were directed to reintroduce “natural” fire back into the ecosystem. The 1995 Federal Fire Policy states,

*Every acre with burnable vegetation will have an approved Fire Management Plan. . . . Wildland fire, as a critical natural process, must be reintroduced into the ecosystem. . . . Wildland fire management decisions and resource management decisions go hand in hand. . . . Agency administrators must have the ability to choose from a full spectrum of fire management actions – from prompt suppression to allowing fire to function in its natural ecological role.*

This not only mandated development of a Fire Management Plan, it was also very clear that protection of human life must be the first priority in wildland fire management, while property and natural/cultural resources jointly become the second priority. In the past, in terms of developing and implementing firefighting strategy, life and property were equal in priority.

After the Cerro Grande prescribed fire escaped in May 2000 in New Mexico, the Secretaries of Interior and Agriculture requested a review of the *1995 Federal Wildland Fire Management Policy* and its implementation. The review team concluded that, given the current conditions of public lands and the exploding population of people living in the wildland-urban interface, the ideology of reintroducing natural fire into the ecosystem was an enormous task requiring an

equally enormous risk. Furthermore, the review team identified a lack of coordination, consistency, and agreement between the five federal land management agencies (Forest Service, Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and National Fish and Wildlife Service), which they considered as failing to fully implement the *1995 Federal Wildland Fire Management Policy*.

The review resulted in a *2001 Federal Wildland Fire Management Policy*, which continued to support the 1995 Policy, but placed a stronger emphasis on the Federal agencies to establish and implement a clear, concise system of accountability and cooperation among themselves. Furthermore, the new policy calls for using “the full range of fire management activities . . . to achieve ecosystem sustainability,” including fire use, and it recognizes the “importance of sound science in fire management activities.” The policy stresses the need to complete or revise fire management plans to make them “more effectively and directly” integrated “with other natural resource goals.” But most importantly, firefighter and public safety is the first priority in every fire management activity.

The *2001 Federal Wildland Fire Management Policy* (2001 Federal Fire Policy) clearly states that response to wildland fire is based on the circumstances surrounding the fire (identified in an approved fire management plan), *not the ignition source or location of the fire*. Subsequently, the intent of this statement was misinterpreted. Therefore, prior to implementing the *2001 Federal Wildland Fire Management Policy*, an implementation plan will be distributed (expected during Spring 2003). Throughout this Fire Management Plan, the *Federal Wildland Fire Management Policy* will be referred to as the *1995/2001 Federal Fire Policy*.

#### *Guiding Principles*

The following are guiding principles for the *2001 Federal Fire Policy*:

- ❑ Firefighter and public safety is the first priority in every fire management activity.
- ❑ The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- ❑ Fire Management plans, programs, and activities support land and resource management plans and their implementation.
- ❑ Sound risk management is a foundation for all fire management activities.
- ❑ Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- ❑ Fire management plans and activities are based upon the best available science.
- ❑ Fire management plans and activities incorporate public health and environmental quality considerations.
- ❑ Federal, State, tribal, local, interagency, and international coordination and cooperation are essential.
- ❑ Standardization of policies and procedures among Federal agencies is an ongoing objective.

The *2001 Federal Fire Policy* provides the philosophical and policy foundation for federal interagency fire management activities conducted under the National Fire Plan. The National Fire Plan is not a single, cohesive document. Rather, it is composed of various documents,

including (1) a September 8, 2000, report *Managing the Impact of Wildfires on Communities and the Environment* from the Secretaries of the Interior and Agriculture to the President of the United States in response to the wildland fires in 2000; (2) congressional direction accompanying substantial new appropriations for wildland fire management for fiscal year 2001; (3) in 1999 the Forest Service released *Protecting People and Sustaining Resources in Fire-Adapted Ecosystems: A Cohesive Strategy* in response to the U.S. General Accounting Office (GAO) Report, *Western National Forests: A Cohesive Strategy is Needed to Address Catastrophic Wildfire Threats* (GAO/RCED-99-65); (4) several approved and draft strategies to implement all or parts of the plan.

### *The Policy*

1. **Safety** – Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.
2. **Fire Management and Ecosystem Sustainability** – The full range of fire management activities will be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components.
3. **Response to Wildland Fire** – Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected dictate the appropriate management response to the fire.
4. **Use of Wildland Fire** – Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible be allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.
5. **Rehabilitation and Restoration** – Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, and safety, and to help communities protect infrastructure.
6. **Protection Priorities** – The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, or other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.
7. **Wildland Urban Interface** – The operational roles of federal agencies as partners in the Wildland Urban Interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, State, or governments. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer, and may also enter into formal agreements to assist State and local governments with full structural protection.)
8. **Planning** – Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans are strategic plans that define a program to manage wildland and prescribed fires based on the area's approved land management plan. Fire Management

Plans must provide for firefighter and public safety, address values to be protected and public health issues, and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.

9. **Science** – Fire Management Plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, Fire Management Plans, and implementation plans.
10. **Preparedness** – Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight.
11. **Suppression** – Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.
12. **Prevention** – Agencies will work together and with their partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.
13. **Standardization** – Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, values-to-be-protected methodologies, and public education programs for all fire management activities.
14. **Interagency Cooperation and Coordination** – Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.
15. **Communication and Education** – Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.
16. **Agency Administrator and Employee Roles** – Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operation, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.
17. **Evaluation** – Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects through implementation of the 2001 Federal Fire Policy. The evaluation will assure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

#### *THE ENDANGERED SPECIES ACT, 1973*

The regulations for implementing the Act call for expedited consultation during fire emergencies. Section 7 regulations recognize that an emergency (natural disaster or other calamity) may require expedited consultation (50 CFR &402.05).

Chapter 8.1 of the *Fish and Wildlife Service Consultation Handbook* outlines procedures for protecting Endangered species while handling situations such as wildland fires.

“Where emergency actions are required that may affect listed species and/or critical habitats, a Federal agency may not have the time for the administrative work required by the consultation regulation under non-emergency conditions. Emergency consultations should be handled with as much understanding of the action agency’s critical mission as possible while ensuring that anticipated actions will not violate sections 7(a)(2) or 7(d). Emergency consultation procedures allow action agencies to incorporate endangered species concerns into their actions during the response to an emergency.”

Chapter 8.2 of the *Handbook* makes clear the Fish and Wildlife Service’s approach to emergency situations:

*“. . . During this initial contact, or soon thereafter, the Services’ role is to offer recommendation to minimize the effects of the emergency response action on listed species or their critical habitat (the informal consultation phase). **DO NOT stand in the way of the response efforts.**”*

(Additional details on the emergency consultation process can be found at the following website: <http://endangered.fws.gov/consultations/s7hndbk/ch5-9.pdf>)

THE NATIONAL FIRE PLAN, AUGUST 2000

On August 8, 2000, the Administration requested the Secretaries of Agriculture and interior to develop a plan to respond to the severe fire season, reduce the impacts of wildland fires on rural communities, and ensure sufficient firefighting resources in the future. The Secretaries of Agriculture and Interior developed an interagency approach to respond to this request. Congress then mandated the implementation of the National Fire Plan through its appropriation action and written direction. Five key objectives were identified in the National Fire Plan, *Managing the Impacts of Wildfires on Communities and the Environment: A Report to the President in Response to the Wildfires of 2000*:

1. **Firefighting.** Ensure adequate preparedness for future fire seasons.
2. **Rehabilitation and Restoration.** Restore landscapes and rebuild communities damaged by wildfire.
3. **Hazardous Fuel Reduction.** Reduce fuels in wildlands at risk from uncharacteristic fire effects, especially near communities. Invest in projects to reduce fire risk.
4. **Community Assistance.** Work directly with communities to ensure adequate protection.
5. **Accountability.** Be accountable and establish adequate oversight, coordination, program development, and monitoring for results.

*A COLLABORATIVE APPROACH FOR REDUCING WILDLAND FIRE RISKS TO COMMUNITIES AND THE ENVIRONMENT: 10-YEAR COMPREHENSIVE STRATEGY, MAY 2002*

The *10-Year Comprehensive Strategy* was developed to address the risk of wildland fire to communities and the environment as a result of a “high level of growth in the wildland urban interface that is placing more citizens and property at-risk of wildland fire . . . .”

Additionally, the *Strategy* recognizes the following:

“ . . . that many of the past century’s traditional approaches to land management, the development of unnaturally dense, diseased or dying forests, and treatment of wildland fire have contributed to more severe wildland fires and created widespread threats to communities and ecosystems. Millions of acres of land nationwide are presently classified as being at high risk from wildland fire.”

This *Strategy* includes goals, guiding principles, performance measures, and implementation tasks that the Secretaries, Governors, Tribes, local officials, and other endorsers’ reemphasize a unified national commitment to reduce the risk of wildland fire across the landscape. They also understand the need to cooperate with affected landowners.

The four goals of the 10-Year Comprehensive Strategy are:

1. Improve Fire Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restore Fire-Adapted Ecosystems
4. Promote Community Assistance

Its three guiding principles are:

1. Priority setting that emphasizes the protection of communities and other high-priority watersheds at-risk
2. Collaboration among governments and broadly representative stakeholders
3. Accountability through performance measures and monitoring for results

To reduce the threat of wildland fire to people, communities, and ecosystems, the following is essential:

- ❑ Firefighter and public safety continuing as the highest priority
- ❑ A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting Federal, State, Tribal, and local governments
- ❑ A unified effort to implement the collaborative framework called for in the Strategy in a manner that ensures timely decisions at each level.
- ❑ Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities

- ❑ The achievement of national goals through action at the local level with particular attention on the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities
- ❑ Communities and individuals in the wildland urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks
- ❑ Management active, both in the wildland-urban interface and in at-risk areas across the border landscape
- ❑ Active forest and rangeland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction tools to simultaneously meet long-term ecological, economic, and community objectives

REGION 3 SUPPLEMENT TO FSM 5140, 5100-2000-2, EFFECTIVE DATE DECEMBER 22, 2000

The Regional supplement provides direction and guidelines for fire use (wildland fire use and prescribed fire). The following is a summary:

- ❑ A Wildland Fire Implementation Plan (WFIP) must be prepared and approved for wildland fire use (FSM 5143.2). The Prescribed Fire Burn Plan (exhibit 1) must be prepared for every burn unit of a prescribed fire regardless of size or complexity of the project.
- ❑ Qualifications for prescribed fire and wildland fire use positions are described. Only trained and qualified personnel (including appropriate fitness levels) shall fill prescribed fire, wildland fire use, and wildland fire positions.
- ❑ All aerial ignition operations must conform to the Interagency Helicopter Operations Guide (IHOG). The Plastic Sphere Dispenser Operator (PSDO) is a technical specialist position and the requirement is to be Helicopter Crew Member (HECM) (arduous fitness level) qualified. Furthermore, any and all individuals filling aviation positions must be trained and qualified.
- ❑ When the Regional Preparedness Level is IV or higher, Forests must coordinate and receive approvals from the Regional Forester prior to committing resources to a fire use project (Regional Mob Guide).
- ❑ If a fire use project (wildland fire use or prescribed fire) exceeds or is anticipated to exceed planned limits, and the Fire Use Manager (FUMA) or Burn Boss determines the fire use project cannot be returned to planned limits with available resources within 48 hours, the fire shall be declared “escaped” and a Wildland Fire Situation Analysis (WFSA) will be prepared to determine the appropriate suppression response. Once a fire use fire has been declared escaped, it cannot be returned to fire use status. The escaped fire must be suppressed.
- ❑ When a fire escapes and is declared a wildland fire, acres accomplished prior to the escape that were burned within prescription shall be considered acres accomplished for resource objectives. All acres burned after the declaration as a wildland fire, both inside and outside the planned burned area, shall be considered wildland fire acres. Any escaped prescribed fires and any escaped wildland fire use fires must be reported within 24 hours after escape.

- ❑ Once the appropriate suppression response has been accomplished, the area may be treated with fire use in the future, but only after the original burn plan has been reviewed and revalidated.
- ❑ Before a prescribed fire may be implemented, the RxBP must be approved in writing by the appropriate line officer. A qualified burn boss must conduct each prescribed burn. Similarly, before a wildland fire use project can be implemented, the WFIP must be approved in writing by the appropriate line officer. Each wildland fire use project must be conducted by a qualified FUMA. The FUMA determines, through the WFIP, the organization and expertise necessary to successfully manage wildland fire(s) to meet resource objectives.
- ❑ Complexity Rating Guide PMS-424, NFES 2474 is required for Prescribed Fire. When developing a WFIP concerning wildland fire utilized for resource benefits, the complexity-rating guide incorporated as part of Stage II analysis may be used. The Stage II Complexity Analysis was developed using criteria weighted toward natural ignitions. Note: Because of this, Stage II complexity guides contain some criteria that differ from the Prescribed Fire Complexity Guide PMS-424.
- ❑ Human caused fires, including any escaped fire use fires, shall not be managed as a wildland fire use to meet resource objectives, but require a suppression response. The appropriate management response can vary from aggressive initial attack to a more defensive posture based on the fuels, weather, topography, health and safety issues, fire behavior, cost plus loss, and other consideration between the Agency Administrator and the Incident Commander.

*STANDARDS FOR FIRE AND AVIATION OPERATIONS HANDBOOK, APRIL 1, 2002*

The *2001 Federal Wildland Fire Management Policy* and the Interagency Management Review identified the need for clear policy and guidance. The *Standards for Fire and Aviation Operations Handbook* (referred as the “Redbook”) was developed to provide clear policy and guidance for fire suppression and aviation operations. Additionally, the *Handbook* provides a reference for current operational policies, procedures, and guidelines for managing wildland fire and aviation operations. Originally, the Bureau of Land Management developed this handbook in 1996 as a result of the South Canyon fire in 1994. The Forest Service and the Fish and Wildlife Service adopted the Handbook as direction on April 1, 2001. The completion of the 2002 version satisfies Action Item 17 of the Thirty-Mile Prevention Action Plan. (To obtain a complete overview and the program directives, see Chapter 1 of the *Handbook*.)

## C. FOREST-WIDE DESIRED CONDITIONS, GOALS, AND OBJECTIVES

### DESIRED CONDITION FOR VEGETATION TYPES ON THE FOREST

Although not specifically discussed in the current Forest LRMP, desired conditions related to fire management have been subsequently identified in other landscape-level analysis completed for the vegetation types in the Southwestern Region, using data provided by Dietrich 1980, Weaver 1951, Leopold 1924, Cable 1975, Carmichael 1978, and Swetnam 1992. The desired conditions are defined here since they are consistent with revised Forest Service policy for sustaining ecosystems. These are the vegetative conditions that seem most sustainable based on historic fire regimes and current management practices. (See *Figure 1* for a summary of the vegetation types.)

The Forest consists of several ecological zones, ranging from Desert Shrub at the lower elevation to Spruce Fir forests at the higher elevations. Existing conditions are described in Section III. D.2.b. Desired conditions vary from zone to zone in the following broad categories, which are taken directly from the Moody et. al. report on *Fire and Forest Health, Southwestern Region*, 1992, and Parameter 17 of the Forest Ecosystem Assessment by Sherry Tune:

#### Desert Shrub

Protect the sensitive species while returning selected desert shrub back to a more natural grassland condition. Density of desert scrub is reduced through establishment of a natural fire regime. Fires occur every 5 to 10 years.

#### Grassland

Maintain to existing extent and expanded where possible. Woody species occur at near natural levels. Species compositions of grasses are predominately native; exotic species are not causing decline in vigor or density of native species. Historically, fires in this ecosystem occurred every 5 to 10 years. When grasslands are in good condition, fire can be used as an effective tool to control a variety of invading species. Grasslands in the desired condition hold a great variety and abundance of species in the climax communities and account for much of the herbaceous production of the southwest. The composition of perennial grasses varies in location with a wide variety of cool and warm season grasses. Shrubs are also a key element in this ecosystem. Some tree species, such as Pinyon-juniper or mesquite, will be present but should not be a major component of the flora. This variety in plant life will provide forage for wildlife and domestic livestock on a year-around basis.

#### Chaparral

The desired condition is to achieve a mosaic of chaparral representing different-age stands. A natural fire regime consists of patchy fires every 20 to 100 years. The mosaic would include grass openings. This mixture of brush, grasses, forbs, and shrubs provides for a diverse group of animals and native plant species. The surface is littered with a scattering of 1 to 3 inches of dead leaves and small twigs from the brush and grass. Older stands of vegetation may be 6 to 12 feet

in height and be 80 to 100 years old. Such areas are usually found on the moist, north-facing slopes in the higher elevation, but are common on all slopes in the lower elevation.

### Woodland

Woodlands should have a divergent mix of landscapes, such as open areas and scattered groups or clumps of woodland tree species. Open canopies, light grass and ground fuels will create an environment resulting in flame lengths of four feet or less, which is desirable to prevent high intensity fires. A natural fire regime consists of fire every 10 to 30 years in Pinyon/juniper vegetation type and every 50 to 100 years in oak woodland. Stand-replacement fires may occur every 300 years or more.

### Ponderosa Pine

For the most part, the Ponderosa Pine stand will be without closed canopies; grasses and forbs will be abundant, with overall diversity and forest health enhanced through a mosaic of even-aged and uneven-aged stands. A healthy forest has a broad mix of landscapes, such as open meadows, stands of old trees and stands of young trees, occasional dense stands, and open stands with numerous grasses, i.e., a mosaic to provide for the various needs of different animals and native plant life.

The desired condition would result in the elimination of stand replacement fires. As ignitions occur, flame lengths would typically be four feet or less. Natural fires occur at intervals usually averaging less than ten years, and as often as every two years. Return fire to its natural role to the maximum extent possible, consistent with safety of persons, property, wilderness resources, and other resources.

### Mixed Conifer

The stand will be a mosaic of open and closed canopies; grasses and forbs will be abundant, with overall diversity and forest health enhanced through a mosaic of even-aged and uneven aged stands. Drier sites burn every five to twelve years; cooler moister sites may burn every 20 to 25 years.

### Spruce-Fir

The desired condition is a mosaic of open and closed canopies, with pockets of heavy regeneration adjacent to older stands of forest; large, grassy meadows or parks exists, with overall diversity and forest health enhanced through a mosaic of even-aged and uneven-aged stands. Fire is very infrequent in this vegetation type. Stand replacement fire will provide diversity within these stands. Historically, fires are rare, occurring at intervals of 150 years or more.

**Figure 1. Vegetation Types and Historical Fire Frequency.** The following is a correlation between the vegetation types used for the 1986 Forest Plan and the vegetation types used for fire return interval and regimes.

Vegetation Code	Vegetation Used in Forest Plan	Vegetation Fire Return Interval and Regimes	Historical Fire Frequency
1	Southwestern Desert Shrub	Desert Shrub	5 to 10 years
2	Desert Grassland	Desert Shrub/Grassland	5 to 10 years
3	Plains Grassland	Grassland	5 to 10 years
4	Mountain Grassland/Meadow	Influencing**	Dominant Vegetation
5	Chaparral	Chaparral	20 to 50 years
6	Broadleaf Woodland (Evergreen)	Woodland	10 to 30 yrs in pinon/juniper or 50-100 yrs in oak
7	Coniferous Woodland	Woodland	10 to 30 yrs in pinon/juniper or 50-100 yrs in oak
8	Deciduous Forest	Influencing**	Dominate Vegetation
9A	Coniferous Forest (transition)	Ponderosa Pine	2 to 10 years
9C	Coniferous Forest (mixed-conifer)	Mixed Conifer	5 to 12 years dry sites ~22 years cooler moist sites
9D	Coniferous Forest (spruce-fir)	Spruce/Fir	Rare >150 years
10	Dry Desert Riparian	Influencing**	Dominant Vegetation
11A	Deciduous Riparian	Influencing**	Dominant Vegetation
11B	Higher ecosystem extensions	Influencing**	Dominant Vegetation
12	Coniferous Riparian	Influencing**	Dominant Vegetation

\*\* Use the dominant vegetation to determine fire regimes or fire intervals.

#### FOREST GOALS AND OBJECTIVES

The following is a list of Forest management direction and goals as provided in the LRMP. These goals should be achieved through the appropriate management response to wildland fires by implementing the options of appropriate suppression response strategy and/or fire use:

- ❑ Protect life, property and resources from wildfire while using prescribed fire as a tool to meet management objectives.
- ❑ Cooperate with other Federal, state and local regulatory agencies to protect air quality as required by the Clean Air Act.
- ❑ Maintain or enhance the visual resource through sound landscape management principles.
- ❑ Protect significant cultural resources from damage by project activities or vandalism.
- ❑ Preserve and protect caves for their unique environmental, biological, geological, hydrological, archeological, paleontological, cultural and recreational values.
- ❑ Manage existing wildernesses to preserve and protect the wilderness character in accordance with the various Wilderness Acts.
- ❑ Until Congress makes a decision, the three Wilderness Study Areas will be managed under the direction prescribed for Management Area 9 to maintain the existing wilderness character and potential for inclusion in the National Wilderness System.
- ❑ Provide for ecosystem diversity by at least maintaining viable populations of all native and desirable nonnative wildlife, fish, and plant species through improved habitat management.

- ❑ Improve the habitat of and the protection for local populations of Threatened and Endangered species to meet the goals of the *Endangered Species Act* of 1973.
- ❑ To restore rangeland to at least a moderately high ecological condition (70% to 75% of potential production, fair range condition) with stable soil and a static or upward trend.
- ❑ Continue a program that enhances other resource values, and that effectively utilizes the wood fiber produced. Carry out silvicultural practices to improve stand health when such practices are consistent with other resource objectives.
- ❑ Secure and provide an adequate supply of water for the protection and management of the National Forest.
- ❑ Provide a favorable water flow in quantity and quality for off-Forest users by improving or maintaining all watersheds to a satisfactory or higher level.

The following is the Fire Management Direction in LRMP:

- ❑ Develop the most cost efficient operation for fire management activities depending on the resources, property, and lives to be protected.
- ❑ Keep the level of prevention and pre-suppression activities commensurate with the increasing risk and hazards.
- ❑ Conduct fire suppression activities in a way to protect watershed and visual resource values.
- ❑ Appropriate fire suppression responses will protect life and property.

#### *Fires Management Analysis Zones*

As identified in the Forest LRMP, the Coronado is divided into two Fire Management Zones. These zones are based on resource management objectives, especially property and resource values. The appropriate response in Fire Management Zone 1 is “predicated upon preventing fires from reaching or damaging high value resources and improvements,” and the appropriate response in Fire Management Zone 2 is “predicated upon responses that will suppress wildfires at the least cost with acceptable damage to improvement and affected resources.”

Further, the forest has been divided into planning units, referred as Fire Management Analysis Zones (FMZs), geographically delineated for the purpose of the level II Analysis of the National Fire Management Analysis (NFMAS), which was certified by the Regional Office in January 1995 and then again in December 1998. These FMZs are based upon common fire management direction and fire behavior characteristics. Refer to Section III.D.2.b Further discussion on FMAZ and their descriptions.

### III. WILDLAND FIRE MANAGEMENT STRATEGIES

#### A. GENERAL FIRE MANAGEMENT CONSIDERATIONS

The appropriate management response for each wildland fire will vary across the Forest and should include the full spectrum of options to accomplish resource objectives—from aggressive initial attack to managing fires. Obviously, wildland fire use, appropriately applied, is intended to restore fire's natural role in maintaining a healthy, diverse, and resilient ecosystem, resistant to natural disturbances. However, wildland fire use that allows lightning-caused fires to assume a more natural role in maintaining a healthy ecosystem can only be implemented in specified Management Areas. Additionally, in the areas in which the Coronado will implement wildland fire use, coordination with other Federal, State, and local affected stakeholders must occur. This will be achieved through the Coronado Wildland Fire Use Implementation Guides and pre-season public notification. Wildland fire use will follow direction specified in this Fire Management Plan, which establishes parameters for risk, fire intensity, size, duration, and seasonality.

Efforts are continuing to maintain existing interagency fire management coordination and cooperation through agreements, memoranda of understanding, and charters with Saguaro National Park, Chiricahua National Monument, Coronado Memorial, DOD Fort Huachuca, Buenos Aires National Wildlife Refuge, Arizona State Land Department, Arizona Department of Corrections, Safford and Tucson District Bureaus of Land Management, the Malpai Borderland Group, and internationally with the nation of Mexico. Additional opportunities exist and are being pursued to establish joint fire management plans with other affected governmental and private stakeholders within southeastern Arizona.

An amendment to the Forest LRMP is proposed to integrate the 1995/2001 Federal Fire Policy. The proposed goals for the Forest LRMP amendment are as follows:

1. Reduce the costs, resource damage, and threats to public and firefighter safety from future wildfires.
2. Manage naturally occurring fires to restore and sustain ecological processes in fire-dependent ecosystems, consistent with other land management goals.
3. Create and maintain fuel conditions that are at lower risk of high intensity, catastrophic wildfires.

#### B. WILDLAND FIRE MANAGEMENT GOALS

- ❑ Achieve a program that makes firefighter and public safety the highest priority in *every* fire management activity.
- ❑ Wherever appropriate, use Wildland fire and prescribed fire as a tool to meet resource management objectives.
- ❑ Consider landscape-scale application of prescribed fire in all appropriate management areas.
- ❑ Consider mechanical fuels treatments where wildland fire use or prescribed fire may cause unacceptable damage to other resources or pose an unacceptable risk to private property.

- ❑ Enhance hazardous fuel reduction programs with emphasis on wildland urban interface areas and high resource value areas.
- ❑ Hazardous fuels reduction activities within wildland urban interface areas should have priority when there are differing resource objectives.
- ❑ Where opportunities exist, implement cooperative fuels treatment ventures with private, state, and other Federal land management agencies.
- ❑ Nurture, sponsor, and develop an overarching fire management plan for southeastern Arizona.
- ❑ Retain and recruit experienced and knowledgeable staff to accomplish fire management goals.
- ❑ Achieve and maintain a quality suppression and fire use workforce to address changing fire management priorities and fire management complexities.
- ❑ Revise the Fire Management Plan annually to incorporate proven efficiencies.
- ❑ Reduce the costs, resource damage, and threats to public and firefighter safety from future wildfires.
- ❑ Manage naturally occurring fires to restore and sustain ecological processes in fire-dependent ecosystems, consistent with other land management goals.
- ❑ Create and maintain fuel conditions that are at lower risk of high intensity, catastrophic wildfires.

### C. WILDLAND FIRE MANAGEMENT OPTIONS

The wildland fire management options provided in the Coronado Forest LRMP include the following:

- ❑ Wildland fire suppression
- ❑ Wildland fire use in wilderness areas, wilderness study areas, and research natural areas
- ❑ Prescribed fire (activity fuel projects and ecosystem restoration)
- ❑ Non-fire applications

Additionally, amending the Forest LRMP is on the 2003 Coronado Program of Work, which includes integrating the 1995 and 2001 Federal Wildland Fire Management Policies, thereby offering managers a full spectrum of responses, including wildland fire use Forest-wide. Thus, the most appropriate management response for each wildland fire will vary across the Forest and will include the full spectrum of possible options, from aggressive initial attack to managing fires to accomplish resource objectives.

### WILDLAND FIRE SUPPRESSION

Management response to wildland fire must be based on the ecological, social, and legal consequences of each fire. The circumstances under which a fire occurs—as well as the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected—dictate the appropriate management response. Determination of appropriate response will include an evaluation of such factors as risk to firefighters and public health and safety, weather, fuel conditions, threats, and values to be protected. The current Forest LRMP objective for fire suppression is to manage wildland fires at a minimum cost

consistent with land and resource management objectives, considering firefighter and public safety, and values to be protected.

Appropriate suppression response Forest-wide could range from aggressive initial attack to a defensive posture, such as a confinement strategy. The confinement strategy may be implemented as the initial action during Stage 1—the Initial Fire Assessment—as long as it is *not* used to meet resource objectives. Confinement can also be a strategic selection derived from the Wildland Fire Situation Analysis (WFSa) process, especially when the fire is expected to exceed the initial attack or planned management capability.

- ❑ Firefighter and public safety shall be the first priority in all Fire Management Activities.
- ❑ All human-caused fires shall be suppressed, using appropriate suppression response strategies.
- ❑ Wildland fire suppression responses shall minimize costs (suppression, resource impacts, and risks to life and property).
- ❑ Fire prevention messages will emphasize the difference between unwanted human-caused fires, lightning-caused fires managed for resource benefits, and prescribed fires.
- ❑ Prevention and preparedness activities should be designated and implemented following a comprehensive analysis of fire occurrence, resistance to control, values at risk, and other factors.

#### WILDLAND FIRE USE

The appropriate management response for each wildland fire will vary for Management Areas 2A, 8, 8A, and 9 (Wilderness Areas and Research Natural Areas) within the Forest, and will include a full spectrum of options from aggressive initial attack to managing fires to accomplish resource objectives (see *Figure 2*). The appropriate management response for all other areas on the Forest will be limited to an appropriate suppression response strategy. Fire management will emphasize allowing lightning-caused fires to play, as nearly as possible, their natural ecological role within wilderness. The Wildland Fire Implementation Plan is required for each wildland fire when the decision is to use this fire management option.

The objectives of fire management in wilderness are to 1) permit lightning caused fires to play—as nearly as possible – their natural ecological role within wilderness; and 2) reduce to an acceptable level the risks and consequences of wildfire within or escaping outside of the Wilderness area.

By managing natural ignitions for resource benefits through wildland fire use—as described for Management Areas 2A, 8, 8A, and 9—the Forest will meet the LRMP objectives. These include, but are not limited to, the following:

- ❑ Manage for wilderness values and uses while providing opportunities for non-disruptive research and education within Natural Research Areas (Management Areas 8 and 8A).
- ❑ Manage to provide opportunities for astronomical and biological research, perpetuation of wilderness values, and unique wildlife and vegetative species. Increase habitat for the endangered Mt. Graham red squirrel while allowing for a minimum level of astrophysical facilities development within Management Area 2.

- ❑ Manage for wilderness values while providing both livestock grazing and recreation opportunities that are compatible with Wilderness values. Fire management emphasizes allowing lightning-caused fires to play their natural ecological role (Management Area 9).

#### PRESCRIBED FIRE

Prescribed fire is defined as any fire ignited by management actions to meet specific objectives. The Coronado National Forest will conduct prescribed fire in accordance with the Chief's and Regional Forester's direction, as set forth in *the Forest Service Manual*, Washington Amendment No. 5100-99-3, Regional R-3 Supplement 5100-2000-2, as well as the site-specific Prescribed Fire Plan.

A written, approved Prescribed Fire Plan must exist and NEPA requirements must be met prior to ignition. These plans must be prepared by qualified personnel, approved by the agency administrator, and include criteria for the conditions within which the fire will be conducted, to include fuels characteristics and fire behavior.

The Coronado will use prescribed fire to support ecological and socio-economic sustainability, and to protect, maintain, and enhance resources. The treatment objective can be hazard reduction or any other resource benefit requiring fuel manipulation. The timing, location, and decision to burn are within the agency's control. National Fire Plan priorities for fuel treatment are within Wildland Urban Interface, municipal watersheds, and critical species habitat.

Management ignitions are divided into two distinct actions:

1. Management ignitions in the wilderness
2. Management ignitions outside the wilderness

Two types of prescribed fire may be approved for use within wilderness:

1. Fires ignited by lightning and allowed to burn under prescribed conditions
2. Fires ignited by qualified Forest Service officers

Forest Service managers may ignite a prescribed fire in the wilderness to reduce unnatural buildups of fuels only if necessary to meet at least one of the wilderness fire management objectives set forth in FSM 2324.21, and only if *all* of the following conditions are met:

- ❑ The use of prescribed fire or other fuel treatment measures *outside* of wilderness is not sufficient to achieve fire management objectives *within* wilderness.
- ❑ An interdisciplinary team of resource specialists has evaluated and recommended the proposed use of prescribed fire.
- ❑ The interested public has been involved appropriately in the decision.
- ❑ Lightning-caused fires cannot be allowed to burn because they will pose serious threats to life or property within wilderness, or to life, property, or natural resources outside of wilderness.

Do not use prescribed fire in wilderness to benefit wildlife, maintain vegetative types, improve forage production, or enhance other resource values. Although these additional effects may result from a decision to use prescribed fire, use fire in wilderness only to meet wilderness fire management objectives. (FSM 2324.2)

Do not use management-ignited fire to achieve wilderness fire management objectives where lightning-caused fires can achieve them (FSM 2324.2).

NON-FIRE APPLICATION

Non-fire applications—or fuel treatment methods other than prescribed fire—consist of mechanical thinning, fuelwood gathering, chipping, and lopping and scattering, which apply to management areas as identified in the Forest LRMP to achieve specific resource management objectives (see *Figure 2*).

The table in *Figure 2* displays the wildland fire management options applied to the various Management Areas as well as Mexican Spotted Owl and Northern Goshawk Habitat identified in the Forest LRMP. Specific emphasis, intensity, description, and standards and guidelines of the Management Areas and Mexican Spotted Owl and Northern Goshawk Habitat are described in “Section II, Relationship to Land Management Planning and Fire Policy” of this Fire Management Plan.

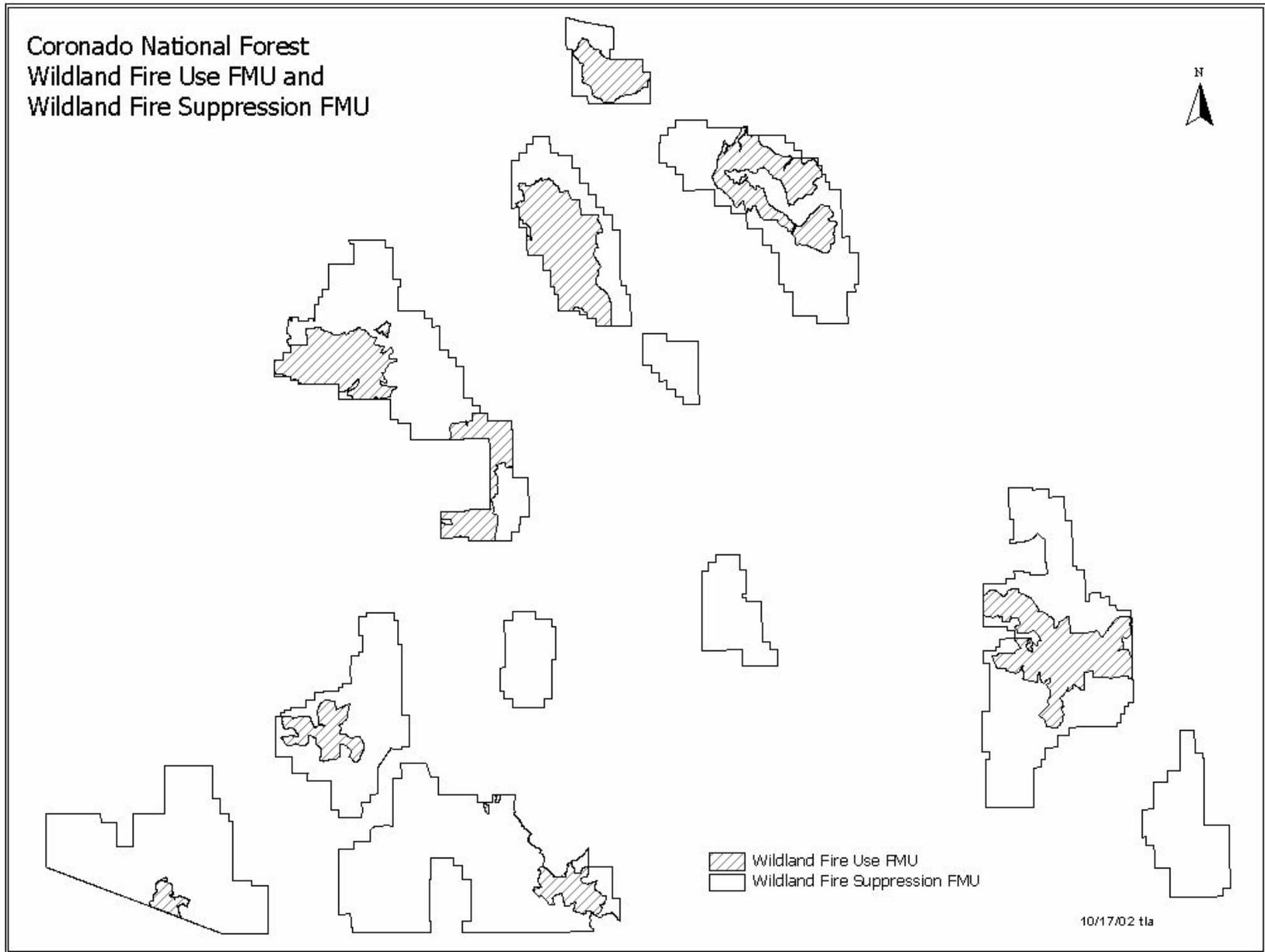
**Figure 2. Fire Management Options and LRMP Management Areas**

	Wildland Fire Suppression (Zone)	Wildland Fire Use	Prescribed Fire	Non-Fire Application
LRMP Management Areas (MA), Mexican Spotted Owl (MSO) Habitat, and Northern Goshawk (NG) Habitat	MA 1 (1&2)	MA 2A	MA 1	MA 1
	MA 2 (1)	MA 8	MA 2	MA 2
	MA 2A (1)	MA 8A	MA 2A	MA 2A w/restrictions
	MA 2B (1)	MA 9	MA 2B	MA 2B
	MA 3 (1&2)		MA 3	MA 3
	MA 3A and 3B (1)		MA 4	MA 3A and 3B
	MA 4 (1&2)		MA 7A and 7B	MA 4
	MA 7A and 7B (1&2)		MA 8	MA 7A and 7B
	MA 8 (1&2)		MA 8A	MA 14
	MA 8A (1&2)		MA 9	MSO w/restrictions
	MA 9 (1&2)		MA 14	NG
	MA 14 (2)		MA 15	
	MA 15 (2)		MSO w/restrictions	
	MSO		NG	
	NG			

D. DESCRIPTION OF WILDLAND FIRE MANAGEMENT STRATEGIES BY FIRE MANAGEMENT UNIT

1. DELINEATE FIRE MANAGEMENT UNITS ON THE MAP.

**Figure 3. Map of Forest Fire Management Units.** (NOTE: This information is based on the current LRMP appropriate response areas.)



2. PROVIDE A SUMMARY LISTING OF THE IDENTIFIERS FOR THE FMUS.

a. *Fire Management Unit Identifier*

The Coronado has identified two fire management units (FMU). These two FMUs were selected to maintain consistency with the management objectives as outlined in the Forest LRMP:

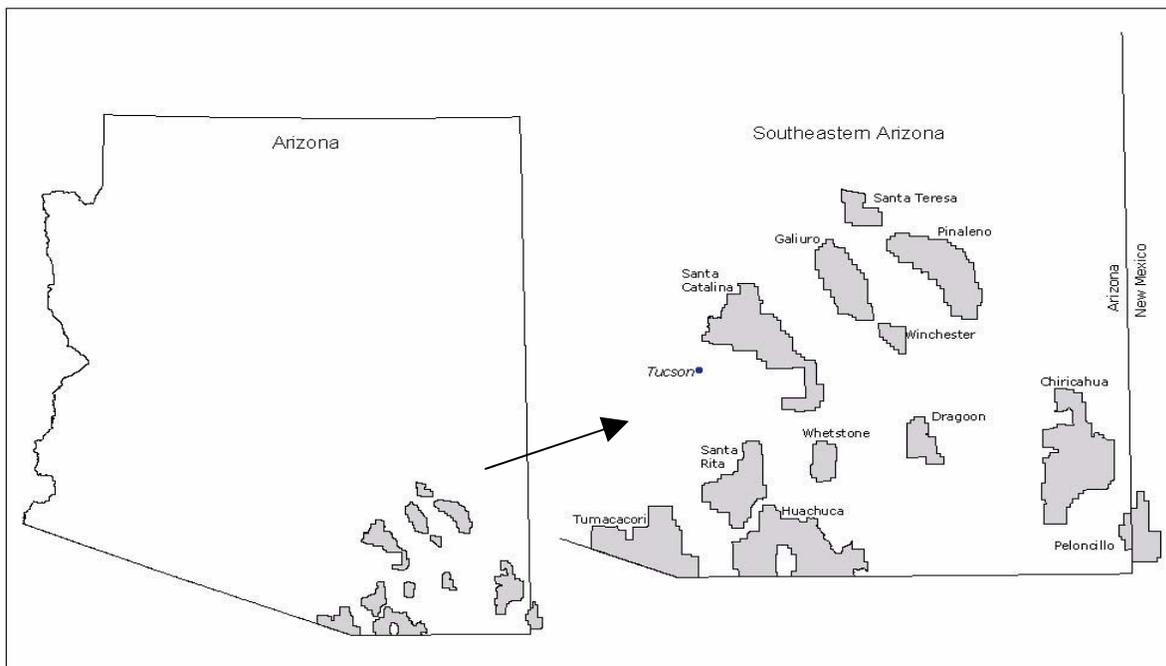
- ❑ **Wildland Fire Use FMU** – Wilderness, Research Natural Areas, and Wilderness Study Areas. These management areas include a full range of responses, from aggressive initial attack to managing for resource benefits.
- ❑ **Wildland Fire Suppression FMU** – Suppression is the *only* appropriate response.

See **Figure 3** for Fire Management Units.

b. *FMU Characteristics.*

The Forest is comprised of 12 separate and unique mountain ranges, commonly referred to as “sky islands” because they are separated from the other mountain islands by expanses of grasslands averaging from 10 to 20 miles in width. These sky islands are located mainly in southeastern Arizona, but extend into southwestern New Mexico (**Figure 4**).

**Figure 4. Map of Southeastern Arizona and the Coronado National Forest**



The Forest also considers these sky islands as Ecosystem Management Areas (EMA). “The Sky Island Mountains of southeastern Arizona host world class biological diversity. These mountains lie at the southern end of the Rocky Mountains and the northern end of the Sierra Madre Mountains where the Sonoran and Chihuahuan deserts meet” (USDA Forest Service 1998).

“Madrean Archipelago” is another descriptor used for this collection of mountains lying between the Colorado Plateau and the main mass of the Sierra Madre Occidental (Lowe 1992). The term “Madrean” also implies the presence of pine-oak plant communities that dominate the Sierra Madre Occidental in Mexico.

Vegetative communities on the Forest range from Sonoran desert to spruce-fir forest, determined mainly by elevation, which controls rainfall, temperature, and other climatic factors. As elevation increases, vegetation types change from desert to woodland to forest communities (USDA Ecosystem Assessment 2001). The biotic communities occurring on the Coronado National Forest are listed in *Figure 5*. See *Figure 6* for the Coronado vegetation map used in the 1986 LRMP. For vegetation maps of each EMA, see **Appendix C**.

Caves located on the Forest are some of the most magnificent in the world, and serve as habitat for bat species essential for pollination of many desert plant species. Wildlife found on the Forest is diverse, and includes approximately 600 vertebrate species and 400 species of birds. Additionally, there are currently 30 species of animals and plants listed as Threatened, Endangered, or Sensitive (TES).

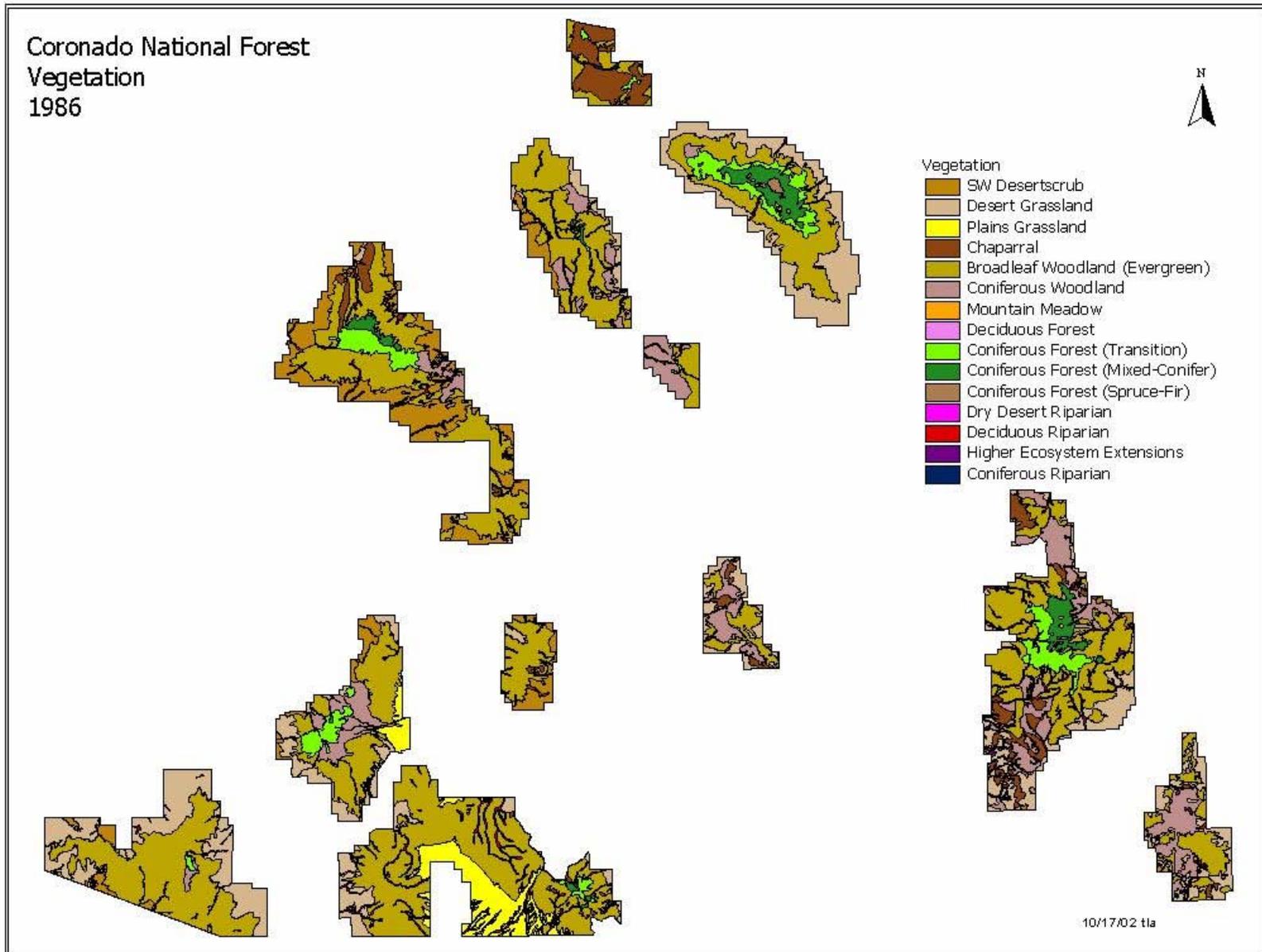
The Forest has complex geology, consisting of several major thrust plates, large overturned folds, tectonically telescoped sedimentary and metamorphic facies, and igneous stocks of three ages. The Coronado’s geology is considered part of the basin and range geology, which extends from southeast Oregon through Nevada, through western and northern Arizona to Douglas, Arizona. Stresses placed on the Earth’s crust over time created the basin and range geology. The basin and rangeland form gives rise to our current sky islands, which significantly contributes to urban development in the basins, isolation of TES species, and unique biotic communities. (Keyes 2002)

Due to increasing human populations, Wildland Urban Interface (WUI) is a growing concern on the Coronado. WUI areas includes those of resident human populations at imminent risk from wildland fire. These areas may also include critical communications sites, municipal watersheds, high voltage transmission lines, observatories, church camps, scout camps, research facilities, and other structures that if destroyed by fire would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involve.

The EMAs with the greatest number of WUI areas are Santa Catalina, Pinaleno, Huachuca, and Santa Rita Mountains. To a lesser degree, but still a concern because of urban development, are the Chiricahua, Dragoon, Tumacacori, and Peloncillo Mountains EMAs. All other EMAs — Santa Teresa, Whetstone, Winchester, and Galiuro — currently do not have WUI concerns, and are generally either remote or near agricultural land.

**Figure 5. Biotic communities occurring on the Coronado National Forest by EMA & FMU.**

<b>Community</b>	<b>Elevation Range (feet)</b>	<b>Zones</b>
<b><i>Southwestern Desertscrub</i></b> Sonoran Desert – Palo Verde, saguaro, velvet mesquite, jojoba Chihuahuan Desert – tarbush, mesquite species, creosote bush, cat claw, ocotillo, amole. Mean annual precipitation: 12 inches.	< 4200	Desert
<b><i>Desert Grassland</i></b> Including mesquite tree species – grama species including black grama, three-awn, bush muhly, cane beard grass, Texas blue stem, tobosa, and curly mesquite. Mean annual precipitation: 16 inches.	3200-6200	Desert
<b><i>Plains Grassland</i></b> Few shrubs/trees – mostly grasses: grama species including blue grama, plains lovegrass, wolftail, & other grasses. Mean annual precipitation: 20 inches.	4200-7200	Woodland
<b><i>Chaparral</i></b> Turbinella oak/toumey oak, mountain mahogany, desert ceanothus, manzanita, emory oak, silver leaf oak. Mean annual precipitation: 20 inches.	4200 to 7200	Woodland
<b><i>Broadleaf Woodland (Evergreen)</i></b> Emory oak, Arizona white oak with juniper species mixed in. Mean annual precipitation: 20 inches.	4200 to 7200	Woodland
<b><i>Coniferous Woodland</i></b> Pinyon pine, alligator juniper, Arizona white oak, emory oak. Mean annual precipitation: 20 inches.	4200 to 7200	Woodland
<b><i>Mountain Grassland/Meadow</i></b> Sedge, fringed brome, wheat grasses, long tongue muhly, deer grass, bullgrass, pine drop seed, june grass. Mean annual precipitation; 25 inches or more.	> 6200	Forest
<b><i>Deciduous Forest</i></b> Aspen, Rocky Mountain maple, box elder, ash, New Mexican locust. Mean annual precipitation: 25 inches or more.	> 6200	Forest
<b><i>Coniferous Forest (transition)</i></b> Ponderosa pine, pinyon pine, Chihuahua pine, alligator juniper, silver leaf oak, Arizona white oak. Mean annual precipitation: 25 inches.	> 6200	Forest
<b><i>Coniferous Forest (mixed-conifer)</i></b> Douglas-fir, ponderosa pine, southwestern white pine, alligator juniper, gambel oak, white fir. Mean annual precipitation: 30 inches.	>7200	Forest
<b><i>Coniferous Forest (spruce-fir)</i></b> Engelmann spruce, corkbark fir. Douglas-fire, white fire, scattered aspen. Mean annual precipitation: 35 inches.	> 8200	Forest
<b><i>Dry Desert Riparian</i></b> Desert willow, seep willow, desert broom, and mesquite species.	< 5200	Riparian
<b><i>Deciduous Riparian</i></b> Combinations of riparian obligate species in oak/juniper woodland – Fremont cottonwood, Arizona sycamore, Arizona walnut, wolfberry, willows, ash, etc.	> 4200	Riparian
<b><i>Higher ecosystem extensions</i></b> Emory oak including other oak species, alligator juniper including other juniper species, little or no riparian obligate species.	> 4200	Riparian
<b><i>Coniferous Riparian</i></b> Combinations of riparian obligate species in both ponderosa pine/Douglas-fir forest and pine/oak/juniper woodland communities. Arizona sycamore, Rocky Mountain maple, aspen, ash, Arizona alder, Arizona cypress, etc.	> 5200	Riparian



**Figure 6. Coronado vegetation map used in the 1986 LRMP.**

WILDLAND FIRE USE FIRE MANAGEMENT UNIT

Eight of the Sky Islands (or EMAs) contain a Wilderness Area, Wilderness Study Area, or Research Natural Areas (RNA), which make up this FMU. See Section II, Specific Management Areas for the Emphasis and Intensity, Description, and Standard and Guidelines for the following Management Areas that are included in this FMU:

- Management Area 2A: Pinaleno Mountains
- Management Area 3: Research Natural Areas
- Management Area 8A: Research Natural Areas and Wilderness
- Management Area 9: Wilderness

The Coronado National Forest manages eight wilderness areas, comprising 335,695 acres, approximately 18% of the total Forest acres. Congress established five of the wildernesses in 1984. The Chiricahua Wilderness and Galiuro Wilderness, established during the 1930s, were enlarged in 1984. (Spoerl 1995)

Wilderness Characteristics

Since each of the Wilderness Areas and the Wilderness Study Area is unique, the physical and biotic characteristics are discussed separately, but all are contained within this FMU. The biotic communities occurring on the Coronado National Forest are listed in *Figure 5* and *Figure 6*.

***Chiricahua EMA, Chiricahua Wilderness***, Chiricahua Mountains, Douglas Ranger District: 87,700 acres, established in 1933, expanded in 1984, with 550 acres of Pole Bridge RNA. The Wilderness Area comprises approximately 30% of the entire EMA. This was one of the original Wilderness Areas established by the 1964 Wilderness Act, consisting of 18,000 acres along the crest of the range previously designated as a primitive area. The Wilderness Area was greatly expanded to 87,700 acres by the 1984 Arizona Wilderness Act making it the largest on the Coronado.

This rugged mountain range rises from the surrounding desert grasslands from an elevation of 4,800 feet to over 9,500, encompassing much of the high elevations of the Chiricahua Mountains. Vegetation includes Sierra Madrean and Rocky Mountain species, including Arizona cypress, Sycamore, Chihuahua pine, Apache pine, Ponderosa pine, Douglas fir, and Engelmann spruce. Within the Chiricahua EMA this FMU is approximately 87,471 (GIS generated) acres. The following table displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution, (using the GIS generated acres), and tons/acre for the vegetation type within this Wilderness:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Southwest Desertscrub	Desert Shrub	T	2	592	<1	0-1.0
Mountain Meadow	Grassland	L	1	69	<1	0-1.0
Higher Eco Extensions	Woodland	F	6	1,976	2	1.1-5.0
Desert Grassland	Grassland	L	1	2,282	3	0-1.0
Deciduous Riparian	Woodland	P	9	6,093	3	1.1-5.0
Coniferous Woodland	Woodland	L/F*	1/6*	2,209	3	1.1-5.0
Coniferous Transition	Ponderosa Pine	U/G*	9/10*	17,193	20	25.0-30.0
Coniferous M-Conifer	Mixed Conifer	G	10	6,642	8	40.1-50.0
Coniferous Spruce Fir	Spruce-Fir	G	10	1,100	1	30.1-35.0
Chaparral	Chaparral	B	4	33	<1	1.1-1.5
Broadleaf Woodland	Woodland	L/F*	1/6*	53,008	61	1.1-1.5

\*Dependant upon density of trees and fuel loading.

See Section IV.B.2.e, for additional information about NFDRS and fuel models.

Once home to the Chiricahua Apache and other tribes, and host to a wide variety of flora and fauna, this EMA offers many opportunities for cultural and biological appreciation. Spectacular rock formations are in view throughout the range. Chiricahua National Monument, located on the west side of the range surrounded on three sides by the National Forest, was established in 1924 in recognition of the spectacular scenery. In the center of the EMA, the Chiricahua Wilderness Area encompasses 87,700 acres surrounding the 9,797-foot Chiricahua Peak and other high peaks. Steep canyons dissect the range, radiating in all directions from the mountaintops. Much of the area is densely timbered with steep slopes. (USDA Ecological Assessment 2001)

Substantial change has occurred in the forest structure and composition from unintentional and intentional fire exclusion and active range management during the past 100 years. The 1994 Rattlesnake Fire, which burned 28,000 acres, included several large, high intensity stand replacement burn areas especially within the Ponderosa pine stands. The intensity and extent of the fire within the Ponderosa pine stands were probably outside of the expected natural variation, caused mainly by thick understory establishment over the past century. Significant watershed destabilization has resulted within the burned area. (Spoerl 1995)

This area is being reviewed and re-evaluated as a result of the Rattlesnake fire of 1994. The Johnson Peak Fire Plan, encompassing sixteen thousand acres, received a final Biological Opinion from the USFWS earlier in 2002. However, no natural ignitions have been managed under a Wildland Fire Use strategy. An evaluation of the entire ecosystem management area for wildland fire use will be addressed in the amendment and revision of the Forest LRMP.

***Galiuro EMA, Galiuro Wilderness***, Galiuro Mountains, Safford Ranger District: 76,317 acres, established in 1932, expanded in 1984. Congress set aside 52,717 acres in 1932 and then enlarged it to 76,317 acres in 1984. The Wilderness Area comprises approximately 57% of the entire EMA and is located about 45 air miles northeast of Tucson and 35 air miles northwest of Willcox. These mountains are relatively remote and are a very rough and brushy sample of the block-like uplifts rising abruptly above level plains so characteristic of Southern Arizona. Two

main canyons, Rattlesnake and Redfield, bisect it. The wilderness boundary generally follows the crest of both the east and west divides.

Geological erosion has produced many rugged cliffs and steep slopes, which have brightly colored exposed soils and rocks. The majority of the wilderness is so steep, rocky, and brushy that travel by horseback or on foot is limited to cleared and graded trails.

The Galiuros are a relatively low mountain range reaching a height of 7,663 at Bassett Peak; however, there is a great variety of plant life, from grasses and evergreen oaks on the lower slopes, and Ponderosa pine and Douglas fir on the higher peaks. The more prominent high points along the east divide include Bassett Peak at 7,671 feet, Kennedy Peak at 7,540 feet, and Sunset Peak at 7,094 feet. On the west divide is Rhodes Peak at 7,116 feet, Maverick Mountain at 6,990 feet, and Kielberg Peak at 6,880 feet. Several places along the western boundary drop to 4,000 feet. (USDA Environmental Assessment 1977)

The vegetation varies from semi-desert grassland to mixed conifer. On most of the north and east facing slopes, grow dense stands of manzanita, live oak and mahogany; on the south and west slopes are grasses and brush. The slopes at the higher elevation and ridge tops have moderate to dense stands of juniper, pinyon, and oak trees, while along the canyon bottoms and north slopes of the higher elevations are found Arizona cypress, Ponderosa pine, Chihuahua pine, Mexican white pine, Douglas fir, and occasional White fir. Deciduous trees such as sycamore, alder, maple, ash, and walnut grow in the riparian areas. Within the Galiuro EMA, this FMU is approximately 77,333 (GIS generated) acres. The following table displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution (using the GIS generated acres), and tons/acre for the vegetation type within this Wilderness:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Southwest Desertscrub	Desert Shrub	T	2	9739	13	0-1.0
Deciduous Riparian	Woodland	P	9	74	<1	1.1-5.0
Higher Eco Extensions	Woodland	F	6	155	<1	1.1-5.0
Desert Grassland	Grassland	L	1	806	1	0-1.0
Coniferous Riparian	Woodland	H/G*	8/9*	2,778	4	1.1-5.0
Coniferous Woodland	Woodland	L/F*	1/6*	6,887	9	1.1-5.0
Coniferous Transition	Ponderosa Pine	U/G*	9/10*	1,350	2	25.0-30.0
Coniferous M-Conifer	Mixed Conifer	G	10	1,263	2	35.1-40.0
Chaparral	Chaparral	B	4	209	<1	1.1-1.5
Broadleaf Woodland	Woodland	L/F*	1/6*	53972	70	1.1-1.5

\*Dependant upon density of trees and fuel loading.

See Section IV.B.2.e, for additional information about NFDRS and fuel models.

This EMA contains a rich history of mining and ranching. Historically, the Galiuro Mountains are known for late nineteenth-century mining and the 1918 shootout between the Power family and officials attempting to arrest the Power boys for draft evasion. The cabin in Kielberg Canyon, where the shootout occurred, is listed on the National Register of Historic Places as Power’s Garden (USDA Ecosystem Assessment 2001).

In 1977, a prescribed natural fire plan (wildland fire use) for this area was developed. After the Yellowstone fire of 1988, the Washington Office mandated that all prescribed natural fire plans be withdrawn until they were revised with new implementation parameters. The Galiuro Natural Fire Plan was *not* updated. However, as Federal Wildland Fire Policy changed, the implementation of wildland fire use in the Galiuro Wilderness Area was permitted as described in the Forest LRMP. An evaluation of the entire EMA for wildland fire use will be addressed in an amendment and revision of the Forest LRMP. Opportunities exist for coordinated Resource Management planning efforts with the BLM and the Nature Conservancy, especially where utilization of wildland fire use across agency boundaries can occur.

***Santa Catalina EMA, Pusch Ridge Wilderness***, Santa Catalina Mountains, Santa Catalina Ranger District, 56,933 acres, established in 1978. Comprising 21% of the entire EMA, the Pusch Ridge Wilderness is located at the west side of the Santa Catalina Mountains, north of Tucson and southwest of Oracle. It “contains some of the most rugged and spectacular mountain formations in Arizona” and is the habitat of the desert bighorn sheep. (The sheep population is declining, probably because of increasing human presence in the habitat and other factors related to the proximity to the urban area).

The Wilderness area varies in elevation from 3,200 feet in the Sonoran Desert foothills to about 9,000 feet just below the forested summit of Mount Lemmon. The canyons and rugged terrain support a tremendous variety of plant and animal species that combine to make this wilderness one of the most diverse. Its adjacency to a major metropolitan area makes this one of the most complex small wildernesses in the National Wilderness System. Since the establishment of this Wilderness Area, a tremendous amount of urban development has occurred along the south, western, and northwestern edges (Spoerl 1995). It is important to consider risk to the communities of Summerhaven, Tucson, Oro Valley, and Oracle.

The EMA encompasses the triangular-shaped Santa Catalina Mountain range and a portion of the Rincon Mountain range, which lies south of the community of Oracle and north and east of Tucson, Arizona, with elevations ranging from 2,500 feet at Tucson to 9,150 feet atop Mount Lemmon. The steep, south face of the mountain is almost a sub-range of mountains. The east-west leg of the triangle that outlines the Santa Catalina Mountains is termed the fore-range, and includes Pusch Ridge, Finger Rock, Cathedral Peak and other peaks lying along the eastward extension of Pusch Ridge. The fore-range is dissected from the main part of the mountain mass by Sabino Basin and Romero Pass. The northwest and northeast borders of the EMA include Samaniego and Oracle Ridges, which form the apex of the triangular-shaped Santa Catalina Mountain range. Many of the steep, rocky canyons contain intermittent streams, which drain into the San Pedro and Santa Cruz Rivers (Unknown 1969).

***Santa Catalina EMA, Rincon Mountain Wilderness***, Rincon Mountains, Santa Catalina Ranger District, 38,590 acres, established in 1984. This Wilderness comprises approximately 15% of the Santa Catalina EMA. Located on the eastern edge of metropolitan Tucson and bordering Saguaro National Park on three sides, Rincon Mountain Wilderness is steep and rocky country, portions of which are difficult to reach on foot or on horseback. Much of the Wilderness is quite secluded because of limited access. Elevation varies from 3,500 feet to the upper reaches of Wrong Mountain at 7,786 feet on the Forest, although nearby Rincon Peak on the Saguaro National Park (designated Wilderness) rises to 8,482 feet. Steep rocky slopes intersected by

numerous drainages radiating out to the desert floor characterize the Rincon Mountains. Vegetation varies from southwestern desert scrub and desert grassland at the lower elevations to chaparral, then to coniferous woodland at higher elevations (USDA SCR D 1977; USDA 1993). Annual precipitation varies considerably, with 13 inches falling at the lower elevations and 25 to 30 inches near the summit of the Rincon Mountains.

Baison, describing the local geology, states the following about the Rincon Mountains and several adjacent ranges:

*“ . . . are classified structurally as metamorphic core complexes. These ranges were uplifted during a mid-Tertiary mountain building episode associated with continental stretching. Similar ranges are found in a north – south trending band stretching from Mexico to British Columbia. . . . The main mountain Mass, an uplifted dome of basement rock, is composed of granitic gneiss and related rocks derived from pre-Cambrian and Tertiary protoliths of quartz monzonite. Remains of the overlying strata, mostly limestones of Permian age, are found outcropping at various points around the mountains perimeter. The present form of the Rincons is the product of extensive weathering, erosion, and continued faulting over the last thirty million years.” (1990)*

A joint Fire Management Plan, which covers both the Coronado and the Saguaro National Park portions of the Rincon Mountain wilderness was developed in 1993, but is currently invalid. However, coordination and collaboration continues between the two agencies, resulting in a cohesive fire management program. However, until the Park completes their Fire Management Plan, implementation of a Wildland Fire Use event is limited to Forest Service lands.

Within the Santa Catalina EMA, this FMU is approximately 102,902 (GIS generate) acres. The following table, displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution (based on the GIS generated acres), and tons/acre for the vegetation type within the Pusch Ridge, Rincon Wilderness and the Butterfly RNA combined:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Southwest Desertscrub	Desert Shrub	T	2	28,094	27	0-1.0
Desert Grassland	Grassland	L	1	345	<1	0-1.0
Dry Desert Riparian	Desert Shrub	T	2	129	<1	1.1-5.0
Coniferous Transition	Ponderosa Pine	U/G*	9/10*	7,117	7	35.1-40.0
Coniferous M-Conifer	Mixed Conifer	G	10	231	<1	50.1-55.0
Deciduous Riparian	Woodland	P	9	10,635	10	1.1-5.0
Broadleaf Woodland	Woodland	L/F*	1/6*	56,351	55	1.1-1.5

\*Dependant upon density of trees and fuel loading.

See Section IV.B.2.e, for additional information about NFDRS and fuel models.

**Huachuca EMA, Miller Peak Wilderness**, Huachuca Mountains, Sierra Vista Ranger District, 20,190 acres, established in 1984. The Miller Peak Wilderness comprises approximately 7% of

the Huachuca Mountain EMA. The tallest peak in the Huachuca Mountains, Miller Peak, is also the highest, southernmost peak in the United States, with an elevation of 9,466 feet. It is the centerpiece of the Miller Peak Wilderness. There are many trails in this wilderness that meander through Upper Sonoran (oak, pinyon, juniper) to Hudsonian (spruce, fir) life zones. Miller Peak Wilderness is located just six miles south of Sierra Vista in the southern half of the Huachuca Mountains. Characterized by sheer cliffs many hundreds of feet high, the area is also known for large, intensive fires (USDA 1993). As a result of the 1977 Carr Fire, 1980 Sawmill Canyon Fire, 1983 Pat Scott Fire, and 1989 Peak Fire, areas once covered by pine and Douglas fir have, at least temporarily, changed to oak and grass vegetation. High, narrow ridges provide some of the best panoramic views of southern Arizona.

Miller Peak Wilderness is one of the most rugged, wildlife-filled areas in all of southern Arizona. Elevations range from 5,200 feet to 9,466 feet. The Huachuca's are famous as a haven for bird life, with more than 170 species, including 14 species of hummingbirds. More than 60 species of reptiles and 78 species of mammals are also found in this range. Coatimundi, mountain lion, javelina, and black bear are frequently seen. Vegetation ranges from grassland to mixed conifer and aspen forest.

Within the Huachuca EMA this FMU is approximately 20,935 (GIS generated) acres. The following table, displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution (using the GIS generated acres), and tons/acre for the vegetation type within this Wilderness:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Plains Grassland	Grassland	L	1	52	1	0-1.0
Deciduous Riparian	Woodland	P	9	585	3	1.1-5.0
Deciduous Forest	Woodland/PP	E/U*	8/9*	207	<1	25.0-30.0
Coniferous Transition	Ponderosa Pine	U/G*	9/10*	2,222	11	25.0-30.0
Coniferous M-Conifer	Mixed Conifer	G	10	1,565	7	40.1-50.0
Chaparral	Chaparral	B	4	1,486	7	1.1-1.5
Broadleaf Woodland	Woodland	L/F*	1/6*	14,818	71	1.1-1.5

\*Dependant upon density of trees and fuel loading.

See Section IV.B.2.e, for additional information about NFDRS and fuel models.

The area has a rich history of mining and ranching. Some parcels of private, patented mining claims lie within the Wilderness. Approximately 600 acres of private inholdings were contained within the Wilderness boundary upon establishment; however, only 60 acres of private inholdings remain. (USDA Ecosystem Assessment 2001; Spoerl 1995; USDA 1993) An evaluation of the entire mountain range for Wildland Fire Use will be addressed in an amendment and revision of the Land Management Plan.

The Huachuca EMA is situated in southeastern Arizona, located along the international border with Mexico, and shares its northeastern border with the Fort Huachuca Military Base. The city of Sierra Vista is the largest community adjacent to this EMA and is considered a Wildland-

Urban Interface area. San Rafael Valley is nestled in the south central part of this EMA and is primarily owned by private landowners and the Nature Conservancy.

**Santa Rita EMA, Mount Wrightson Wilderness,** Santa Rita Mountains, Nogales Ranger District, 25,260 acres, established in 1984. Making up 17% of the Santa Rita EMA, the Mount Wrightson Wilderness is about 30 miles south of Tucson, Arizona and approximately 15 miles northeast of Nogales, Arizona, and lies in the core of the Santa Rita Mountains. Mt. Wrightson rises abruptly over 7,000 feet above the valley floor to an elevation of 9,453 feet, which is the highest point in Pima and Santa Cruz Counties. The mountains are surrounded on all sides by semi-arid hills of desert shrub and sloping plains grasslands. The peak has a distinctive pyramid-shape, which is visible through much of southeastern Arizona, contributing to the Coronado’s “sky island” character. (USDA Ecosystem Assessment 2001; Spoerl 1995; USDA 1993)

Mount Wrightson’s stream-fed canyons are the source of an exceptional abundance of animals and plant life. Ponderosa pine and Douglas fir dominate the higher elevation. Rough hillsides, deep canyons, and lofty ridges and peaks characterized the wilderness throughout. It is an extremely well-known area for birdwatchers, specifically in Madera Canyon, which lies at the foot of the wilderness, and is internationally renowned as a unique habitat for a variety of both common and rare birds. The headwaters for Madera Canyon lie within the wilderness boundaries (Spoerl 1995). An evaluation of the entire mountain range for Wildland Fire Use will be addressed in an amendment and revision of the Land Management Plan.

Within the Santa Rita EMA, this FMU is approximately 25,132 (GIS generated) acres. The following table, based on the GIS generated acres, displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution, and tons/acre for the vegetation type within this Wilderness:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Southwest Desertscrub	Desert Shrub	T	2	54	<1	0-1.0
Desert Grassland	Grassland	L	1	2,819	11	0-1.0
Coniferous Riparian	Woodland	H/G*	8/9*	181	<1	1.1-5.0
Coniferous Woodland	Woodland	L/F*	1/6*	5,567	22	1.1-5.0
Coniferous Transition	Ponderosa Pine	U/G*	9/10*	8,366	33	25.0-30.0
Coniferous M-Conifer	Mixed Conifer	G	10	277	<1	35.1-40.0
Broadleaf Woodland	Woodland	L/F*	1/6*	7,918	32	1.1-1.5

\*Dependant upon density of trees and fuel loading.

See Section IV.B.2.e, for additional information about NFDRS and fuel models.

**Tumacacori EMA, Pajarita Wilderness,** Tumacacori Mountains, Nogales Ranger District, 7,553 acres, established in 1984. The Pajarita Wilderness comprises approximately 4% of the Tumacacori Mountain EMA. The Pajarita Mountains, located along the international border with Mexico and 15 miles west of Nogales, Arizona contains the smallest wilderness on the Coronado. The Wilderness area is nestled within the rolling hills, with elevations ranging from 3,800 to 4,800 feet; however, the terrain within the canyons is rugged and steep with vertical cliffs (USDA 1993).

The principal canyon, Sycamore Canyon, provides a lush riparian habitat and an important corridor for wildlife migration north and south. The rolling hills of primarily oak woodlands, southwestern desert scrub, and the riparian areas support a tremendous diversity of plants, with over 600 species of plants identified (Spoerl 1995). The majority of the Gooding Research Natural Area lies within the Wilderness and contains Sycamore Canyon.

Within the Tumacacori EMA, this FMU is approximately 8052 (GIS generate) acres. The following table, displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution (based on the GIS generated acres), and tons/acre for the vegetation type within the Pajarita Wilderness and the Gooding RNA combined:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Southwest Desertscrub	Desert Shrub	T	2	248	3	0-1.0
Dry Desert Riparian	Desert Shrub	T	2	68	<1	1.1-5.0
Deciduous Riparian	Woodland	P	9	635	10	1.1-5.0
Broadleaf Woodland	Woodland	L/F*	1/6*	7,101	93	1.1-1.5

\*Dependant upon density of trees and fuel loading.

See Section IV.B.2.e, for additional information about NFDRS and fuel models.

***Pinaleño EMA, Mt. Graham Wilderness Study Area***, Pinaleño Mountains, Safford Ranger District, 61,810 acres, and an additional 190 (MA 8) and 370 (MA 8A) acres including the Goudy RNA. (expires 8/4/2000?). Additionally, in Management Area 2A, adjacent to the Wilderness Study Area, 442 acres was recommended for inclusion in the Wilderness Preservation System. The FMU comprises approximately 35% of the Pinaleño EMA.

The Mt. Graham Wilderness Study area was recommended for wilderness designation in the 1986 Forest LRMP. This recommendation has not been enacted. However, as stated in the Forest LRMP, this area is managed as a Wilderness Area and defined as areas with wilderness values where the earth and its community of life are untrammled by man, where man himself is a visitor who does not remain. Thus, the Wilderness Study Area has the same management directions, objectives, and standards and guidelines as other designated Wilderness Areas.

Located approximately two hours northeast of Tucson, the Pinaleño EMA is located a short distance from US Highways 70 and 191, and is accessed by State Highways 266 and 366. The nearest communities are Safford and Thatcher to the northeast.

Six threatened and endangered species are known or suspected to occupy habitat in the Pinaleño Ecosystem. These are the Mt. Graham red squirrel (endangered), Mexican Spotted Owl (threatened), Lesser Long-nosed Bat (endangered), Jaguarundi (endangered), Apache Trout (threatened), and Bald Eagle (threatened) (Ecosystem Assessment 2001).

Elevations range from 3,937 feet (southwest corner of the EMA) to 10,720 feet at the summit of Mt. Graham Peak. The mean annual precipitation varies from about 20 inches on the lower

elevations to over 35 inches in the upper elevations. Vegetation ranges from desert grassland at the lower elevations to spruce fir and aspen forests.

Within the Pinaleño EMA this FMU is approximately 72,173 (GIS generated) acres. The following table displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution, (using the GIS generated acres), and tons/acre for the vegetation type within this FMU:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Mountain Meadow	Grassland	L	1	3	<1	0-1.0
Desert Grassland	Grassland	L	1	6,526	11	0-1.0
Deciduous Riparian	Woodland	P	9	10,635	10	1.1-5.0
Coniferous Transition	Ponderosa Pine	U/G*	9/10*	14,928	24	18.0-25.0
Coniferous M-Conifer	Mixed Conifer	G	10	7824	13	40.1-50.0
Coniferous Spruce Fir	Spruce-Fir	G	10	114	<1	50.1-55.0
Coniferous Riparian	Woodland	H/G*	8/9*	438	<1	1.1-5.0
Broadleaf Woodland	Woodland	L/F*	1/6*	31,705	51	1.1-1.5

\*Dependant upon density of trees and fuel loading.

See Section IV.B.2.e, for additional information about NFDRS and fuel models.

Nestled in the center of this horseshoe shaped FMU is an area that supports a wide range of human uses, which add to the complexity of managing fires within this FMU. Relatively large areas offer opportunities for solitude, while Riggs Lake, other developed recreation sites, and the Columbine Visitor Center provide Rural recreation settings. Other dominant uses include the Mt. Graham International Observatory, Heliographic Peak Electronic Site, fire lookouts, fire quarters, Columbine Visitor Information Station, Turkey Flat and other summer home areas are significant components of the landscape.

The fuel loading within this EMA is the highest of all Coronado EMAs. This problem has been compounded by the 1990 snow damage and the severe drought in the mid-1990s, which contributed to serious insect infestations on the Pinaleño Mountains. These infestations killed “hundreds of acres of trees”, which obviously increases the fuel loadings and degrades Forest Health. (Status Paper 2002)

After relatively extensive archaeological and historical properties studies within this EMA, a total of 111 sites were located. The study revealed that the Pinaleño also possess significant historic associations with the Western Apache, including the San Carlos Apache and White Mountain Apache Tribes. (Ecosystem Assessment 2001)

**Santa Teresa EMA.** *Santa Teresa Wilderness*, Santa Teresa Mountains, Safford Ranger District, 26,780 acres, established in 1984. The Santa Teresa Wilderness comprises approximately 54% of the Santa Teresa Mountain EMA, and is located about 30 miles west of Safford, Arizona. A network of rugged mountains, deep canyons, and large mesas characterizes this Wilderness. Elevations rise from less than 4,000 feet in the canyon bottoms to nearly 7,500 feet at the summit of Cottonwood Peak. Holdout and Mud Springs mesas dominate the central

part of the wilderness. Chaparral vegetation dominates the wilderness, with stands of ponderosa pine and Douglas fir along the north flank and crest of Cottonwood Peak (USDA 1993).

Within the Santa Teresa EMA, this FMU is approximately 26,878 (GIS generated) acres. The following table displays the vegetation types, ecological zone, fire danger rating fuel model, fire behavior prediction fuel model, vegetation acres and percentage distribution based on the GIS generated acres, and tons/acre for the vegetation type within this Wilderness:

Vegetation Type	Ecological Zones	Fire Danger Rating Fuel Models	Fire Behavior Prediction Fuel Model	Acres	Percentage	Tons/Acre
Coniferous Riparian	Woodland	H/G*	8/9*	858	3	1.1-5.0
Chaparral	Chaparral	B	4	19,781	74	1.1-1.5
Coniferous Transition	Ponderosa Pine	U/G*	9/10*	824	3	25.0-30.0
Broadleaf Woodland	Woodland	L/F*	1/6*	5,415	20	1.1-1.5

\*Dependant upon density of trees and fuel loading.

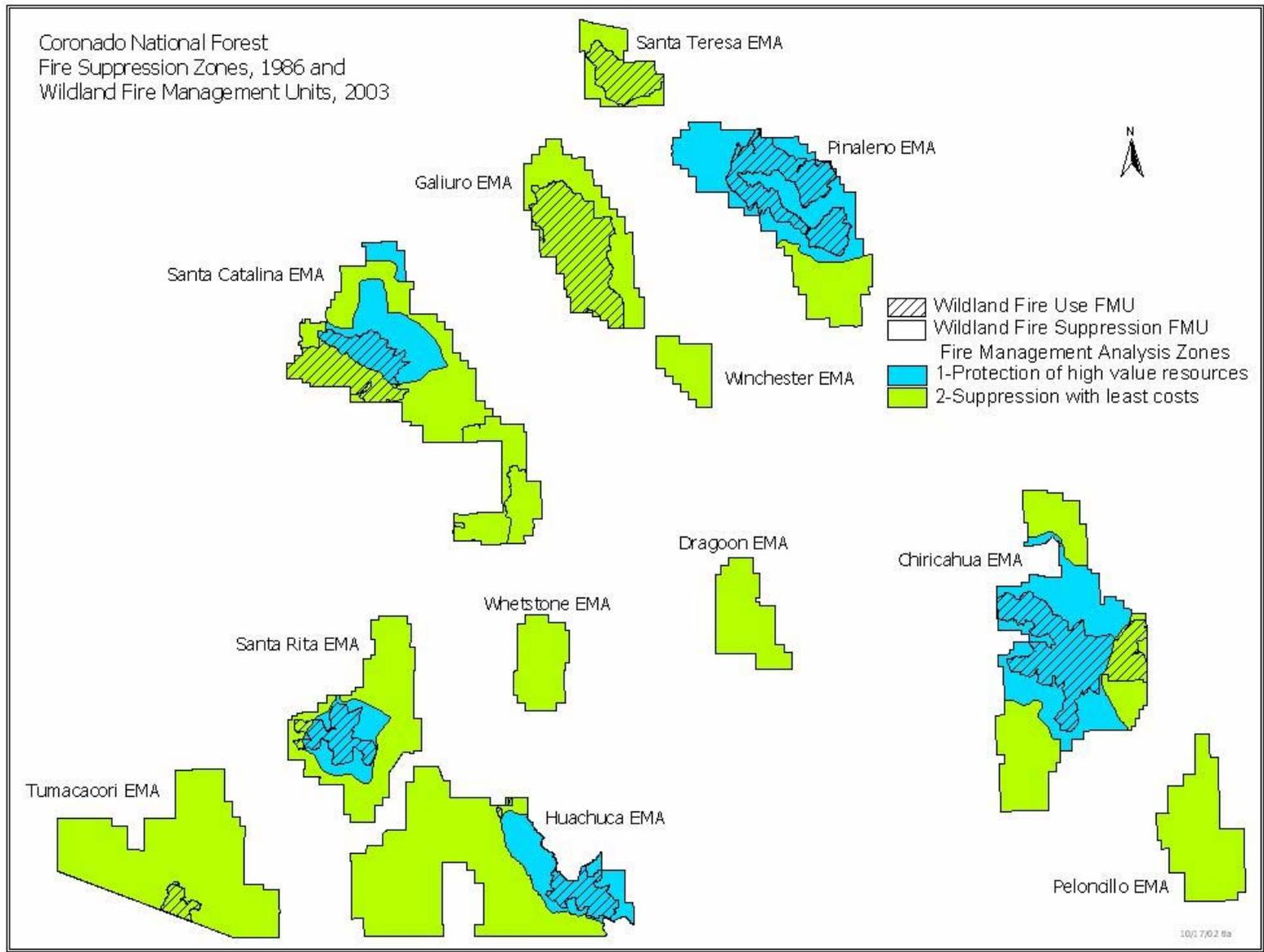
An evaluation of the entire mountain range for Wildland Fire Use will be addressed in the Forest LRMP Amendment.

#### WILDLAND FIRE SUPPRESSION FIRE MANAGEMENT UNIT

As identified in the Forest Plan, the Coronado is divided into two Fire Management Zones. These zones are based on resource management objectives, especially property and resource values. The appropriate response in Fire Suppression Zone 1 is “predicated upon preventing fires from reaching or damaging high value resources and improvements,” and the appropriate response in Fire Suppression Zone 2 is “predicated upon responses that will suppress wildfires at the least cost with acceptable damage to improvement and affected resources.” (See **Figure 7** for Fire Suppression Zones)

These responses apply to the entire Forest, including the Wildland Fire Use Fire Management Unit (FMU). In addition, general fire management characteristics and the biotic communities (See **Figure 6**) pertain to this FMU.

**Figure 7. Coronado Fire Suppression Zones, 1986 LRMP**



## Fire Management Analysis Zones

Further, the forest has been divided into planning units, referred as Fire Management Analysis Zones (FMZ), geographically delineated for the purpose of the level II Analysis of the National Fire Management Analysis (NFMAS), which was certified by the Regional Office in January 1995 and then again in December 1998. These FMZs are based upon common fire management direction and fire behavior characteristics. (See *Figure 8* for FMZ)

FMZ AA corresponds nicely with the Suppression Zone 1, with a small area in the Santa Catalina EMA near Oracle that is within FMZ CC (low elevation high, high resource values). Fire Management Analysis Zones 2 and 3 are within Suppression Zone 2. Since the Forest LRMP was implemented in 1986, urban development has been a growing concern on the Coronado. This ever increasing amount of Wildland-Urban Interface, along with historical fire suppression response data for the period 1985-1996 justified identifying FMZ CC as a planning unit in the NFMAS model.

FMZ AA - Defined as high elevation, high resource value. Fifty percent of the Chiricahua EMA, higher elevations of the Santa Catalina EMA, 75% of the Pinaleno EMA, 30% of the Huachuca EMA, and 40% of the Santa Rita EMA.

FMZ BB - Defined as low elevation, low resource value. Sixty five percent of the Forest is within FMZ BB as follows: 50% percent of the Chiricahua EMA, 90% of the Peloncillo EMA, and all of the Dragoon Mountains; 70% of the Tumacacori Mountains; 20% of the Santa Rita Mountains; 80% of Canelo Hills and Patagonia Mountains; all of the Whetstone, Galiuro, Winchester, and Santa Teresa Mountains; 25% of the Pinaleno Mountains; all the USFS jurisdiction of the Rincon Mountains; and 75% of the Santa Catalina Mountains.

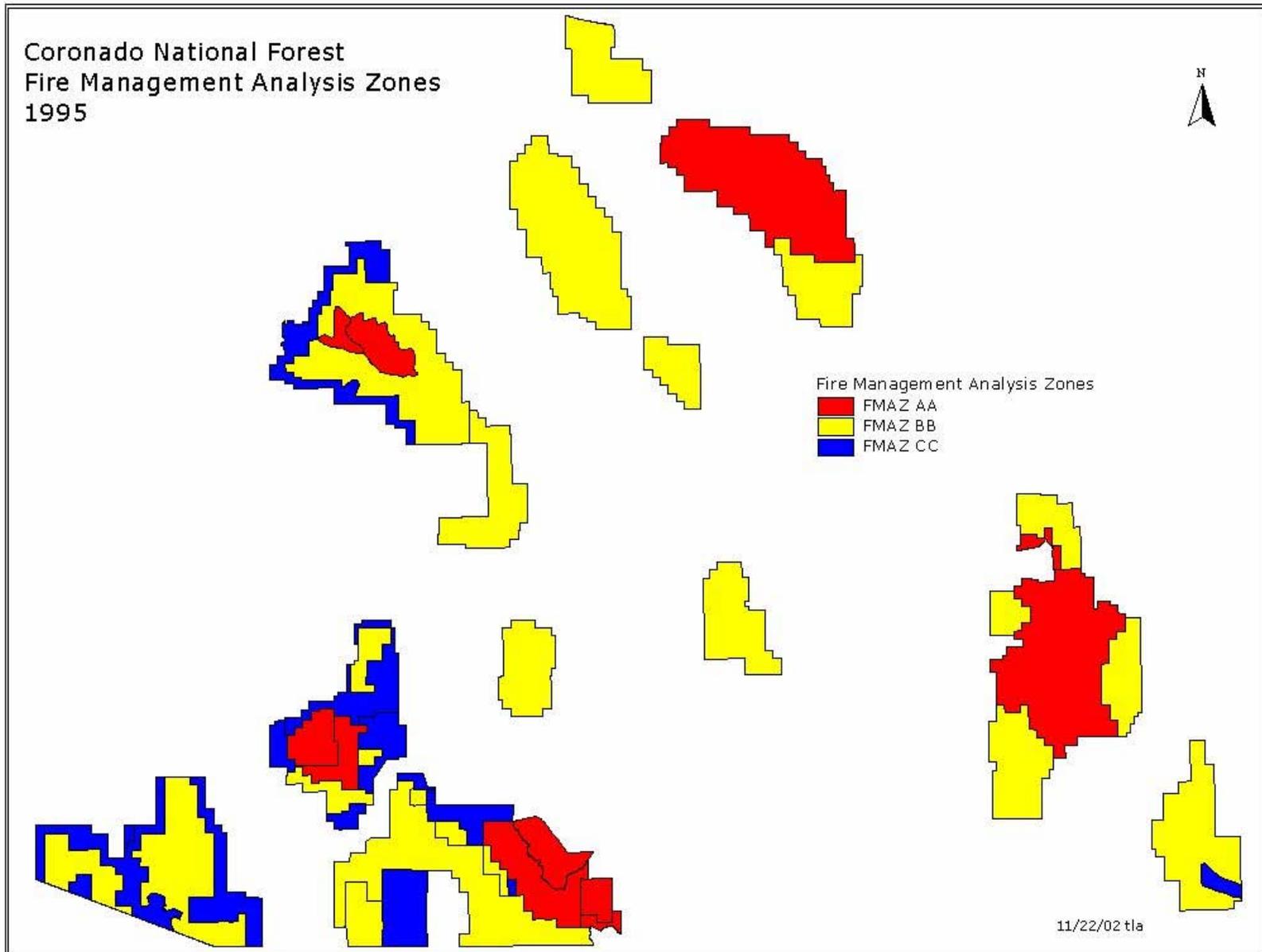
FMZ CC - Low Elevation, high resource value. Ten percent of the Peloncillo Mountains, 30% of the Tumacacori Mountains, 40% of the Santa Rita Mountains, 20% of Canelo Hills and Patagonia Mountains, and 15% of the Santa Catalina Mountains.

### **Description of FMZ AA**

*General Discription:* This zone is the higher elevations of all the sky islands on the Coronado, consisting of Mixed Conifer, Ponderosa Pine and Oak Woodland. The high resource values include multi-million dollar astrophysical sites on the Santa Rita EMA, Pinaleno EMA, and Santa Catalina EMA. Summer homes and private land, multiple high use recreational areas, and many Threatened and Endangered Species (T&ES) both plants and animals are also present on the different mountain ranges. The representative NFDRS fuel models are C, G, H, and U, and Fire Behavior Fuel Models 2, 10, 8, and 9 respectively.

*Fire Suppression Considerations:* FMZ AA contains the highest percentage of human and lightning fire occurrence – 62% of all fires within the 1985-1996 analysis period. Dispatch philosophies are consistent with historic and current dispatching.

### **Figure 8. Coronado Fire Management Analysis Zones, 1998 NFMAS.**



## **Description of FMZ BB**

*General Description:* This zone is in the lower elevations of the Forest, consisting of oak woodland, brush, desert scrub, and grass. It includes some TES species of both plants and animals. The representative NFDRS fuel models are B, F, L, and T, and the Fire Behavior Fuel Models are 4, 5, 1, and 2 respectively.

*Fire Suppression Considerations:* During this analysis period, 25% of the Forest fire occurs within this FMZ. The dispatch philosophies are consistent with historic and current dispatching.

## **Description of FMZ CC**

*General Descriptions:* Located in the lower elevations of the Forest consisting of oak woodland, brush, desert scrub, and grass. This FMZ is located next to rapidly expanding urban areas. Approximately 34,000 acres of the total forest acres are urban interface areas. This number is based on numbers of miles where homes occur along the interface of Tucson, Oracle, Sierra Vista, Nogales, and Sonoita/Patagonia. Additionally it contains summer homes located inside the Forest on three EMAs (Santa Catalina, Pinaleno, and Santa Rita), administrative sites owned by the Forest Service, and ranches scattered throughout the oak woodland areas. Multiple high use recreational areas are located within this FMZ and many TES species are present. The representative NFDRS fuel models are B, F, L, and T, and the Fire Behavior Fuel Models are 4, 5, 1, and 2.

*Fire Suppression Considerations:* Based on the analysis period 1986-1995, approximate 13% of fires occur within FMZ CC. The dispatch philosophies are consistent with historic and current dispatching.

### *c. Strategic and Measurable Management Objectives Specific to the FMU*

Presently, the Forest LRMP Summary of Fire Management Activities identifies suppression strategies made obsolete by 1995/2001 Federal Wildland Fire Policy. Thus, an amendment to the Forest LRMP has been proposed to make the LRMP current. For example, the terms “control” and “contain” previously referred to types of management responses. Now, those terms refer to fire *status*.

### WILDLAND FIRE USE FMU

Within the Wildland Fire Use FMU, areas are recognized for which the cost of suppression may exceed the value of the resource to be protected. The environmental impacts of fire suppression activities may have more negative impacts on the resources than the effects of the fire, as exclusion of fire may be detrimental to the fire dependent ecosystem. The strategic management goals specific to this FMU include:

- ❑ Restoration of fire to the ecosystem to meet LRMP resource objectives through selection of appropriate management response to wildland fire occurrence.
- ❑ Use of prescribed fire to reduce hazardous fuel accumulations, enhance ecosystem health, and maintain natural condition within the Wilderness.

- ❑ Management of wildland fires to resolve air quality issues consistent with federal, state, and local laws.
- ❑ Ensure fire suppression activities are conducted to minimize suppression impacts and permit reintroduction of prescribed and naturally occurring fires.
- ❑ Ensure that firefighter and public safety is the first priority in all fire management activities.

#### WILDLAND FIRE SUPPRESSION FMU

This Fire Management Unit contains resources and improvements at risk from wildland fire, especially considering the current unnaturally flammable condition of the vegetation. It is also an area that interfaces with private lands and contains improvements. The first priority for fire management in this FMU is the safety of personnel and the public, including adjacent landowners. The strategic management goals specific to the Wildland Fire Suppression FMU include the following:

- ❑ Suppress all fires using the appropriate suppression response in Suppression Zone 1, with the intent of minimizing the loss of natural resource and improvements, and protecting cultural and historic resources.
- ❑ Suppress all fires using the appropriate suppression response in Suppression Zone 2, with the intent of using suppression strategies at the least cost and acceptable level of damage to improvement and affected resources.
- ❑ Use prescribed fire and non-prescribed fire treatment to reduce hazardous fuel accumulations, restore rangeland and wildlife habitat, and enhance ecosystem health.
- ❑ Develop and maintain cooperative agreements and working relationships with local fire agencies and adjacent landowners to encourage hazard fuel reduction projects in the Wildland Urban Interface.
- ❑ Strategy options are now much more fluid and variable, including the following:
  - Control 95 percent or higher of all unplanned and unwanted wildland fires during initial attack (48 hours or 5-25 acres in forested land or 50-200 acres in grass or desert scrublands).
  - Move 25 percent of high priority acres in condition class 3 to a better condition within 4 years. Not feasible until we get a detailed fire regime condition class map.
  - Conduct 100 percent of all prescribed fires in a manner consistent with all Federal, State, Tribal, and local smoke management requirements.

#### *d. Management Constraints or Criteria Affecting Operational Implementation*

#### WILDLAND FIRE USE FMU

Management direction from the LRMP, which may constrain implementation of wildland fire use within this FMU, includes the following:

- ❑ Consider the impact of long-duration smoke events originating in this FMU, including cumulative effects from surrounding activities.
- ❑ Consider the cultural resources by minimizing fire suppression-related impacts on those lands.

- ❑ Consider the Mexican Spotted Owl Recovery Plan and the Goshawk Guidelines for wildland fire use and in planning prescribed fire activities. (See **Appendix D** for a map of Mexican Spotted Owl PACs on the Forest)
- ❑ Address cumulative watershed impacts.
- ❑ Address visual impacts.

#### WILDLAND FIRE SUPPRESSION FMU

Constraints affecting fire management operations within this FMU include the following:

- ❑ All fire management activities will consider safety of personnel and the public as the highest priority.
- ❑ Fire Management operations will be carried out by qualified personnel who promote the safe and skillful application of fire management strategies and techniques.
- ❑ Fire Management operations will not be initiated until all personnel involved receive a safety briefing describing known hazards and mitigating actions, current fire season condition, and current and predicted fire weather and behavior.
- ❑ Smoke management and air quality requirements and reporting procedures will be followed for all prescribed fire operations.
- ❑ Fire management operations will not result in unacceptable impact to forest resources, especially TES species or their habitat.
- ❑ Consider significant cultural resource values by minimizing fire suppression-related impacts on those lands.
- ❑ Monitor and determine preparedness levels based on the Preparedness Plan found in the *Southwest Region Mobilization Guide*, Chapter 20, Section 27 and consistent with the levels established by the National Multi-Agency Coordinating Group at the National Interagency Coordination Center.

The following is a list of Forest management direction and goals as provided in the LRMP. These constraints and criteria should be achieved by implementing the appropriate management response strategy and fire use:

- ❑ Protect life, property and resources from wildfire while using prescribed fire as a tool to meet management objectives.
- ❑ Cooperate with other Federal, state and local regulatory agencies to protect air quality as required by the Clean Air Act.
- ❑ Maintain or enhance the visual resource through sound landscape management principles.
- ❑ Protect significant cultural resources from damage by project activities or vandalism.
- ❑ Preserve and protect caves for their unique environmental, biological, geological, hydrological, archeological, paleontological, cultural and recreational values.
- ❑ Manage existing wildernesses to preserve and protect the wilderness character in accordance with Wilderness law.
- ❑ Manage Wilderness Study Areas (under the direction prescribed for Management Area 9) to maintain the existing wilderness character and potential for inclusion in the National Wilderness System.

- ❑ Provide for ecosystem diversity by at least maintaining viable populations of all native and desirable nonnative wildlife, fish and plant species through improved habitat management.
- ❑ Improve the habitat for local populations of TES species to meet the goals of the Endangered Species Act of 1973.
- ❑ Restore rangeland to at least a moderately high ecological condition (70% to 75% of potential production, fair range condition) with stable soil and a static or upward trend.
- ❑ Continue to enhance other resource values, including those that effectively utilize wood fiber.
- ❑ Carry out silvicultural practices to improve stand health when such practices are consistent with other resource objectives.
- ❑ Secure and provide an adequate supply of water for the protection and management of the National Forest.
- ❑ Provide a favorable water flow in quantity and quality for off-Forest users by improving or maintaining all watersheds to a satisfactory or higher level.

*e. Historical Fire Occurrence.*

Fire has always played a major role in the life cycle of vegetation in the natural landscape. Since the dawn of time, lightning has started most fires, influencing the life cycles of plants and ecosystems. Many plants adapted to fire's effects. In fact, many plants adapted so well that they now depend on fire for their normal life cycle.

Fire, as a tool for people to control and modify their surroundings and to assist in various aspects of everyday life, has been used for thousands of years. Prehistoric people used fire in a variety of ways, which has been documented archaeologically and through analogies with historic Indian societies (Williams 1993). In addition to deliberate use of fire, fire played a more natural role in the evolution of ecosystems because previous societies did not possess the technology, the livestock, or anything like the modern political mandate for fire suppression that has existed during the last century. We know that prehistoric settlements burned, that landscapes surrounding these settlements burned, and that much of the mountain and valley environment of the Southwest have been exposed to fire at one time or another (Bahre 1991).

By studying growth rings and fire scars on trees hundreds of years old, researchers at the University of Arizona's Tree Ring Laboratory learned that areas of ponderosa pine stands averaging 3,000 acres in size have reburned every two to ten years. These fires typically burned along the ground and at lower heat intensity, and thus were not destructive (Kaib, Swetnam, and Baisan 1999). However, our forests have changed during the Twentieth Century as public policy and forest management practices interfered with the natural fire cycle.

During previous centuries, fire was the natural thinning agent that kept southwestern ponderosa pine forest open (Cooper 1960). Dense sapling thickets – uncharacteristic of pre-settlement ponderosa pine ecosystems – are common today. Sackett and Harrington reported typical stands averaging from 2,000 up to 90,000 trees per acre, of which 65 percent were 1 to 4 inches diameter at breast height (seedlings). In the early 1900s ponderosa pine forests had substantially fewer stems per acre, greater height, and larger diameters than today.

Since the advent of large-scale Anglo-American settlement, wildland fire exclusion, logging, grazing, federal agency management, fuelwood cutting, mining, and the construction of transportation corridors, have all had major effects on the ecology and age structure of ponderosa pine and mixed-conifer forest of southeastern Arizona. C.F. Cooper, who studied Arizona's ponderosa pine forests, wrote the following in 1960:

*The most important change brought about by the white man has been the virtual exclusion of fire from the forest of the Southwest. Under natural conditions, light surface fires, set by lightning or Indians, burned through all parts of the pine forest at regular intervals of 3 to 10 years. These fires acted as natural thinning agents and reduced surplus fuel. The reduction of flammable grass by grazing animals, and an intensive fire prevention program have largely eliminated fire from the woods. The major cause of the present excess of pine production is exclusion of fire. (Bahre 1991)*

Over the years, federal land management agencies have learned that by actively suppressing the natural occurrence of smaller, cooler fires in forests, they are unwittingly increasing tree density and causing the buildup of dangerous amounts of dead vegetation, which fuel larger and larger fires. Over the last century, the federal policy of fire suppression on public lands has degraded forest health and, antithetically, has increased the likelihood of catastrophic stand-replacement fires. This is evident in the southwest forests.

#### CORONADO FIRE HISTORY 1970 THROUGH 2001

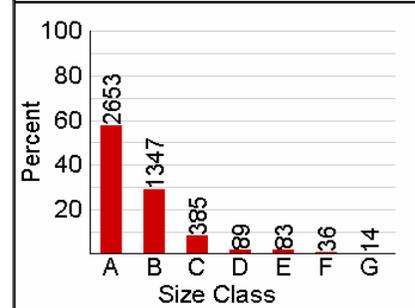
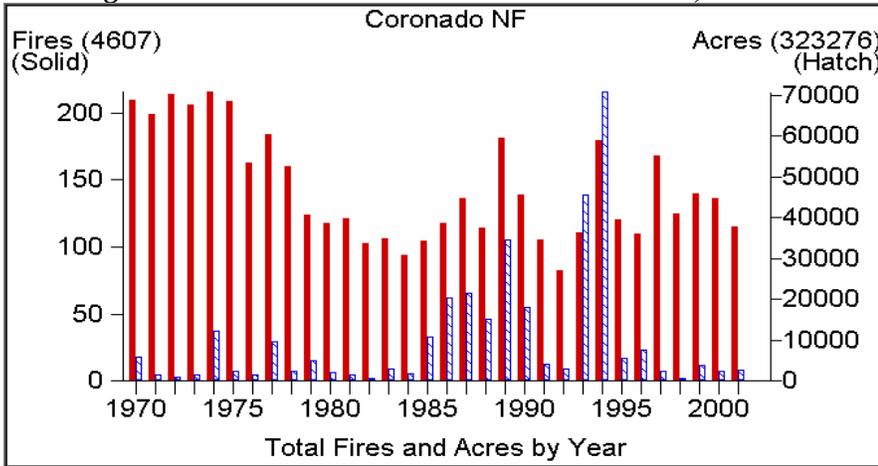
The data on fire occurrence for the Forest from 1970 through 2001 resulted in 4,640 fires reported on National Forest land for a total of 323,636 acres burned. During this time there were 1,871 human-caused fires for 94,110 acres and 2769 lightning-cause fires for 229,526 acres burned. Sixty percent of all fires were lightning-caused and burned 71% of the total acres, whereas 40% of all fires were human-caused and burned 29% of the total acres. See **Figure 9**, graphs of fire occurrence, acres burned, and **Figure 10**, fire occurrence by month. The following is the distribution of all fires by size:

Acres	<0.24	0.25 – 9.9	10.0 – 99.9	100 – 299.9	300 – 999.9	1000 – 4999.9	5000 +
<b>Lightning</b>	1592	830	222	45	46	25	9
<b>Human</b>	1085	523	165	45	37	11	5
<b>All Fires</b>	2677	1353	378	90	83	36	14

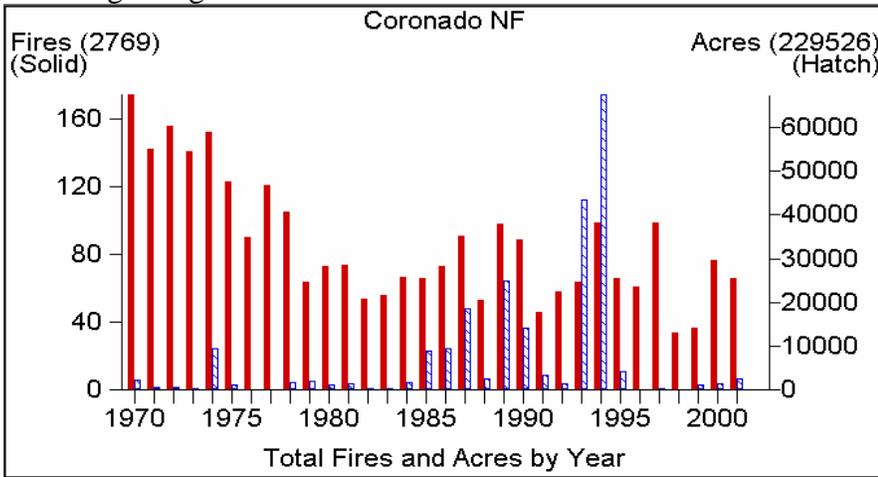
Fifty-eight percent of all fires were <0.24 acres and 29% of all fires were between 0.25 and 9.9 acres—87% of all fires were smaller than 9.9 acres and 13% of all fires were larger than 10 acres. The following table is a distribution of fires occurrence, in percentages by month:

Month	J	F	M	A	M	J	J	A	S	O	N	D
Lightning	<1	<1	<1	1	7	24	46	15	6	1	<1	0
Human	2	4	7	12	22	22	11	2	4	7	5	2
All Fires	<1	2	3	6	13	23	32	10	5	3	2	<1

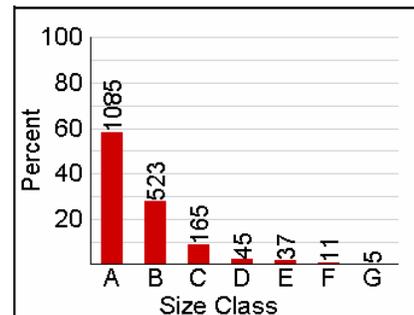
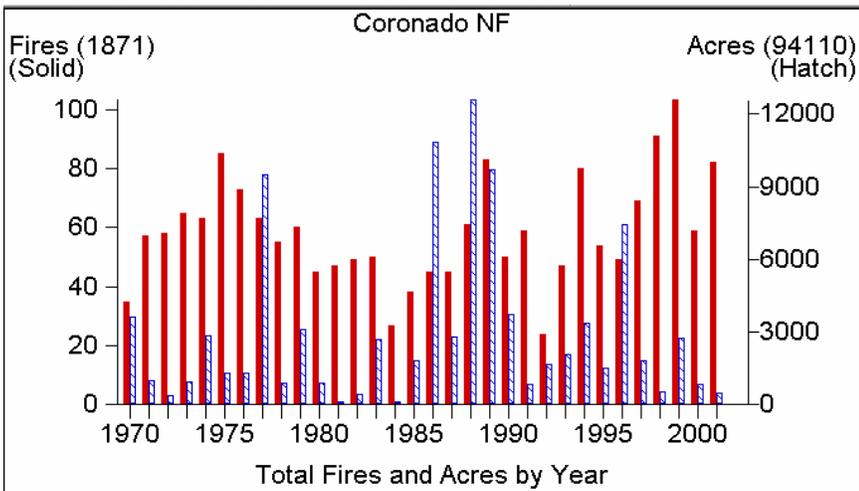
**Figure 9. Fire Occurrence and Acres Burned, 1970-2001**



**Total Lightning-Caused Fires and Acres 1970-2001**



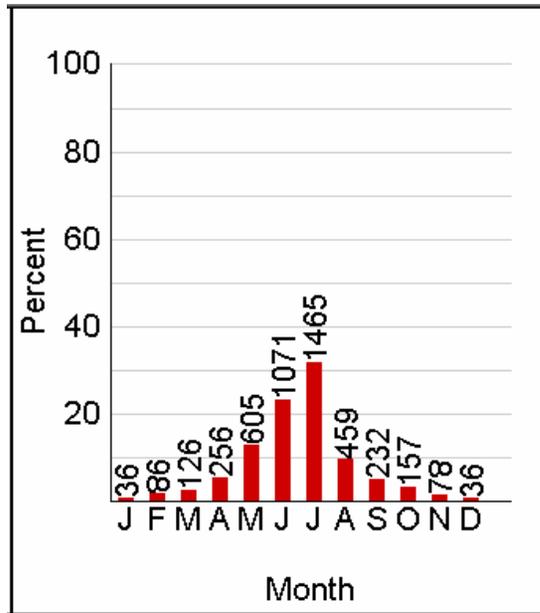
**Human-Caused Fires and Acres 1970-2001**



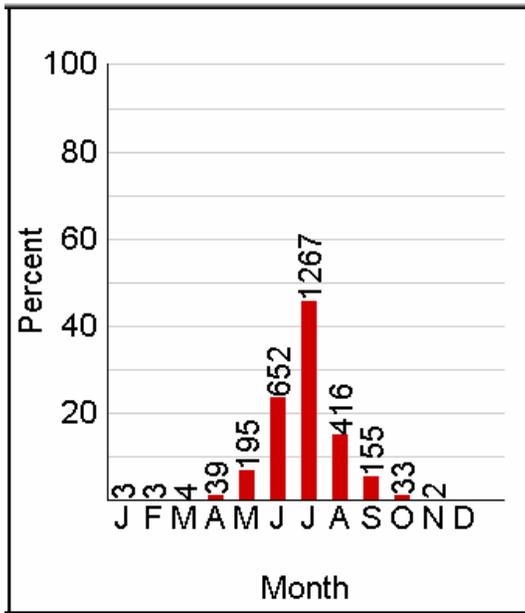
(Kramer 2002)

Figure 10. Fire Occurrence by Month, 1970 - 2001

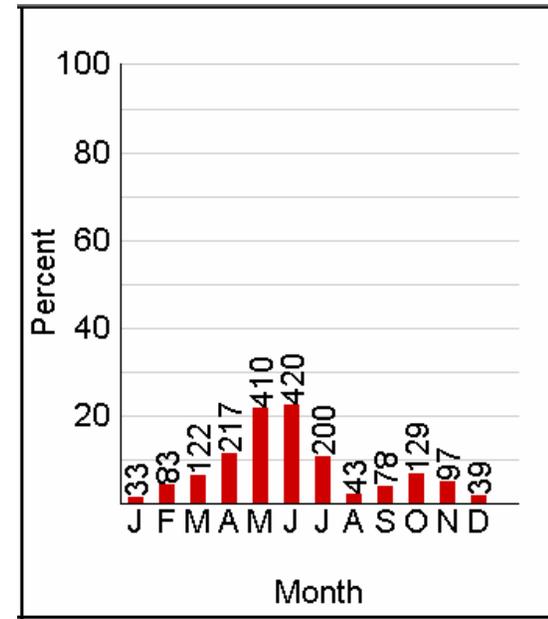
**FIRE OCCURRENCE BY MONTH  
1970 - 2001**



ALL CAUSES



LIGHTNING-CAUSED



HUMAN-CAUSE

(Kramer 2002)

The following is analysis of fire occurrence in recent history, 1982 through 2001, for each FMU within each EMA. See **Appendix E** for fire occurrence maps for the Forest and each EMA.

FIRE OCCURRENCE BY EMA, 1982 – 2001

Chiricahua EMA

In the Chiricahua EMA, from 1982 through 1999, 306 fires were reported on National Forest land. Two-hundred-seventy-three fires (89 %) were lightning-caused and 33 (11%) were human-caused. The largest lightning-caused fire in recent time, the Rattlesnake Fire, burned approximately 27,720 acres in 1994, and the Darnell Fire burned 5,942 acres in 2002. The following table displays the total fire occurrence and percentage within the EMA, Wildland Fire Use FMU, and the Suppression FMU.

	<b>Chiricahua EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	273	89	159	95	114	83
<b>Human</b>	33	11	9	5	24	17
<b>All Fires</b>	306	100	168	55	138	45

Dragoon EMA

There were 21 fires reported on National Forest land in the Dragoon EMA. Sixteen (76%) of those fires were lightning-caused, and 5 were human-caused (24%). The largest fires reported during this time were the Middle Fire in 1986, which burned 200 acres, and the Soren Fire in 1986, which burned 150 acres. Both of these fires started by lightning.

	<b>Dragoon EMA</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage
<b>Lightning</b>	16	76	16	76
<b>Human</b>	5	24	5	24
<b>All Fires</b>	21	100	21	100

### Peloncillo EMA

In the Peloncillo EMA, 20 known fires burned National Forest land. Seventeen were lightning-cause and three were human-caused fires. Eighty-five percent of all fires were started by lightning. The largest lightning fire in recent time, which started and burned only on National Forest land, was the Cloverdale Fire, which burned 2,800 acres. The Maverick Fire in 1997 was a prescribed burn that exceeded the cost allocated for the prescribed burn project and was declared a wildland fire, which burned 1000 acres. Other large fires, the Smith and South Fires, all started on Arizona State lands by lightning, then burned onto National Forest land for a total of 2,910 acres (1,250 acres on National Forest land and 1,660 acres on Arizona State lands).

	<b>Peloncillo EMA</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage
<b>Lightning</b>	17	85	17	85
<b>Human</b>	3	15	3	15
<b>All Fires</b>	20	100	20	100

### Santa Rita EMA

In the Santa Rita EMA, from 1982 through 1999, 184 fires were reported on National Forest land. Sixty percent of all these fires were human-caused. The largest fires in recent time, the Fagan Fires, burned approximately 9,500 acres in 1989, and 2,262 acres in 1986.

	<b>Santa Rita EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	73	40	40	82	33	24
<b>Human</b>	111	60	9	18	102	76
<b>All Fires</b>	184	100	49	27	135	73

### Tumacacori EMA

Of the 118 fires reported within the Tumacacori EMA, all occurred in the Wildland Fire Suppression FMU. The largest fire in recent time, which started and burned only on National Forest land, was the human-caused Walker fire, which burned 16,099 acres, and the Community Fire, which burned 855 acres in 2002. The lightning-caused Friguita Fire burned 1,200 acres in 1987. Other large fires include the human-caused Sasabe Fire in 1986, which started on National

Tumacacori EMA (continued)

Forest land (40 acres) and burned onto to the National Wildlife Refuge and Arizona State Land (10,350 acres); the lightning-caused Cumero Fire in 1991, which started on National Forest land (2160 acres) and burned on to the National Wildlife Refuge, Arizona State Lands, and into Mexico (880 acres). Large fires that started in Mexico and burned onto National Forest land include the Mexico 8 (650 acres on National Forest land and 100 acres in Mexico) and Mexico 15 (400 acres on National Forest land and 1,245 acres in Mexico) fires in 1999.

	<b>Tumacacori EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	33	28	0	0	33	28
<b>Human</b>	85	72	0	0	85	72
<b>All Fires</b>	118	100	0	0	118	100

Huachuca EMA

377 fires were reported in the Huachuca EMA on National Forest land. Of these, 118 were lightning-caused and 257 human-caused. Sixty nine percent of all fires are human-caused in this EMA. The largest fires in recent time that started and burned *only* on National Forest land are the Merritt Fire (human-cause), which burned 2,653 acres, the Ryan Fire (human-caused), which burned 38,179 acres, and the Oversight fire (human-caused), which burned 2,189 acres in 2002. The Ferosoa Fire (human-caused), which burned 1,385 acres in 1987, the Lampshire Fire (lightning-caused), which burned 2,400 acres in 1987, the Providencia fire (lightning-caused), which burned 1,128 acres in 1986, and the Shannon Fire (lightning-caused), which burned 1,375 acres in 1986. Both the Miller Fire (human-caused) in 1994 and the Research Wells Fire in 1987 (lightning-caused) originated on National Forest land and burned onto Arizona State land jurisdiction, burning a total of 2,950 acres (2,910 acres on National Forest land) and 2,770 acres (1,230 acres on National Forest land) respectively.

The human-caused Peak Fire burned a total of 12,125 acres in 1988 (9,625 acres on National Forest land) and the Mexico II Fires burned a total of 5,505 acres in 1989 (705 acres on National Forest land). Both of these fire originated in Mexico and burned into the United States onto National Forest land. The result of these fires was the International Fire Agreement between the State of Sonora, Mexico and USDA Forest Service, Coronado National Forest.

	<b>Huachuca EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	118	31	29	20	239	73
<b>Human</b>	259	69	20	41	89	27
<b>All Fires</b>	377	100	49	13	328	87

Whetstone EMA

Thirty-one fires burned on National Forest land in the Whetstone EMA, of which 25 were lightning-caused and 6 were human-caused fires. Within this EMA, 81% of all fires are caused by lightning. The largest fire in recent time, which started and burned *only* on National Forest land, was the human-caused French Fire in 1998, which burned 958 acres. Another large fire, the Montosa Fire started within National Forest lands by lightning and burned onto Arizona State lands jurisdiction, burning a total of 10,410 acres (2,658 acres on National Forest land and 7,752 acres on Arizona State lands).

	<b>Whetstone EMA</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage
<b>Lightning</b>	25	81	25	81
<b>Human</b>	6	19	6	19
<b>All Fires</b>	31	100	31	100

Galiuro EMA

Thirty fires were reported on National Forest land within the Galiuro EMA. Eighty-nine percent of all fires within this EMA were started by lightning. The largest fires in recent time, which started and burned *only* on National Forest land, are the Maverick Fire, which burned 2,790 acres in 1990, and the Sixteen-To-One Fire, which burned 2,355 acres in 1986. Other large fires—the Markham, Whitlock, and YLE Fires—all started within Arizona State lands jurisdiction by lightning and moved onto National Forest land, burning a total of 38,498 acres (9,598 acres on National Forest land and 28,900 acres on Arizona State lands).

	<b>Galiuro EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	31	89	22	92	9	82
<b>Human</b>	4	11	2	8	2	18
<b>All Fires</b>	35	100	24	69	11	31

### Pinaleño EMA

396 fires were reported within this EMA between 1986 and 2001. Seventy two percent of all fires were lightning-caused. The largest fires during this period were the Marijilda Fire, which was caused by lightning and burned 3,997 acres in 1989, and the Clark Peak fire, which was human-caused and burned 6,716 acres in 1996.

	<b>Pinaleño EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	284	72	110	31	174	68
<b>Human</b>	112	28	31	22	81	32
<b>All Fires</b>	396	100	141	36	255	64

### Santa Teresa EMA

Nine known fires in the EMA burned National Forest land for a total of 11,151.2 acres. All fires were lightning-caused. The largest fire in recent time was the Cottonwood Fire in 1998, which burned a total of 11,809 acres. The Cottonwood Fire, managed in a confine strategy, started on National Forest lands by lightning and burned 800 acres of Arizona State lands.

	<b>Santa Teresa EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	9	100	7	100	2	100
<b>Human</b>	0	0	0	0	0	0
<b>All Fires</b>	9	100	7	78	2	22

### Winchester EMA

Nine known fires burned National Forest land for a total of 843.3 acres. During this time there were eight lightning-caused fires (610.3 acres) and one human-caused fire (233 acres). The largest fire during this period, which started and burned *only* on National Forest land was the Reiley Fire, burning 210.3 acres in 1993. Other large fires include the Rock House in 1995 (burned 340 acres of National Forest land and 307 acres of Arizona State Lands jurisdiction), the Oak Grove in 1995 (burned 56 acres of National Forest land and 704 acres of Arizona State Lands jurisdiction), and the Rim Tank Fire in 1998, which was a prescribed burn managed by the Bureau of Land Management (BLM) that exceeded its prescription and burned 233 acres of National Forest lands and 15 acres of BLM. The table below reflects the fires listed above, but

Winchester EMA (continued)

the maps in **Appendix E** displays only the 7 fires that started on National Forest lands, a limitation within GIS.

	<b>Winchester EMA</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage
<b>Lightning</b>	8	89	8	89
<b>Human</b>	1	11	1	11
<b>All Fires</b>	9	100	9	100

Santa Catalina EMA

In the Santa Catalina EMA from 1986 through 1999, 926 fires were reported on National Forest land, and 54% of all fires were human-caused. The largest lightning fires in recent time, which started and burned *only* on National Forest land, are the State Park Fire, which burned 1,581 acres in 1992 and the Shovel Fire, which burned 1,275 acres in 1995. Other large fires started by lightning are the Chiva (1989), Rincon (1994), Redington (1994) Fires; these burned either onto or started on other Federal or State lands jurisdiction. The Chiva Fire started on National Forest land and burned onto National Park land, burning 9,580 acres (2,580 acres on National Forest and 7,000 acres on National Park land). The Rincon fire was managed as a Prescribed Natural Fire by the National Park and was declared a wildland fire when it burned out of prescription onto National Forest land, burning 14,590 acres (3,693 acres on National Forest and 10,897 acres on National Park). The Redington Fire started on State land and burned onto National Forest land burning 5,233 acres (4,502 acres on National Forest and 732 acres on State land). In 2002 the Oracle Hill fire burned 2,397 acres.

The most recent and largest human-caused fires are the Bullock fire 30,600 acres (2002), Buster Fire (1990), which was a prescribed fire that was declared a wildland fire burning 500 acres and the Sabino Fire (1995), which burned 475 acres.

	<b>Santa Catalina EMA</b>		<b>Wildland Fire Use FMU</b>		<b>Suppression FMU</b>	
	Total	Percentage	Total	Percentage	Total	Percentage
<b>Lightning</b>	426	46	210	66	216	36
<b>Human</b>	500	54	110	34	390	64
<b>All Fires</b>	926	100	320	35	606	65

### *f. Fire Management Situation*

#### SOUTHEASTERN ARIZONA CLIMATE

The climate in southeastern Arizona is semi-arid with a bi-modal distribution of precipitation. The summer rainy season occurs between July and September, while the winter rainy season occurs between December and March (Horn and Bryson 1960; Mitchell 1976). Generally, winter precipitation tends to be more spatially homogeneous, comprised of rains having longer duration relative to summer thunderstorms, which occur in short bursts over small or patchy areas of the region (Bahre 1991).

The mean annual precipitation at 5,200 feet elevation is 17.24 inches (Sellers and Hill 1974). Temperatures at the same elevation are warmest in late June and early July, with average minimums of 63 degrees Fahrenheit and average maximums of 91 degrees Fahrenheit; coolest temperatures occur during January with average minimums of 32 degrees Fahrenheit and average maximums of 58 degrees Fahrenheit. (Temperature change with elevation occurs at a rate of 3.5 degrees Fahrenheit (2 degrees Celsius) (IHOG 2001) and precipitation change occurs at 3.9- to 4.875 inches of rainfall for every 1000 feet increase in elevation (Lowe 1985)).

The annual climatic cycle that affects the fire regime begins in April with the melting of the winter snow pack. Winter storms are infrequent by this time and a drying trend sets in. Strong winds and low humidity occur in spring as weather systems track across the north of the region and warm high pressure builds from the south. By June, windiness is replaced by hot and dry conditions as high pressure strengthens across the area. This pre-summer drought intensifies through May and June, and frequently no precipitation occurs during this period. Lightning potential then increases as the high becomes centered near the four corners. Occasional isolated 'dry' thunderstorms may occur, generating lightning with little or no precipitation, resulting in fire activity.

In early July, a breakdown of high pressure over Arizona allows moist air from the Gulf of Mexico or the Gulf of California to flow over the state. Orographic and convective thunderstorms associated with the moist air mass are generated in increasing numbers during July and August, tapering off through September. A second drying trend establishes in October, and is broken by the arrival of large winter storms from the Pacific, often in late November (Baison 1990).

#### SOUTHEASTERN ARIZONA FIRE SEASON

The height of fire season in southeastern Arizona occurs in late spring and early summer. Throughout the spring, increasing temperatures and negligible precipitation create extremely dry conditions across the Southwest. Prior to the onset of the summer rainy season, around late June and early July, circulation patterns draw moisture from the southeast (Schroeder and Buck 1970).

Weak storm cells bring lightning but little rain. During this period, relatively few lightning fires occur, but those that do start often become large (Barrows 1978).

As circulation patterns strengthen during July, storm cells transport more moisture and produce rain that reaches the ground, thereby reducing fire danger and activity. July fire statistics show a high frequency of lightning-ignited fires but less area burned compared to June when drier conditions prevailed (Barrows 1978; Morino et al. 2000). *Figure 11* is data collected between 1970 through 2001 that shows the lightning season peaking on the Coronado in June and July.

**Figure 11. Lightning Fires and Acres Burned 1970 - 2001**

<b>Month</b>	<b>Number of Fires</b>	<b>Acres Burned</b>
<b>April</b>	39	1,627
<b>May</b>	195	15250
<b>June</b>	652	133,225
<b>July</b>	1,267	69,167
<b>August</b>	416	4,715
<b>September</b>	155	4,417
<b>October</b>	33	287

Energy Release Component (ERC) traces the seasonal trend of fire danger better than any other National Fire Danger Rating System (NFDRS) index or component, but is the least responsive to short-period fluctuations in fire danger. (See Section IV.B.2.e for detailed definitions on NFDRS indices and components.)

Fuel Model H is used in modeling because it best represents the actual fuel conditions as they respond to variable environmental conditions. Fuel Model H describes a healthy stand with sparse undergrowth and a thin layer of ground fuels. Fires in such fuels are typically slow spreading but dangerous in scattered concentrations of dead-and-down.

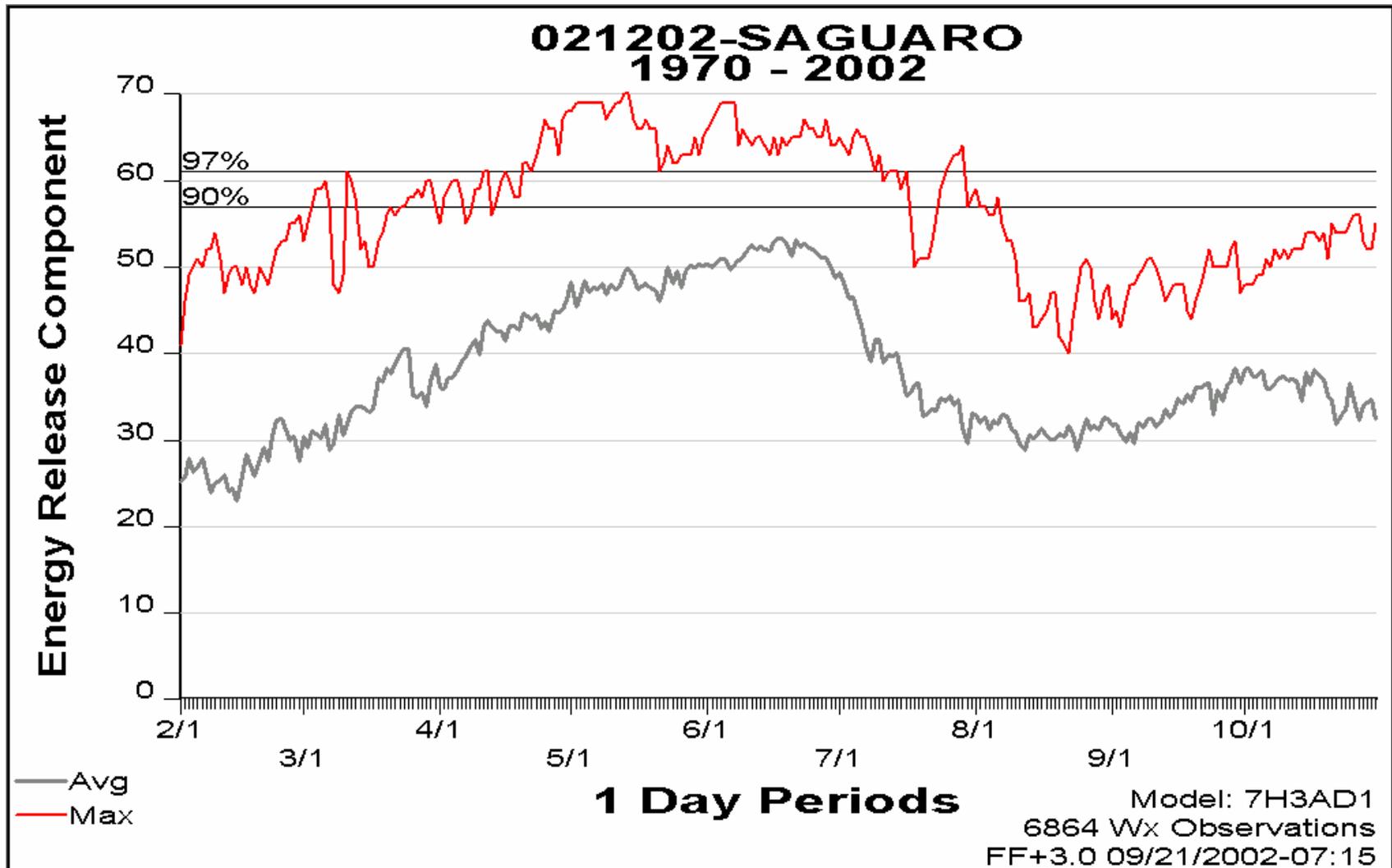
Saguaro (021202), located near the Lowell House in Sabino Canyon at 3,100 feet elevation, is a Class I Forest Technologies System Satellite (FTS) station representing the Coronado for the lower elevation areas. Columbine (021005), located at the Columbine Work Center on the Pinaleno Mountains at 9,521 feet elevation, is a Remote Automated Weather Station (RAWS) representing the Coronado for the higher elevation areas. The data from these stations are used to generate indices. Detailed information about these two stations and others used on the Coronado are located in Section IV.B.2.e.

The following information is derived from the Saguaro and Columbine stations using the wind speed, maximum temperature, precipitation duration, minimum and maximum relative humidity, and maximum weather observations. Additionally, wind roses were developed by the western Regional Climate Center, for both of these stations, which display frequency distribution by both

speed and direction. (See **Appendix F** for all observations.) *Figure 12* displays the average fire season for the Coronado, which generally ranges from spring through July.

#### Weather Patterns Influencing Fire Behavior Forest-wide

- ❑ Strong west/southwest winds and low humidity are prevalent from late March to early July, resulting mainly in wind-driven fire behavior.
- ❑ Hot, dry, and unstable conditions usually occur from late May to early July, leading to the potential for plume dominated fire behavior.
- ❑ Dry lightning is most prevalent from June to early July.
- ❑ The monsoon, accompanied by higher humidity and rainfall potential, less wind and subdued fire behavior, begins during the 1<sup>st</sup> or 2<sup>nd</sup> week in July and ends in the 2<sup>nd</sup> or 3<sup>rd</sup> week in September.
- ❑ Dry and mild conditions occur again in the first half of October, leading to a period of increased fire behavior potential before the onset of winter conditions.



Energy Release Component at Saguaro FTS Station for fuel model “H”, showing the Average and the Maximum value ever recorded.  
**Figure 12. Energy Release Component Graph using Fuel Model H**

FUEL CONDITIONS IN THE FMU LIKELY TO INFLUENCE FIRE BEHAVIOR

The decrease in the occurrence of wildland fire has destabilized many fire-adapted ecosystems, including much of the land managed by the Coronado National Forest, though in some areas less than others, e.g., Galiuro and Santa Teresa EMAs because of past practice using confinement as a strategy, which reduced fuel accumulations. A lack of natural fire influence over the past century has changed the character of vegetative communities within the Forest, causing an unnatural accumulation of fuel and leaving many areas at risk of catastrophic fire. As a result, wildland fires are now larger and more severe than historical fires.

The loss of a natural fire interval has contributed to a decline of structural and vegetative diversity in forested areas. The absence of periodic fires has contributed to an increase of woody species and a decrease in grasses. This is the current condition for the most part on the Forest.

Over the years, federal land management agencies have learned that by actively suppressing the natural occurrence of smaller, cooler fires in forests, they are unwittingly increasing tree density and causing the buildup of dangerous amounts of dead vegetation, which fuel larger and larger fires. Over the last century, the federal policy of fire suppression on public lands has degraded forest health and, antithetically, has increased the likelihood of catastrophic stand-replacement fires. This is evident in the southwest forests and on the Coronado.

Wildland fire threatens public and private land, particularly where vegetation patterns have been altered by development, land-use practices, and aggressive fire suppression. Potentially serious ecological deterioration is possible where fuel loads have become extremely high. The following (**Figure 13**) is the range of fuel loading for vegetation type on the Forest. (Fuel Loading Assessment 2000) Additionally, **Appendix G** displays the fuel loading in tons per acre for each EMA and the Forest.

**Figure 13. Summary of Fuel Loading by Vegetation Type**

Vegetation Type Forest LRMP	Fuel Loading Tons/Acre
Southwestern Desert shrub	1.1-5.0
Desert Grassland	0-1.0
Plains Grassland	0-1.0
Mountain Grassland/Meadow	0-1.0
Chaparral	1.1-5.0
Broadleaf Woodland (Evergreen)	1.1-5.0
Coniferous Woodland	1.1-5.0
Deciduous Forest	25.0-30.0
Coniferous Forest (transition)	25.0-30.0
Coniferous Forest (mixed-conifer)	18.0-55.0*
Coniferous Forest (spruce-fir)	30.1 - 55.0*
Dry Desert Riparian	0-1.0
Deciduous Riparian	1.1 - 5.0
Higher Ecosystem Extensions	1.1 - 5.0
Coniferous Riparian	1.1 - 5.0

\*Varied by EMA, based on actual transects or stand exam information.

## FIRE REGIME ALTERATIONS

Fire Management Plans requires an analysis of the historic role of fire by describing the types and distribution of fire regimes across our landscapes. A condition class assessment ranks the degree of departure of current vegetation from historic fire regimes.

A classification system was developed by Schmit, et. al. (2002), which describes, albeit broad-scaled, the historical natural fire regimes for the Coronado National Forest. This data is intended for use at the coarse-scale for national planning, not for forest level planning. However, there are efforts to develop nationally consistent methodology to develop data that can be used for finer-scale mapping purposes. Therefore, the Coronado will not use this classification system until the methodology is developed.

By studying growth rings and fire scars on trees hundreds of years old, researchers at the University of Arizona's Tree Ring Laboratory learned that areas of ponderosa pine stands averaging 3,000 acres in size have reburned every two to ten years. These fires typically burned along the ground and at lower heat intensity, and thus were not destructive (Kaib, Swetnam, and Baisan 1999). However, our forests have changed during the Twentieth Century as public policy and forest management practices interfered with the natural fire cycle.

The following is a general discussion on the fire regimes for vegetation types on the Coronado National Forest. The information is taken directly from "Fire and Forest Health: Southwestern Region" prepared by Moody and others (1992).

### Ponderosa Pine

Historical evidence indicates that fires have always been an ecological force in ponderosa pine communities. Numerous references exist that document the open park-like appearance of historical ponderosa pine forests where herbaceous vegetation was vigorous and abundant (Biswell et al. 1973, Brown and Davis 1973, Cooper 1960, Beale unknown). Fire was a regular feature of these forests, burning the light surface fuels at intervals usually averaging less than 10 years and as often as every 2 years (Dieterich 1980, Weaver 1951). Many pre-settlement fires burned for months at a time and covered thousands of acres (Swetnam 1988).

The relatively short interval between fires was due to the rapid re-sprouting of grasses following fire, annual pine needle cast, the high incidence of lightning, and the warm, dry weather common to the Southwest. Very little ground fuel would have occurred over broad areas under this fire regime other than grass and needle cast that had accumulated since the last fire. Large woody fuels, which fell infrequently, rarely accumulated over extensive areas. When single or small groups of trees fell, subsequent fires generally consumed them, thus creating a mineral soil seedbed and reducing grass competition, which favored establishment of ponderosa pine seedlings (Cooper 1960). These circumstances created an uneven-aged stand structure composed of small, relatively even-aged groups (Harrington and Sackett 1988). Fires thinned the stands, eliminating thickets and keeping the ponderosa pine forests open and park-like with an understory of herbs and shrubs (Biswell 1973, Cooper 1960, Hall 1976, Weaver 1947).

## Mixed Conifer

Most mixed conifer stands in the southern Rocky Mountains were established after fire (Moir and Ludwig 1979). Arizona and New Mexico have the highest frequency of lightning fires in the United States and Canada (Schroeder and Buck 1970). The drier, lower elevation habitat types, dominated in climax by white fir, Douglas fir, and ponderosa pine, and in seral stages by ponderosa pine, burned about every 5 to 12 years (Weaver 1951). On cooler moist sites, such as the white fir/Douglas fir/boxelder habitat-type, the mean fire return interval would be longer. In the White Mountains of Arizona, Dieterich estimated the fire-return interval to be 22 years. Fires would be either light and erratic due to wet fuels, or intense stand-replacing fires during drought years.

## Spruce-Fir

During pre-settlement, fires were rare in spruce/fir forests because of climate conditions, but were most likely stand replacing when they did occur. The thin bark, persistence of dead lower limbs, and high flammability of needles make spruce especially susceptible to severe damage by fire during drought years. Following fire on moist, northern exposures, spruce and sub-alpine fir generally returns at once (Fowells 1965). On southern exposures or drier northern exposures, aspen, Douglas fir and western white pine may become established initially, followed by Englemann spruce and sub-alpine fir within 50 to 100 years (Lebarron and Jemison 1953).

Most of the spruce/fir stands in the Southwest have not burned for 100 years or more, and are now highly vulnerable to a high intensity fire. The stands are mostly overstocked, stagnant, and decadent. There is a heavy fuel loading that typically ranges from 40 to 80 tons per acre of fuels 3 inches in diameter or larger.

The spruce/fir component of the Southwest contains primarily Engelmann and blue spruce, with varying amounts of true fir, aspen, and very scattered ponderosa and limber pine.

## Woodland

Wildfire played an important role in pre-settlement pinyon-juniper ecosystems. Historically, fire has been the dominant force controlling the distribution of oak and pinyon-juniper, but fire cannot be separated from the additional effects of drought and competition. All three forces seem to have played a complimentary role in limiting the distribution of juniper before grazing by domestic livestock was a factor. However droughts and competition from grass probably only served to slow the invasion and growth of junipers in adjacent grasslands, since the trees are easily established during wet years (Johnsen 1962), especially where shade is present (Meagher 1943). Fire occurring about every 10 to 30 years (Leopold 1924), kept the junipers restricted to shallow, rocky soils and rough topography (Arend 1950, Burkhardt and Tisdale 1969, O'Rourke and Ogden 1969). When stand replacement fires occurred, the entire sequence from skeletal forest following fire to climax pinyon-juniper was about 300 years (Erdman 1970). Successional

stages following fire are as follows: annuals; mixed annual and perennials; perennial forb, grass and shrub; shrub and pinon-juniper; and finally, climax pinyon-juniper.

On deeper soils where pinon-juniper was a natural component, the area had scattered trees over large stands of grass. This condition was maintained through the years by periodic low intensity fires, which would kill the smaller trees and add nutrients to the soil to perpetuate the grasses.

#### Chaparral

Throughout the world, chaparral is thought of as a fire-induced vegetation type (Shantz 1947), although we know that much of the chaparral in Arizona is climax. Arizona chaparral burns periodically, but has a lower fire frequency than California chaparral. Burned chaparral areas that are left to recover naturally seldom support a re-burn for at least 20 years, and many Arizona chaparral stands, particularly those that contain shrub live oak, are 80 to 100 years old (Cable 1975, Carmichael et al. 1978). In general, fire helps to keep chaparral communities diverse and productive. Many species (often palatable) are short-lived and must germinate from seed after a fire.

#### Desert Shrub

Environmental and biological factors may have limited the invasion of shrubs into desert grasslands before the arrival of Europeans. Thornber 1907, 1910, Griffiths 1910, Wooten 1916, Leopold 1924, and Humphrey 1958, were convinced that fire controlled the shrubs in those portions of the desert grasslands that had "sufficient fine fuel." Wooten 1916 commented on fires severe enough to kill plants 10 to 12 feet high. Experiments on the Santa Rita Experiment Range showed 16 times as many mesquite seedlings were established on bare ground as in vigorous stands of perennial grasses (Glendening and Paulsen 1955). Moreover, once established, growth of young mesquite plants was severely restricted in good stands of grass. Mesquite seedlings are most prevalent following warm summers and good Fall rains (Wright et al. 1976). Because grassland fires usually occurred during dry seasons that usually followed two or more years of average to above average precipitation (Wright and Bailey 1980), a high percentage of young mesquite trees could have easily been killed by periodic fire. Grass plants, including surviving black gramma, would have recovered quickly following fire because they had received good summer rains the year before the fire (Reynolds and Bohning 1955, Cottle 1931, Cable 1975).

To determine the fire regimes for the Coronado, the vegetation types used in the 1986 Forest LRMP have been grouped into general Ecological Zones (**Figure 14**). The following is a crosswalk between the vegetation types used for the fire regime descriptions on the Coronado.

**Figure 14. Vegetation Crosswalk and Fire Return Intervals**

Vegetation Code in LRMP	Vegetation used in Forest LRMP	Vegetation used in Fire Regime Alterations – Ecological Zones	Fire Return Interval
1	Southwestern Desert shrub	Desert Shrub	5 to 10 years
2	Desert Grassland	Desert Shrub	5 to 10 years
3	Plains Grassland	~~~~~	5 to 10 years
4	Mountain Grassland/Meadow	Influencing**	Dominant Vegetation
5	Chaparral	Chaparral	20 to 50 years
6	Broadleaf Woodland (Evergreen)	Woodland	10 to 30 years
7	Coniferous Woodland	Woodland	10 to 30 years
8	Deciduous Forest	Influencing**	Dominate Vegetation
9A	Coniferous Forest (transition)	Ponderosa Pine	2 to 10 years
9C	Coniferous Forest (mixed-conifer)	Mixed Conifer	5 to 12 years dry sites ~22 years cooler moist sites
9D	Coniferous Forest (spruce-fir)	Spruce/Fir	Rare >100 years
10	Dry Desert Riparian	Influencing**	Dominant Vegetation
11A	Deciduous Riparian	Influencing**	Dominant Vegetation
11B	Higher ecosystem extensions	Influencing**	Dominant Vegetation
12	Coniferous Riparian	Influencing**	Dominant Vegetation

\*\* The fire return interval for the dominant vegetation usually influences this vegetation type. Use the surrounding dominant vegetation to determine fire regimes or fire return intervals.

## Control Problems and Dominate Topographic Features

Unique control problems were discussed in the descriptions for each of the EMAs, which affect the criteria in deciding the appropriate management response. In general the following are control problems that are common to all areas on the Forest:

- ❑ Areas of heavy accumulations of fuel and vegetation
- ❑ Steep slopes
- ❑ Weather anomalies, e.g., micro bursts
- ❑ Wildland Urban Interface

## Other Elements of the Fire Environment Affecting Management

1. TES and Forest Service management indicator species
2. Electronic Sites
3. Interagency Coordination
4. Observatories
5. Ski Valley
6. Developed Recreation Sites
7. Riggs Lake
8. Parker Canyon Lake
9. Cima Cabin in Chiricahua Wilderness
10. Radar Base
11. Lookouts
12. Fire Sensitive Heritage Resources
13. Sabino Canyon
14. Madera Canyon
15. Cave Creek
16. Stronghold
17. Scenic Byway
18. Illegal Land Use
- 19.

## IV. WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

### A. GENERAL IMPLEMENTATION PROCEDURES

Implementation of wildland fire management components must be consistent with fire management capabilities and must consider the current and predicted conditions affecting fire behavior. Again, as stated in Section III of this Fire Management Plan, the appropriate management response for each wildland fire will vary across the Forest and will include the full spectrum of options from aggressive initial attack to managing fires in a manner to achieve resource benefits. Currently, only Management Areas including wilderness, or wilderness study areas, or research natural areas have a full range of options. The only response for all other management areas at this time is a suppression response.

The appropriate management response to all human caused fires is a suppression response, regardless of location. **No human caused wildland fire, including any escaped fire use project, will be managed for resource benefits.** All suppression actions must consider values to be protected, least cost, resource damage caused by suppression action, and—the first priority at all times—firefighter and public safety. If the initial action is unsuccessful, a Wildland Fire Situation Analysis (WFSA) will be prepared to determine the next set of management responses.

*Fire Use* – The combination of wildland fire use and prescribed fire application to meet resource objectives.

- ❑ *Prescribed Fire* – Any fire ignited by management actions to meet site-specific objectives. These actions result from integrated planning efforts and require a prescribed fire burn plan (RXBP). The plan describes the conditions under which the fire may be ignited by hand, ground-based vehicle, or aerial applications.
- ❑ *Wildland Fire Use* – The management of naturally ignited wildland fires to accomplish resource management objectives.

As stated in the *Wildland and Prescribed Fire Management Policy: Implementation Procedures Reference Guide*, August 1998, (Implementation Guide) the appropriate management response is “the specific actions taken in response to a wildland fire to implement protection and/or fire use objectives. It allows managers to utilize a full range of responses.”

The operational management decisions are described in the Wildland Fire Implementation Plan (WFIP). Specific WFIP requirements are outlined in Chapter 4 of the *Implementation Guide* (FSM 5132.32).

A WFIP will be initiated for **all** wildland fires. And, only the most complex fires being managed for resource benefits will require completions of all parts of a WFIP. The full WFIP consists of three distinct stages:

- ❑ Stage I: Initial Fire Assessment
- ❑ Stage II: Short-Term Implementation Actions
- ❑ Stage III: Long-Term Implementation Action.

Because of the extent (size) of the FMUs, where natural ignitions can be managed for resource benefit, Stage III would rarely be used on the Coronado. Progressive development of these stages will occur for wildland fires managed for resource benefits or where initial attack is not the selected response.

The interagency format maybe used to complete the Wildland Fire Implementation Plan, which is included as part of the Coronado Wildland Fire Use Implementation Guideline. The WFIP (WFSA Plus99) is also available in a PC software version and on the Internet at [www.fs.fed.us/land/fire/wfsa.htm](http://www.fs.fed.us/land/fire/wfsa.htm).

#### SETTING OUT IMPLEMENTATION PROCEDURES

The FSH 5109.19 Chapter 50 provides direction that states: A WFIP shall be initiated for all wildland fires. Additionally, if a “determination that suppression is the only appropriate response” and the determination is documented in the Fire Management Plan, “. . .the requirement for a decision checklist as part of Stage I is considered to be met.” Therefore, the Stage I Analysis is satisfied though this Fire Management Plan for fires that occur in Wildland Fire Suppression FMU.

The responsible line officer and fire manager will initiate a WFIP for every natural ignition occurring in the Wildland Fire Use FMU. In Stage I, following confirmation of a fire start, the objective is to determine if the ignition meets the criteria to be declared a wildland fire use event. If the fire is determined to be human caused or otherwise an unwanted wildland fire, the appropriate suppression response will be identified and implemented. No further development of the WFIP will be required for wildland fire suppression incidents. If the initial suppression strategy is unsuccessful, a WFSA will be prepared. See Section IV.B.4.b for further information on WFSA.

The Forest Supervisor is responsible for completing the WFIP Stage I: Initial Fire Assessment, which provides the decision framework for selecting the appropriate management response (FSM 5140.42). This authority may be delegated to a District Ranger, but only if the District Ranger has the requisite fire management knowledge, experience and staff available (FSM 5145). The Forest Supervisor shall notify the Regional Forester of all wildland fire use project(s) that undergo Stage I WFIP analysis with a “go” decision as soon as practical (R3 Supplement to FSM 5143.2). **Need Forest Manual Direction – Green Pages for Delegation of Authority from Forest Supervisor to District Ranger. Otherwise, the Forest Supervisor retains the authority.**

WFIP, Stage I: Initial Fire Assessment includes the Fire Situation, Decision Criteria Checklist (Go/No-Go decisions), and the Recommended Response Action.

- ❑ Time Frame – Initial Go/No-Go decision to be made within two hours after confirmation of an ignition.
- ❑ Responsibilities and Approval Authority – Forest Supervisor

- The District Ranger will convene fire management, wilderness, and any other recognized resource staffs to perform advisory role through the initial Go/No-Go decision.
  - Forest fire management personnel will provide information on Regional and National preparedness levels and any additional authority required to implement wildland fire use.
- Implementation Actions – The Forest Supervisor, designees, or District Ranger (if the Delegation of Authority granted) and appropriate fire management, wilderness, archeologist, and other recognized resource staffs, will complete Stage 1 of the WFIP, including:
- Analyze the wildland fire situation utilizing the Decision Criteria Checklist
  - If the ignition is declared an unwanted wildland fire, implement and document the decision for the appropriate suppression strategy, or
  - If the ignition is declared a wildland fire use event, assemble the Wildland Fire Analysis Team of wilderness, fire managers, and other recognized resources, and assign a wildland fire use manager.
  - Notify the Forest Fire Staff Officer of the ignition within the Wildland Fire Use FMU and the initial decision. If the decision is to manage the fire for resource benefits, the Forest Supervisor will notify the Regional Forester.

This is the preliminary stage of the WFIP, which establishes documentation groundwork for further stages. The Stage I analysis provides the location (FMU suppression or wildland fire use), fire cause (human or natural), administrative information, threat to life and property, threat to the Wildland Fire Use FMU boundary, energy release component, forecast fire weather and expected fire behavior, availability of resources to manage the fire, air quality, and the Local, Regional and National wildland fire situation (Go/No-Go), which aids managers by providing them with decision criteria to make the initial decision whether to manage the fire for resource benefits or to take suppression action. In all cases, this stage must be completed within two hours of the fire's confirmation (Implementation Guide, FSM 5108, 5140.32, and 5143.2). See **Appendix H** for Fire Situation and Decision Criteria Checklist.

## B. WILDLAND FIRE SUPPRESSION

The Forest's fire suppression objective is to manage wildfires at a minimum cost consistent with land and resource management objectives and fire management direction. Fire management will be guided by the concept of appropriate management response. The appropriate management response to any wildland fire forest-wide can be a suppression response, ranging from aggressive initial attack to a confinement strategy. Varying conditions and locations will determine the appropriateness of a given suppression action. Consideration will be given to other fires burning on the Coronado, in the Southeast Zone, in the Southwest Area, and in the Western United States in calculating appropriate management actions.

## 1. RANGE OF POTENTIAL BEHAVIOR

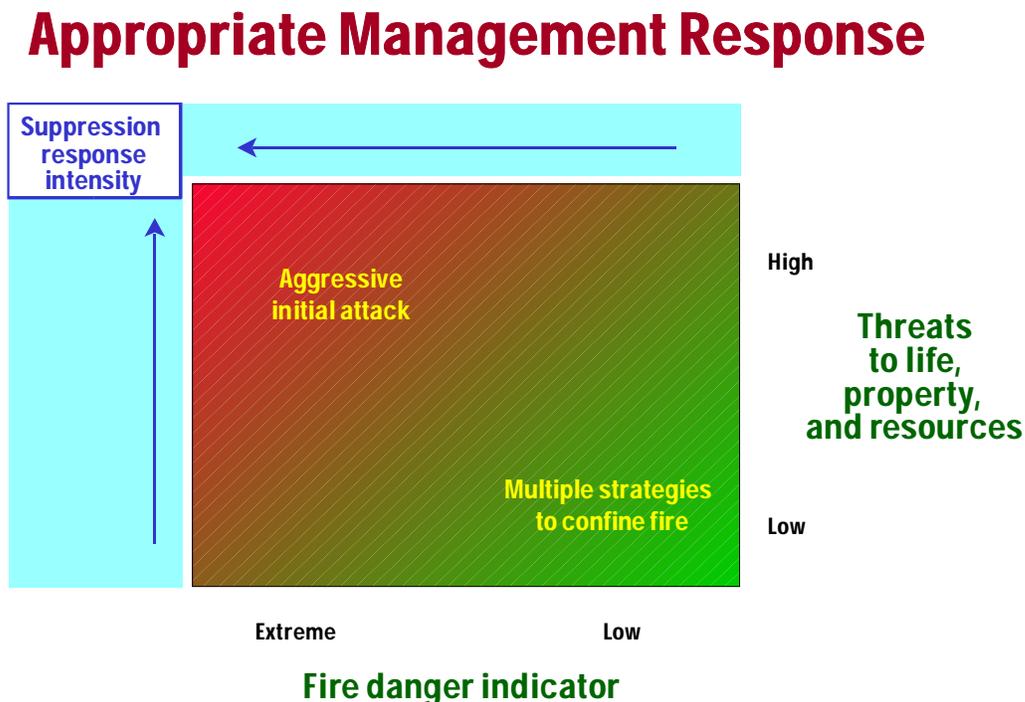
For most wildland fires on the Coronado, the appropriate management response will be a suppression action. As stated in the Fire Policy Review, “fires will be suppressed at minimum costs, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.”

Suppression action is required in the following situations:

- ❑ The fire is human-caused
- ❑ The fire is located in a defined Suppression FMU
- ❑ The fire is located in a Wildland Fire Use FMU, but the Decision Criteria Checklist indicates managing the fire for resource benefits is not within described limits or capabilities
- ❑ A fire use project (Wildland Fire Use and Prescribed fire) declared escaped

The level of suppression response intensity will range from aggressive initial attack to a combination of strategies to achieve confinement. The BI is considered the appropriate fire danger indicator to determine initial attack suppression response. The chart shown in *Figure 15* should be used to determine the suppression response intensity.

**Figure 15. Range of Suppression-Oriented Appropriate Management Responses.**



Two fire suppression zones are identified in the Forest LRMP, which outlines fire management direction for these zones. See **Figure 7** in Section III for Forest fire suppression zone maps. These zones are based on resource management objectives with consideration given to the value of property and resources to be protected:

- *Fire Management/Suppression Zone 1* is an area of high resource value and improvements. The appropriate suppression response in this zone will be predicated upon preventing fires from reaching or damaging high value resources and improvements. Aggressive initial attack will be used to accomplish this objective during very high and extreme fire danger.
- *Fire Management/Suppression Zone 2* is an area of lower resource values. The appropriate suppression response in this zone will be predicated upon responses that will suppress wildland fires at the least cost with acceptable damage to improvement, and maintenance of sufficient forage to sustain livestock grazing operations and ground cover to keep watersheds in satisfactory condition. A full range of suppression actions will be use to meet these objectives.

The appropriate response within Fire Management Zone 2 will be accomplished through minimum use of people and equipment. For each fire, the responsible line officer shall evaluate and document the suppression response prior to each burning period. If the response is no longer consistent with fire management direction, or if the response is anticipated to become inappropriate, the fire shall be considered an “escape,” and a WFSA will be prepared.

For further information on Fire Management Direction see the Forest LRMP, Chapter 5, Page 87 or Section II of this Fire Management Plan.

## 2. PREPAREDNESS ACTIONS

### *a. Fire Prevention, Community Education, Community Risk Assessment, and Other Community Assistance Activities (Firewise)*

Significant areas of the Coronado National Forest are located adjacent to rapidly expanding urban areas. Forest users include residents, seasonal visitors, undocumented aliens, and permittees (varying from local ranchers to large national and international corporations). Uses include day hiking, picnicking, four-wheeling, wilderness backpacking, rock climbing, and sightseeing. Recreation Visitor Days range from very light (Galiuro EMA) to very heavy (Santa Catalina EMA). Fires started by people are the result of negligence, misinformation, intent, or inadequate education in regard to fire prevention. Looking at recent fire records from 1970 through 2001, 60% of all fires were human-caused. This percentage varies by the human impact on different EMAs. For example, fires recorded from 1982-2001 show approximately 54% of all fires detected on the Santa Catalina EMA are human-caused, while no human-caused fires were detected on the Santa Teresa EMA.

The Forest and Arizona State Land Department continues to collaborate on Community assistance activities and community risk assessment. Annually they discuss priority areas for fuels treatment projects and wildland fire suppression training. Firewise is a program that will continue to be used on the Forest in wildland urban interface communities at risk from wildland fires.

#### I. ANNUAL PREVENTION PROGRAM

The following assumptions were used to develop the Forest's fire prevention goals and objectives:

- ❑ The population will continue to expand
- ❑ Demands on the Forest will increase proportionately with the population.
- ❑ Risk of human-caused fires will increase.
- ❑ Greater loss of resource will occur

Prevention Goals that follow from these assumptions are as follows:

- ❑ Protection of natural and developed resources on the Coronado by minimizing the loss or damage from human-caused fires
- ❑ Instilling in the general public a personal respect for their natural resources and recreation facilities
- ❑ Prevention of wildfires in the Wildland Urban Interface.

Prevention Objectives:

- ❑ To prevent fires people must be educated, Forest Officers must be trained, and those who start fires with intent to destroy or harm must be prosecuted.
- ❑ Each District will prepare and maintain annually a Prevention Plan on its own unit. Copies will be sent to the Supervisor's Office for review and approval. They will be available for review and use at the Ranger District and Supervisor's Office.
- ❑ Each District will develop and maintain a Wildland Urban Interface map, which is updated annually. This map will identify all private land within and around District boundaries. An attached narrative will list owners of the property, telephone numbers, structures and improvements, etc.
- ❑ Expand cooperation with other agencies involved in fire prevention with emphasis in the Wildland Urban Interface areas, and with government and private agencies involved in public education, planning and zoning, and emergency planning.

#### II FIRE RESTRICTIONS AND CLOSURES

The Regional Forester must approve the Forest Supervisor's request to activate a restriction or closure. Districts should call the Forest Fire Staff Officer when it is felt the situation merits a closure or a restriction. He will coordinate with all Districts, adjacent Forests, and other Federal and State land management agencies in southeastern Arizona. Restrictions and closures will be

considered in the context of the Forest Preparedness Plan presented in Section IV.B.2.f.. A Forest Closure will be instituted on the Coronado only as a last resort in prevention of wildfires.

Smoking and open fire restrictions do not deny access to anyone wishing to use any part of the Forest. The only limitations are that the use of smoking materials and open fires must be confined to designated areas, and only gas or propane stoves are permitted in undeveloped areas. The use of Campfire Permits has been successful in helping to curb human-caused fires. The Santa Catalina Ranger District uses the campfire permit year round, while the remaining Districts use them as the need arises. The permits are issued to campers who want to have campfires outside of developed recreational areas with established grills.

Closures are usually of two types: Area closures and Forest closures. Area closures designate that certain geographic areas of high resource damage potential be closed to entry. Forest closures apply Forest-wide.

#### Fire Investigations

Trained investigators shall investigate all human-caused fires to determine origin, cause, and responsible party. In all cases involving the suspected willful setting of a fire and/or anticipated suppression costs exceeding \$40,000, the Forest Service Special Agent assigned to the affected area shall be immediately notified. (FSM 5331.03) The Coordination Center will notify the Supervisory Law Enforcement Officer regarding arson fires and fires with suppression costs exceeding \$40,000; these cases will be forwarded to the Arizona Supervisory Special Agent for investigative assignment.

Human-caused fires that are not arson, or when suppression costs will *not* exceed \$40,000, can be brought to successful conclusion by the closest available Forest Protection Officer through either incident report, written warning, notice of violation, or preliminary investigation report, depending on what the specific situation warrants. Law enforcement officers are available for advice or response through the Coordination Center.

Fire suppression personnel are normally the first persons of authority on the scene of an incident and are responsible for conducting the initial investigation. The following check list may assist suppression personnel in assessing the need for additional trained fire investigators. If any of the following criteria are met, a fire investigator should be requested:

- ❑ If it appear that the fire was willfully set. All arson fires must be investigated.
- ❑ If it likely the suppression costs will exceed \$40,000. Fires with suppression costs exceeding this limit must be investigated.
- ❑ If any people in the area that have information concerning the fire. This may include both witnesses and suspects.
- ❑ If physical evidence is near the origin. Are there items that may lead to the identification of persons responsible for the fire?

There will be occasions when a fire investigator will not be able to immediately respond to the fire. In that instance it is recommended that the Incident Commander appoint the most qualified Forest Protection Officer (FPO) to obtain as much information as possible without compromising employee safety. This would include determining the general area of the origin of the fire, protection of the origin, identification of persons or vehicles, and protection of other physical evidence until it can be turned over to law enforcement personnel.

A request for an FPO or fire investigator to respond to an incident scene for fire investigation responsibilities should occur during the initial report and response to the incident or during size up. Requests for all persons and equipment, including FPOs, fire investigators, and Law Enforcement support, are processed through the Coordination Center.

Within one month of a fire, which exceeds \$40,000 and was investigated, the District shall have on file a fire narrative, a completed WFSA, and other pertinent information needed for the final fire package.

### III. INDUSTRIAL OPERATIONS AND FIRE PRECAUTIONS

The following Fire Precaution Plan is used in contracts for projects that have activities that may increase the risk of starting a fire. This format is not mandatory, but it is recommended.

The current and predicted fire danger rating are used as indicators to manage all activities, operations, and risks on the Forest. This fire danger rating is calculated from dead fuel moisture, current and predicted weather forecast, fire behavior and risk considerations. Each day at approximately 3:30 p.m., the Coordination Center transmits a fire weather forecast and the predicted burning indices for the following day. This is then related to burning indices, which is referred to as the Industrial Fire Precaution Plan. This is used for contracts that need a determination if any operations or activities may be conducted on a given day considering the fire danger.

During high, very high, and extreme fire danger rating periods, the contractor will restrict operations in accordance with the Industrial Fire Precaution Plan schedule, unless requirements are negotiated and waived in writing. This letter will give the contractor written direction for specific operations outside of the Precautionary Plan (as long as fire prevention contingency measurements are followed), in order to maintain project efficiency and stay within the planned project schedule of events. Each day of operation when there is a predicted change in the Fire Precaution Plan, the Forest Service will inform the Contract Program Manager prior to the end of each business day of the alphabetical fire danger adjective rating and the precautions to be followed the next day (*Figures 16 and 17*).

**Figure 16. Industrial Fire Precaution Plan**

Staffing Class	Description
A	No restrictions
B	No restrictions
C	Power Saws shall be shut down by 12:00 noon. No powersaw operation in the Forest after 12:00 noon. Bucking and limbing may be performed in cleared landing areas, cleared down to mineral soil, with no continuous fuels to the forest. A fireguard needs to check the area for fires thoroughly for 1 hour after operations have ceased. Limbing, and bucking of trees can either be accomplished on the road surface or in a clearing area 50 feet square. Welding, metal cutting, and grinding may be accomplished until 12:00 noon only in a clearing area 50 feet square. All precautions listed in the precautionary plan when operating these pieces of equipment are mandatory. Blasting is approved only with a water truck on standby in the vicinity of these operations
D	Power saws shall be shut down by 0900. No powersaw operations in the forest after 0900. Bucking and limbing may be performed in cleared landing areas, cleared down to mineral soil, with no continuous fuels to the forest. A fireguard needs to check the area for fires thoroughly for 1 hour after chainsaw operations have ceased. Limbing and bucking of trees can either be accomplished on the road surface or in a clearing area 50 feet square. Welding, metal cutting, and grinding may be accomplished up to 0900 and only in a clearing area 50 feet square. All precautions listed in the precautionary plan for any and all operations are mandatory for prevention of wildfires. Blasting is approved only up to 0900 with a water truck on standby in the vicinity of these operations.
E	Total shut down; no operation on Forest lands

**Figure 17. Burning Index – Fire Danger – Staffing Level**

Conversion for converting Burning Index (BI) to Fire Danger Rating to the scheduled Staffing Class that will designate the Fire Precaution Plan. Use chart from left to right.

Burning Index	Fire Danger	Staffing Class
17-31	Low	A
32-46	Moderate	B
47-62	High	C
63-84	Very High	D
85 +	Extreme	E

Fuel Model C

Example: BI of “51” means the Fire Danger is “High” and a staffing Class is “C.” Then use Figure 16 to determine if there are any restrictions on equipment use or activities.

*b. Annual Fire Training Activities*

Annually, a plan for regional and local multi-agency training is published and posted on the Forest and Regional website at <http://www.fs.fed.us/r3/coronado> and <http://www.fs.fed.us/r3/fire> respectively. These are supplement to this Fire Management Plan.

Each Ranger District is responsible for training new employees, and for reinforcing the training of permanent and returning temporary employees. Annually the Forest assists the Tohono O’Odham Nation, (Firehawks), by providing materials, equipment, and funds for training.

All training courses sponsored by the Forest or District will be coordinated with other agencies and jurisdictions in the Southeast Arizona Zone (SEZ) through the SEZ Training Coordinator. The SEZ is responsible for sponsorship and coordination of 200 and 300 level planning function courses along with Status Check-in Recorder, Situation Unit Leader, DEMOB, and Resource and Documentation Unit Leaders. Generally, SEZ offers the planning section material every other year. The 100 to 300 level classes will be offered on an as-needed basis.

#### FIRE SAFETY REFRESHER TRAINING

Annually, prior to fire season, a mandatory one-day Fire Safety Refresher Training will be given to all personnel who will be participating in fire suppression and/or prescribed fire activities. Each year before fire season officially starts, approximately April 1, each Unit will host their own refresher courses, in coordination with other agencies in the area. The Refresher Training will consist of Fire Shelter purpose and use, practice shelter deployments, and any pertinent fire safety related topics such as Fire Orders and Watch Out Situations; Look-outs, Communications, Escape Routes, and Safety Zones (LCES); and Look up, Look down, and Look Around. NWCG has provided material for the wildland fire refresher as well as other related information, which can be found at [http://www.nifc.gov/safety\\_study/index.htm](http://www.nifc.gov/safety_study/index.htm). Interagency Fire Job Qualification Cards will *not* be issued to individuals until their supervisors have certified that they have completed the annual Fire Safety Refresher Training and passed (if required) the Work Capacity Test (WCT). (FSM 5135.5)

Refresher Training is not a substitute to the required training for Fire Fighter Type 2 (Basic 40 hour: I-100, Introduction to Incident Command System; S-130 Firefighter Training; and S-190, Introduction to Wildland Fire Behavior).

#### HELITACK REFRESHER TRAINING

In addition to the fire safety refresher class, a helicopter refresher class is also needed prior to any assignment for those who are helicopter crewmember qualified. The Tucson and Douglas helicopter crew managers host this class each year. The Helitack Refresher Training will consist of a minimum of 16 hours (two days) of training, covering the aviation related information provided in the S-271 Helicopter Training Course and hands-on training with equipment specific to helicopters. Additionally, the refresher should consist of any pertinent aviation safety related topics such as: Hazardous Materials, review of sectionals, etc.

Currently, the IHOG only requires the refresher for exclusive use helicopter members; however, the Coronado requires any person who retains an Interagency Fire Job Qualifications as a helitack crewmember or above to have the refresher prior to an assignment either on an exclusive use or call-when-needed module. This applies to all on-Forest or off-Forest assignments.

The Regional Aviation program managers are currently developing a standard curriculum for the Helitack Refresher Training. Additionally, the National Wildland Coordinating Group (NWCG) is reevaluating who is required to take the annual Helitack Refresher Training.

## PHYSICAL FITNESS STANDARDS

In addition to training and experience, physical fitness standards, when applicable, must be met for Incident Command System (ICS) position certification. Annually, prior to fire season, all persons expected to perform fire duties and take a WCT must be informed of the requirement in a timely manner. Those required to pass the WCT should be informed at least four weeks prior to a scheduled WCT to allow time for fitness training. Each person, before taking the WCT, will complete the Health-Screening Questionnaire (HSQ), sign an Informed Consent Form, and take a physical.

A HSQ will be provided to each current employee to perform a personal assessment with instructions for its use. Individuals required to obtain a physical examination will be provided the information needed to obtain one. The HSQ will be reviewed by the local servicing human resources office. The designated human resources specialist will determine whether the person meets the criteria to begin training or is to be referred to a qualified medical physician for further evaluation. The individual can elect to use their own health care provider or use one of the facilities that the Forest has identified. The Forest will pay for the physical.

The WCT is the only means to qualify for one of three levels of fitness standards required in wildland firefighting:

<b>Fitness Requirement</b>	<b>Test</b>	<b>Description</b>
<b>Arduous</b>	Pack Test	3-mile hike with 45-pound pack in 45 min
<b>Moderate</b>	Field Test	2-mile hike with 25-pound pack in 30 min
<b>Light</b>	Walk Test	1-mile hike in 16 min

Determination of the employees' role in the fire program and their required fitness expectation can be found in FSH 5109.17, WO amendment 5109.17-2002-3, effective May 14, 2002.

All employees involved with or planning to be involved with wildland fire activities must work with their fire program manager(s) to determine their appropriate duties and the level of work capacity testing for which they must qualify. Additionally, all employees required to pass a WCT will only participate in the fitness category as required by their ICS position.

Fire funded employees (assigned to fire crews and identified in the Fire Management Plan "tactical resources") shall be allowed up to 5 hours per week of physical training when not engaged in wildland fire operations. Employees not funded by fire shall be allowed up to 3 hours per week of physical training, consistent with wellness programs, at the employee's request and with the supervisor's approval. Training may begin up to 6 months prior to scheduled testing, and continue after passing the test, until the end of the proclaimed fire season. The Coronado's proclaimed fire season is from April through July. Fire program funds may be used for approved physical training time based on guaranteed availability for fire-related assignments. The Forest Wellness Program is still under development, with expected implementation in 2003.

All Work Capacity Test administrators must be certified and provide the required documentation. Certification requirements are included in the publication “Work Capacity Tests for Wildland Firefighters: Test Administrator’s Guide.” Work Capacity Administrators should review letters dated March 18 and 29, 2002 concerning the latest requirements to administer the tests. More information can be found on the Regional web page at <http://www.fs.fed.us/r3/fire>.

The above website also contains the following information:

- ❑ “6 Minutes for Safety”, training for safety on the fireline
- ❑ Topics that can be used on a weekly basis to keep personnel abreast of new safety items To view the latest SafeNet information – click Fire Management,
- ❑ Information containing safety issues, concerns, and resolutions while on the fireline
- ❑ Access to submit a SafeNet
- ❑ Review SafeComs, safety issues concerning aircraft – click OAS

See **Appendix I** for a hardcopy of the SafeNet and SafeCom forms and additional information.

#### QUALIFICATIONS AND NEED ASSESSMENT

The Forest training objective is to have a sufficient number of qualified wildland fire and support personnel available to meet current and anticipated fire management needs safely, efficiently, and effectively. All employees dispatched to wildland fires or participating in fire use activities will meet the standards required by the Wildland Fire Qualification Subsystem Guide, NWCG 310-1, and/or the Wildland Fire Qualifications Handbook, FSH 5109.17.

Annually the Forest Fire Qualifications Review Committee shall review all Forest Service employees’ qualifications on the Coronado who are participating in ICS positions and serving as Technical Specialists to verify that they meet the minimum acceptable levels of training, experience, physical fitness, and/or currency requirements. The Forest Fire Qualifications Review Committee consists of the Forest Fire Staff Officer, Forest Assistant Fire Staff and Operations Officer, SEZ Dispatch Center Manager, District Fire Management Officers, representative from the Human Resource Office, and a National Federation of Federal Employees (NFFE) Representative.

A list of training needs for 2002-2003 Incident Command System positions and priorities for the Coronado is located in **Appendix J**. This is updated annually through the Forest Fire Qualifications Review Committee.

#### 30-Mile Accident Prevention Action Plan Items

Starting fire season 2002, each Forest will document training related action items that have been identified in the Chief’s letter stated January 11, 2002. There are 19 action items that were identified as violations that occurred during the 30 Mile Incident. For example, Action Item A-29 emphasizes entrapment avoidance. Each unit will document when, who, and how many times they practice shelter deployments each year. The Action Items will be posted on the

Supervisor's Office AFM, 5100 file code. Each Unit will then be able to access the file and document completion dates.

Each unit shall keep a written record of who attended, dates, objectives of the training, and if it is a 30 Mile Action item. Records should be kept for at least three years.

*c. Fire Season Readiness;*

All preparedness activities will be conducted in a manner providing the appropriate level of protection from damage by wildland fire (FSM 5120.2) based upon annual budget allocations.

Preparedness includes fire detection, dispatching of wildland fire forces, communication systems, fire danger rating, fire weather monitoring, wildland fire training and qualifications, and prescribed fire support on the Forest. These activities will:

- ❑ Meet the direction contained in the Forest LRMP (1986) and incorporate the 1995/2001 Federal Wildland Fire Management Policy
- ❑ Provide a proactive fire management program that supports resource management objectives
- ❑ Ensure efficient, cost-effective and safe practices
- ❑ Ensure that all resources operate within standards and guidelines established in this FMP
- ❑ Meet standards established through cooperative agreements, annual operating plans and memorandums of understanding for interagency cooperation and mutual aid support related to wildland fire suppression and fire use

Preparedness planning will ensure annual organizations and operations are implemented in a safe and cost effective manner. Items to address in planning include the following:

- ❑ Forest Fire Management Plan (FMP)
- ❑ Preparedness Reviews
- ❑ Cooperative Fire Agreements
- ❑ Mobilization Guides
- ❑ Wildland Fire Training and Qualification Program

The District fire managers will establish daily staffing needs, while taking into account weather conditions, financial constraints, and staffing priorities.

**Figure 18** provides a list of District resources available for suppression at the 100% Most Efficient Level (MEL), 1998 NFMAS and subsequent adjustments. Based upon annual budget allocations levels, of protection will be adjusted. See Section VI, Organizational and Budgetary Parameters, for additional information on funding levels.

**Figure 18. Protection Resources at 100% MEL**

<b>Douglas RD</b>		<b>Safford RD</b>	
FMO	1	FMO	1
AFMO	1	AFMO	1
Helitack Manager	1	E-41, Type 6x, total 5 persons	1
Assistant Helitack Manager	1	E-42, Type 6x, total 5 persons (Patrol)	1
Helitack Crewmembers	5	C-41, Supp. Crew, total 6 persons	1
E-11, Type 6x, total 5 persons	1	FPT Patrol 41 & 43	3
C-11 Rustler Supp. Crew, 9 persons	1	Heliograph Lookout	1
C-12 Rucker Supp. Crew, 7 persons	1	West Peak Lookout	1
FPT Patrol 11	1	Relief Lookout	
Monte Vista Lookout	1	Fuels Crew Leader (Non-NFMAS)	1
Barfoot Lookout	1	Type II Helicopter and Module	1
Relief Lookout	1	<b>Catalina Rd</b>	
<b>Nogales RD</b>		FMO	1
FMO	1	AFMO	1
AFMO	1	Helitack Manager	1
E-22 Type 6x, total 5 persons	1	Assistant Helitack Manager	1
C-21 (E-21) Type 6x, tot. 9	1	Helitack Crewmembers	5
FPT Patrol 21 & 22	2	E-51, Type 4x, total 5 persons	1
Fuels Technician (Non-NFMAS)	1	E-52, Type 6x, total 5 persons	1
<b>Sierra Vista RD</b>		E-53, Type 6x, total 5 persons	1
FMO	1	C-51 Supp. Crew, total 9 persons	1
AFMO	1	Lemmon Rock Lookout	1
E-32 Type 6x, 5 persons	1	Bigelow Lookout	1
E-33 Type 6x, 5 persons	1	Relief Lookout	1
E-34 Type 6x, 5 persons	1	Patrol 53 & Prevention 52	2
E-35 Type 6x, 5 persons	1	Fuels Manager (Non-NFMAS)	1
Huachuca & Sierra Vista FPT	2		
Red Mountain Lookout	1		
Relief Lookout	1		

All resources must be managed to provide maximum fire protection availability through standard tours of duty (five 8-hour days) with staggered days off. Emphasis should be placed on increased staffing on weekends from April 15 to July 31, with seven-day coverage for all resources.

A rappel-qualified helicopter is located at Portal (from 4/25-7/14) and at the Tucson Helibase (from 4/26-7/12). Additionally, when funding is at MEL a Type II helicopter will be located at Safford. Libby Airtanker Base normally operates with two air tankers (from 5/13-6/21 and 5/30-7/14). For 2003, there is potential to have three airtankers at Libby.

These resources are primarily available for fire suppression and wildland fire use activities through the 1997 Interagency Agreement for Fire Management for use by the Forest or Zone, as well as regionally and nationally. However, they can be utilized for prescribed fire and other activities as described in local, regional, or national agreements, charters, and Memoranda of Understanding. In addition to the Forest resources, the other agency units within Southeast Arizona Zone provide or have access to additional resources for fire management activities for

Zone use (**Figure 19**). (NOTE: multiple overhead resources that are available throughout the Zone are not listed.)

**Figure 19. Zone Resources**

Resource Type	Quantity	Location	Agency
Type II SWFF Crew	5 - 6	San Carlos	San Carlos BIA
Type II SWFF Crew	1	Sells	Tohono O'odham
Northwest FD Type II Crew	1	Tucson	Arizona State
Type II DOC Crew (20 – 35)	2	Fort Grant & Douglas	Arizona State
Camp Crew	2	San Carlos	San Carlos BIA
Sapotistas AD Crew (6 person)	1	Safford	Safford BLM
Single Engine Airtankers (SEATS)	2	Safford	Safford BLM
Air Attack A/C with ATGS	1	Southern Arizona	Arizona State
SEAT	1	Fort Huachuca	Arizona State
Type III Helicopter	1	Point-of-Pines	San Carlos BIA
Type 4 & 6 Engines	Several	Sasabe	Buenos Aires NWR
Type 4 Engine	1	Sierra Vista/Empire	Safford BLM
Multiple Type Engines	Several	Southern Arizona	Arizona State

Resources other than the suppression forces—engines and helicopters on-Forest and interagency resources in southern Arizona—are Area or National resources. These will be ordered through normal dispatch channels by procedures specified in the *Southwest Area Mobilization Guide* and in the SEZ Charter.

A list of Regional and National resources is contained in the Southwest Area Mobilization Plan catalogues. Because these Area resources and Forest resources are constantly changing and relocating, their status can best be assessed daily by means of Regional and Forest daily situation reports

I. ANNUAL PREPAREDNESS REVIEWS.

Preparedness planning and reviews will assist in recognition of critical wildland fire situations, establish a process for analyzing those situations, setting priorities, and implementing the appropriate management response.

The Forest Fire Staff Officer or the Forest AFMO will schedule preparedness reviews on each District annually by May 1, or as soon as possible after wildland fire training has been completed. The Fire Management Preparedness Checklist for Districts (**Appendix K**) will be used to document the preparedness reviews. The Forest Fire Staff Officer or Forest Operations Specialist will provide a written summary, and recommendation actions will be forwarded and discussed with the Forest Supervisor and respective District Rangers.

Additionally, through the coordination of the Forest Aviation Officer, they will conduct an aviation readiness review at the three helibases and the airtanker base. (The aviation management and review will be discussed under a separate heading.)

## II. SEASON START AND STOP CRITERIA WITH TYPICAL DATES

The height of fire season in southeastern Arizona occurs in late spring and early summer, which is approximately April through July, and referred to as our primary fire season. Occurrence and intensity of fires during these months vary in concert with the cyclical weather conditions. Normally, because it is consistently hot and dry, the period from mid-May through mid-July has the greatest probably of ignitions and high intensity fires.

Throughout the spring, increasing temperatures and negligible precipitation create extremely dry conditions across the Southwest. Prior to the onset of the summer rainy season, around late June and early July, circulation patterns draw moisture from the southeast (Schroeder and Buck 1970). Weak storm cells bring lightning but little rain. During this period, relatively few lightning fires occur, but those that do start often become large (Barrows 1978).

As circulation patterns strengthen during July, storm cells transport more moisture and produce rain that reaches the ground, thereby reducing fire danger and activity. Depending on how much moisture is received, the fire danger may still be high through August. Data collected between 1970 through 2001 shows that lightning fire season on the Coronado peaks in June. (Figure 10).

In the 1998 NFMAS, the Forest studied the fire occurrence and fire weather from 1986 –1995 and determined four distinct levels of fire seasons. The first being the most critical, May through July. The second level is April through July, the primary fire season. The third level is mid-March through mid-November, while the fourth level is year around. The primary fire season is supported by the climatologically data from the Saguaro RAWS (1970-2001), which was used to develop the ERC curve. (*Figure 12*).

## III. DISTRICT-LEVEL FIRE CACHE CONSIDERATIONS, STOCKING LEVELS, AND MANAGEMENT

### Fire Cache Management

This section ensures the availability of and accountability for Forest fire equipment and supplies. Districts will maintain fire equipment and supplies at a level capable of supporting initial and extended attack actions and fire use operations. The Forest will not maintain a Forest Cache because of the close proximity of two NFES National Interagency Support Caches located in Prescott, Arizona and Silver City, New Mexico.

Each district will provide the necessary emergency fire equipment and supplies to meet the districts' and the Forest's wildland fire suppression needs in a timely manner. To achieve this, each District will maintain a minimum of one 100-person fire cache for District and Forest use. Annually, each District will provide the Forest Fire Staff Officer an inventory of their cache by April 30. The caches are located at the Douglas Ranger Station, \*Rucker Administrative Site, \*Nogales Ranger Station, \*Libby Air Tanker Base, Canelo, \*Safford Warehouse, Columbine Administrative Site, Sabino Warehouse, and \*Palisades. (Asterisks indicate locations of the primary cache for the District.)

All active fire orders for fire equipment and supplies from the National Interagency Support Cache will be processed through the Coordination Center. Replacement orders can go directly through to the National Interagency Support Cache or the Coordination Center. A list of individuals who are authorized to approve replacement orders is generated annually. This list is reviewed and approved by the Forest Fire Staff Officer, who forwards the list to both of the National Interagency support Caches.

Every effort should be made to return to the cache any items ordered for a fire and not needed as replacements. The National Cache Replacement Policy, outlined in FSM 5160, recommends that a loss tolerance rate of less than **15%** be achieved. The Fire Cache procedures outlined in the *Southwest Area Mobilization Guide*, Section 24 will be followed.

Resource Management

**Figure 20** below lists equipment available on the Coronado for use both on and off the Forest.

**Figure 20. Available Forest Equipment Resources**

Resource	Location
Bell 407 helicopter Portal, Libby, (4/27-7/15) (Rappel qualified crew) (Bell)	Douglas RD
Aerial Ignition Device	Douglas RD
Bell 407 helicopter Tucson Helibase (4/27-7/12) (Rappel qualified crew) (Bell)	Santa Catalina RD
Aerial Ignition Device	Santa Catalina RD
Fixed wing AA A/C	Supervisor's Office, Tucson
Airtanker 5/13-6/21	Fort Huachuca
Airtanker 5/30-7/14	Fort Huachuca
Airtanker 6/10-7/26	Fort Huachuca
1 type 6x engine with foam capability	Douglas RD
2 type 6x engines with foam capability	Nogales RD
3 type 6x engines with foam capability	Sierra Vista RD
1 type 4 engine with foam capability	Sierra Vista RD
3 type 6x engines with foam capability	Safford RD
2 type 6x engines with foam capability	Santa Catalina RD
1 type 4x engine with foam capability	Santa Catalina RD
Probeye Infrared Device	Safford RD
Probeye Infrared Device	Supervisor's Office, Tucson

All requests for any of the above listed resources will be placed through the SEZ Coordination Center and documented on a Resource Order. Helicopter use and extended hours must be processed through the Coordination Center.

Other equipment available within the Southeast Arizona Zone from other agencies or from commercial sources will be ordered through the Coordination Center or Expanded Dispatch. A

Forest Supply Plan to include Emergency Equipment Rental Agreements (EERAs), Blanket Purchase Agreements (BPAs), etc., will be developed and maintained by the Forest Purchasing and Procurement Section annually by April 1. The Forest Supply Plan is a supplement to this FMP and will be used to fill requests for equipment and supplies during fires. Resources other than suppression forces—engines and helicopters on-Forest and interagency resources in southern Arizona—are Area or National resources. These will be ordered through normal dispatch channels by procedures specified in the *Southwest Area Mobilization Guide* and in the SEZ Charter.

A list of Regional and National resources is contained in the Southwest Area Mobilization Plan catalogue. Because these Area resources and Forest resources are constantly changing and relocating, their status can best be assessed daily by means of the Regional and Forest daily situation reports.

#### Equipment and Supply Management

*For Initial Attack:* All supply orders shall be initiated by the incident. All requests shall have an "S" number assigned either by the Coordination Center or from the District assigned block of numbers. Upon receipt of an initial order, the Coordination Center will establish procedures with the District for filling the request(s). The District may then support the incident for local purchases or request that the Coordination Center process all orders. Items not available in the local District community will be ordered through the Coordination Center.

The following block of "S" numbers are assigned to the districts for initial attack support. These numbers should be used sequentially with Resource Order Numbers and P-numbers assigned by Dispatch, and with each new incident the sequence will begin over. Identify procedure for 2003.

Douglas	AZCNF-001-S 1, 2, 3, 4, etc.
Nogales	AZCNF-002-S 1, 2, 3, 4, etc.
Sierra Vista	AZCNF-003-S 1, 2, 3, 4, etc.
Safford	AZCNF-004-S 1, 2, 3, 4, etc.
Santa Catalina	AZCNF-005-S 1, 2, 3, 4, etc.

When an incident transitions from Initial Attack to a Type I or Type II Incident Management Team, the "S" numbers will continue from the numbers established at the Coordination Center. The Center Manager and the District Purchaser will coordinate the transition. When a Type I or Type II Incident Management Team manages the incident, all orders will be placed through the incident Supply Unit Leader to the SEZ Expanded Dispatch Supply Desk. The Expanded Supply Desk will coordinate with the hosting District when processing orders. The intent is to provide the local community with as much business as possible.

The only exception to the above procedures is for Aviation Resources. The incident Air Operations Branch Director orders the aircraft directly through the Initial Attack Dispatch Office. Any module orders attached to aircraft shall be coordinated between the Initial Attack

Dispatch Office and Expanded Dispatch overhead desk. The Expanded Dispatch overhead desk will also coordinate with the Incident Supply Unit Leader.

*d. Detection*

FIXED DETECTION

The Forest’s objective is to achieve prompt fire detection and reporting to the Coordination Center. This ensures a timely suppression response to all unplanned and unwanted ignitions, and a management response that assesses natural ignitions in the Wildland Fire Use FMU, as potential wildland fire use candidates.

From the late 1950's until the late 1970's the Coronado staffed twelve Forest Service lookouts, which were assisted by three National Park Service lookouts. This number has declined gradually, and currently the Forest uses six of its lookouts through the primary fire season, April through July. In addition, FS lookouts on Mt. Bigelow in the Santa Catalina Mountains and Webb Peak in the Pinaleno Mountains, and a Park Service lookout on Sugarloaf in the Chiricahua Mountains, are used as needed for detection.

District	Name	Elevation	Access
Douglas	Barfoot	8,823	Trail
Douglas	Monte Vista	9,357	Trail
Sierra Vista	Red Mountain	5,847	Road
Safford	West Peak	8,685	Road
Safford	Heliograph	10,028	Road
Santa Catalina	Lemmon Rock	8,960	Road

Lookouts are expected to respond to smokes within 10 minutes and to plot the base of the smoke to within plus or minus 2 degrees azimuth, and plus or minus 1/2 mile distance, to relate the smoke to the nearest landmarks, and to provide an accurate legal description. This information will be relayed to the Coordination Center using the radio. It is important to avoid the use cellular phones to communicate any initial wildland fire starts. Additionally, lookouts will provide Coordination Center dispatchers with as much of the following “size-up” information as possible:

- ❑ Color of Smoke
- ❑ Fire behavior
- ❑ Structures threatened
- ❑ Estimated size
- ❑ Wind direction and estimated wind speed
- ❑ Fuel type
- ❑ Exposure and percentage of slope
- ❑ Position on slope
- ❑ Access

Furthermore, they are also required to report to the Coordination Center any abrupt changes in weather conditions, especially wind direction and speed, cumulus buildup and/or observed lightning, and precipitation.

On an as-needed or when-requested basis, lookouts may act as a communications relay. When relaying information using radio transmissions, lookouts must convey the information without any material change to the content or meaning.

Lookouts will notify dispatch when going out-of-service or into service any time during the day or when lookouts are out of service for the evening.

#### AERIAL DETECTION

The Forest uses fixed-wing aircraft and occasionally helicopters for aerial detection of wildfires. The general guidelines for aerial detection use are as follows:

- ❑ As determined by fire danger levels
- ❑ As weather conditions warrant
- ❑ As assistance in the location of wildland fires
- ❑ To recon potential wildland fire use candidates in the Wildland Fire Use FMU

Requests for aerial detection aircraft must go through the Coordination Center.

#### *e. Fire Weather and Fire Danger*

##### I. WEATHER STATION

The Saguaro Station, 021202, which is located at the Sabino Canyon Lowell House on the Santa Catalina District at 3,100 feet elevation, is the representative weather station for lower elevation on the Forest. The Columbine Station is located on the Pinaleno Mountains at the Columbine Work Center at an elevation of 9,521 feet. These two stations are representative weather stations for the Coronado National Forest and are part of the Regional Weather Network.

**Figure 21** provides information on the ten RAWS that are used to obtain weather observation to obtain long-term, site-specific weather data very cheaply and accurately, and to provide a more realistic idea of existing weather and fuel conditions.

**Figure 21. FTS and RAWs Stations**

Station Name	Number	Site Location	District/Unit	Elevation (ft)	Fuel Models	Agency	Established
Saguaro	021202	Lowell	Santa Catalina	3100	H, F, B	USFS	1970
Rucker	021414	Rucker	Douglas	5700	H & F	USFS	2001
Columbine	021005	Columbine	Safford	9521	C & T	USFS	1976
Noon Creek	021010	Noon Creek	Safford	5000	H & F	USFS	1993
Sollers	021208	Sollers*	Santa Catalina	7840	G & H	USFS	1999
Hopkins	021302	Mt. Hopkins	Nogales	7120	G & H	USFS	2001
Carr	021411	Carr House	Sierra Vista	5400	H & F	USFS	1999
Faraway**	021409	Ranch House	Chiricahua NM	5400	H & F	NPS	1995
Sasabe	021206	Sasabe	Sasabe NWR	3300	L, A, N, T	FWS	1995
Rincon	021207	Rincon Peak	Saguaro NP	8240	C & G	NPS	1994

\*Relocation is eminent. \*\* Also referred as Headquarters.

### National Weather Service

Contained in the mission of the National Weather Service offices in the Southwest Area is the issuance of forecasts and warnings of events that may be hazardous to the lives or properties of inhabitants, or that may otherwise significantly affect normal activities. These issuances include both routine and special forecasts and advisories for the general public and for several high-impact user groups, to include wildland fire management interests.

The following services are provided by the National Weather Service for the Southwest Area as described in the Southwest Area Fire Weather Operating Plan:

- ❑ *National Fire Danger Rating System (NFDRS) Fire Weather Observations and Forecasts.* Fire weather observations are taken daily at around 1300 LST. Observation from RAWs sites should be the latest data available for the satellite interrogation. Fire weather observations for stations that require forecasts must be entered into WIMS no later than 1350 LST. Fire weather observations are used in producing the NFDRS zone trend and station forecasts, and are the basis for the observed and forecast fire danger indices. Therefore, it is paramount that the observations are as accurate and complete as possible.
- ❑ *Routine Fire Weather Planning/Pre-Suppression Forecasts.* These forecasts are issued daily by the Tucson Weather Service office, with seasonal formats and issuance times based on supporting prescribed burn activity during the fall and winter and wildfire activity in the spring and summer. These forecasts provide information on cloud cover, temperature, wind, and chance for precipitation throughout the year, as well as ventilation data, Haines Index values, lightning activity levels, free-air winds, and relative humidity levels that are seasonally appropriate. For Southeast Arizona, the NFDRS Zones are 305 and 306, and the Fire Weather Narrative Zones are 147 and 148.
- ❑ *Red Flag Program.* The red flag program is a means by which the weather forecaster informs the land management agencies of the possibility of weather elements that could

cause extreme fire behavior. Identification of red flag events is a primary responsibility of the forecaster producing the fire weather forecast.

- ❑ The criteria for Fire Weather Watches and Red Flag Warnings in the Southwest Area are a combination of weather and fire danger ratings. In general, they will be issued when average sustained winds are 20 mph or greater, RH is 15% or lower, and NFDRS adjective fire danger rating is high or higher or are expected to occur simultaneously.
- ❑ *Haines Index*. This is a numerical means to indicate the potential for large wildland fires to experience extreme fire behavior (i.e., crowning, spotting, and rapid rates of spread). This index will routinely be issued as part of the in-season fire weather narratives in Arizona and New Mexico. The Haines Index combines both the instability and dryness of the air by examining the lapse rate between two pressure levels in the atmosphere and the dryness at the lower level. The more unstable the atmosphere and the drier the conditions at the lower level, the larger the Haines Index. The greater the Index, the better the chance for a wildfire to experience “blow up” conditions. Haines Index values vary from 2 to 6; classifications are shown below (*Figure 22*).

**Figure 22. Haines Index**

Haines Index	Potential for Large Fire Growth
2 or 3	Very Low
4	Low
5	Moderate
6	High

The Index does *not* indicate the potential for fire ignition *nor* does it include the effects of wind on fire spread.

- ❑ *Ventilation and Smoke Dispersal*. During the cool season of the year (normally October 1 though April 1), daily observed and forecast ventilation values will be included as part of the routine weather forecasts, to be used as guidance for smoke dispersal during prescribed burns. Critical limits of ventilation are values less than about 40,000 knot-feet (kt-ft) along with transport winds less than 7.0 knots. When these conditions prevail, dispersion of any pollutants released into the atmosphere will be severely limited. As a guide, the following categories have been established to describe the ventilation for Arizona Stations:

Ventilation Category	Range
Excellent	100,000 kt-ft or greater
Very good	70,000 – 99,999 kt-ft
Good	40,000 – 69,000 kt-ft
Fair	20,000 – 39,999 kt-ft
Marginal	8,500 – 19,999 kt-ft
Poor	Less than 8,500 kt-ft

- *Spot Forecasts.* Spot forecasts are site specific forecasts for wildland fires, fire use fires, search and rescue operations, aerial spraying, etc., and are available upon request at any time of day, week or season.

II. NFDRS

Fire danger indices are calculated from one FTS station per Forest, which represents that Forest's major fuel models. Readings from twelve FTS units are put into the Weather Information Management System (WIMS) and calculations are made for each fuel model's actual and predicted fire danger indices. The Southwest Area Coordination Center (SWCC) in Albuquerque, New Mexico maintains the graphs of the 5-day average ERC index for each Forest. This information is available on the SWCC Internet Home Page.

The fuel model that provides the best fit for the Forest's danger rating purposes is the NFDRS Model H or Fire Behavior Fuel Model 8. These represent short-needle fuels that are normally dead (*Aids to Determining Fuel Models For Estimating Fire Behavior*, NFES 1574). The Forest will use the ERC for Fuel Model H for adjective ratings and the Fire Fighter Pocket Cards. (The Pocket Cards addresses action A-3b or the 30 Mile Fire Accident Prevention Plan). The Fire Fighter Pocket Card is a method of communicating information on fire danger to firefighters. The goal is to lead to greater awareness of fire danger and subsequently increased firefighter safety (**Appendix L**).

The analysis process for determining the breakpoints, or "fire business thresholds," require the selection of a representative weather station, the definitions of an annual fire season, and the selection of a fuel model and index or component (BI, ERC, SC, etc.). The FIRES portion of *Fire Family Plus* software package allows us to find a fuel model and index that more accurately models Coronado local fire and weather occurrence. It may not be a fuel model that depicts actual conditions in the field, unlike a fuel model selected for fire behavior calculations. (Kramer 2002)

The Saguaro weather station was chosen because it is one of the regional NFDRS stations and has a 30-year history in the database. Based on the fire business, February 1 through October 15 was chosen as the analysis period. The "Goodness of Fit" test found NFDRS fuel model H and Energy Release Component (ERC) to be an excellent match for the Coronado. Using the Decision Point portion of the FIRES program, the ERC thresholds for the five Adjective Ratings were adjusted to correlate with "Fire Business" (**Figure 23**) (Kramer 2002).

**Figure 23. Adjective Rating for ERC Fuel Model H**

ERC Fuel Model H	Adjective Rating
0-20	Low
21-30	Moderate
31-40	High
41-50	Very High
51-70	Extreme

Other NFDRS thresholds the Coronado uses for contingency/preparedness planning and fire danger are described for Fuel Models L, C, B, G, T, and F, and the ERC 90 and 97 percentile (**Figure 24**). The 90 and 97 percentile means that only 10 and 3 percent of the time respectively will the values exceed this in a normal year. The adjective rating of very high and extreme, respectively, correspond with the percentiles.

**Figure 24. 90 and 97 Percentiles for Various Fuel Models**

NFDRS and FBPS	90% Very High	97% Extreme
Fuel Model L and 1	6.87	7.59
Fuel Model C and 2	23.62	24.75
Fuel Model B and 4	97.17	97.75
Fuel Model G and 10	96.24	97.47
Fuel Model T and 2	23.39	24.73
Fuel Model F and 6	67.66	75.14

#### NFDRS Fuel Models compared to FBPS Fuel Models

NFDRS and FBPS Fuel Models are methods of evaluating fire potential. Both consider weather, fuels, and topography, and upon first inspection, both appear to use the same mathematical model for evaluating spread and intensity. However, there are significant differences between the two in both their structure and their intended use. The following is an attempt to clarify the differences and the appropriate application for each.

The NFDR System was packaged to meet a specific requirement for assessing today’s fire *potential* by comparing today’s data with historical records. It is rarely changed to prevent disruption of standards developed from the database by users throughout the country. The system is designed to give relative ratings of the fire potential for initiating fires. The system *only* addresses those aspects of fire control strategy affected by fire occurrence and fire behavior. Fire danger is rated from a worst-case approach.

The fire behavior predication method has been and remains an evolutionary process with methods generated from time to time to meet specific users needs. This has assured incorporation of the latest state-of-the-art technology and actual condition data. The system gives actual assessment of fire behavior in terms that are *absolute* rather than relative.

#### NFDRS Definitions

Important terms are Ignition Component (IC), Burning Index (BI), and Energy Release Component (ERC).

The skill in anticipating fire severity tomorrow is a necessary component for the fire manager today. Realistic and simple estimates of fire danger are essential for effective fire preparedness. Prior to the ring of the fire bell, an accurate judgment must be made of the kind of fire that may be anticipated for that day.

The NFDRS helps us make these judgment decisions. NFDRS considers the kind of fuel (mostly size, amount, and seasonality), topography, and weather. The NFDRS system is scientifically based. Each segment is built on demonstrable principles. But it is important to remember its prime purpose is to *aid* judgment. The system can be used wherever the proper fuel model has been defined and the weather has been tracked.

The purpose of this information is to provide a reference for the components and indices of the NFDRS and explain how they can be used. Included are some estimates of each of the indices and *what the numbers mean* when in a general fire weather forecast.

Ignition Component (IC):

*Ignition component* is number rating probability that gauges whether a firebrand will cause a fire, which would require an action. Note the emphasis on action: i.e.; will a fire result that will require a fire manager to make a decision? Such action might vary from a maximum suppression effort to a decision to monitor. Expressed as a probability of ignition, an IC of 100 means that every firebrand will cause an actionable fire if it contacts a receptive fuel. If a fire will ignite and spread, some action or decision is indicated.

The IC provides some additional guidance for suppression as well as for prescribed fire. For example, experience has shown that the probability of spotting is closely related to onsite IC values. When firebrands were landing in unburned areas and IC values were over 50, firefighters can be certain that many will result in spot fires. In higher ranges of 60-80, most will ignite spot fires. At IC ratings of 80+, spot fires will be certain if firebrands are present.

A word of caution is always necessary about extrapolation of NFDRS numbers. It is essential that ratings computed for a specific location and time be applied carefully at any other location or time of day. All factors must be considered, and they should be similar. These include elevation, aspect, drainage orientation, surrounding cover type, fuel type (model) and slope, as well as other factors that go into the danger rating. When similar conditions are not met, the numbers must be adjusted with consideration for changed factors.

Energy Release Component (ERC):

*Energy Release Component* is number related to the available energy, measured in British Thermal Units (BTU), per unit area (square foot), within the flaming front at the head of a fire.

This number is based upon the potential "heat release" per unit area in the flaming zone and provides guides to several important fire activities. Daily variations in the ERC are due to changes in the moisture content of the fuels present. It can also be considered as a composite fuel moisture value or index. The ERC has an immediate value for planning, especially in medium and long-range areas, i.e., one day to one year. Once the history is built in terms of ERC the way is open for immediate planning applications.

As a composite fuel moisture “index,” ERC becomes a tool for planning decisions that made before an expected fire situation. No wind is entered into its calculation, so the daily variation is small. ERC can be considered a drought indicator, since it reacts to build-up indices and considers all dead and living fuel classes.

The ERC is a valuable tool for pre-positioning resources. *Areas with the highest ERC will usually experience the most difficulty in fire containment.* Using the past ERC values allows fire managers to accurately estimate extremes for the rating area.

Burning Index (BI):

*Burning Index* is a number that relates fire behavior to the effort of containing the fire. BI is represented in NFDRS by a calculation of flame length in feet multiplied by 10. To convert from the BI to flame length in feet, divide the BI by 10, e.g., if the BI is 50 then the FL is 5 feet. To improve its sensitivity the scale is no longer restricted to 0-100. This, together with other changes, allows a range of numbers adequate to define problems, even in time of low to moderate fire danger.

**Figure 25** below gives several checkpoints that relate to fireline intensity, flame length and other fire management implications. Importantly, the computed BI represents the *upper limit* to be expected on a rating area. That is, if a fire occurs in the worst fuel, weather, and topography of a rating area, these numbers indicate expected fireline intensities and flame length for those worse case conditions.

**Figure 25. Burning Index and Associated Fire Variables**

BI	Flame Length	Fireline Intensity (BTU's/s/ft)	Fire Behavior Narrative	Dispatch Level (Fire Danger)
0-40	0-4	0-110	Generally represents the limit of control for direct attack methods. Handline should hold the fire.	Low
40-60	4-6	110-280	Fires are too intense for direct attack on the head using handtools. Machine methods usually necessary or indirect attack should be used.	Moderate
60-80	6-8	280-520	The prospects for direct attack control by any means are poor above this intensity. Handline cannot be relied on to hold fire.	High
80-90	8-9	520-670	Fires present serious control problems. The heat load on people within 30 feet of the fire is dangerous.	Very High
90+	9+	670+	Above this intensity, spotting, fire whirls, and crowning should be expected. Major fire runs are probable. Control efforts at the head of a fire are ineffective.	Extreme

CAUTION: These are not guides for personal safety. *Fires can be dangerous at any level of intensity.*

#### Coronado's NFDRS and Fire Behavior Prediction System (FBPS) Fuel Models

As stated, NFDRS uses defined fuel models as one component to establish the estimated daily indices. On the Coronado's "sky islands," it is appropriate to have two general groupings of fuels with four specified models within each group—a lower foothills/valley grouping and an upper mountain area grouping. (See **Figures 26 and 27**) Fire management has designated the seasonality of the models for various thresholds for hotter periods of the year. Additionally, the fire behavior described will vary based on the environmental conditions, e.g., weather, topography, slope, aspect, etc.

**Figure 26. Fuel Model Descriptions for Lower Foothills/Valley Fuels**

NFDRS Model	FBPS Model	Tons/Acre (NFDRS)*	Description	Period Represented
B	4	19.5	Mature, dense fields of brush. One-fourth of the aerial fuel is dead. Foliage burns readily. Fuels are potentially dangerous, fostering intense, fast spreading fires.	4/15 –7/15
F	6	14	Mature closed intermediate stands of chemise chaparral and oak brush fields. Open stands of pinyon-juniper may be represented, but may over predict rate of spread, except at high wind speeds (20 mph at 20 ft). Fires carry through the shrub layer, but require a wind speed greater than 8 mph. Fire activity will be overrated at low wind speeds and where there is little ground fuel.	7/15-10/1
L	1	.75	Western grasslands. Annual and perennial grasses are included. Shrubs and trees occupy less than one-third of the area. Fires spread rapidly as surface fires that have cured or are nearly cured.	10/1-2/1
T	2	4.5	Sagebrush grass types including scrub oak and desert scrub associations. Shrubs occupy 1/3rd or more of the site. Fires are surface fires, and spread primarily through the fine fuels when the fuel is either curing or dead. Clumps of shrubs and dead-and-down materials will generate higher intensities and could produce firebrands.	2/1-4/15

**Figure 27. Fuel Model Descriptions for Upper Mountain Fuels**

NFDRS Model	FBPS Model	Tons/Acre (NFDRS)*	Narrative	Period Represented
C	2	3	Open pine stands with needles and branch-wood to contribute to the fuel load. Some pinyon-juniper stands may qualify. Fires are surface fires, and spread primarily through the fine fuels when the fuel is either curing or dead. Clumps (thickets) of brush and trees and dead-and-down materials will generate higher intensities and could produce firebrands.	5/1-6/30 10/1-2/1
G	10	22.5	Dense conifer stands where there is a heavy accumulation of litter and downed woody material. Much of the woody material is more than 3" in diameter. Fires burn intensely, crowning, spotting, and torching of individual trees are frequent, which lead to potential fire control difficulties.	4/15-7/15
H	8	7.5	Healthy short-needled conifer stands with sparse undergrowth and a layer of ground fuels. Fires are slow spreading except where slash concentrations are present.	2/1-4/15
U	9	5	Stands of long needled pines with branch-wood and ground litter. Ponderosa, Jeffery, and red pines are grouped in this model. Fires are generally surface fires, and, under high wind conditions, higher rates of spread occur, causing partial spotting because of the receptive fuel bed. Torching, spotting and crowning occur in concentration of dead-and-down woody materials.	7/15-10/1

\*Fuel model weights include Woody and/or Herbaceous weights for the NFDRS fuel model.

WILDLAND FIRE SAFETY

All strategic and tactical fire management decisions will give firefighter, and public safety the highest priority. All fire suppression actions will be anchored to the time-tested Rules of Engagement, including the 10 Standard Fire Orders, 18 Watch Out Situations, the principles of LCES, Common Denominators of Fire Behavior on Tragedy Fires, and Downhill Line Construction Guidelines. The 10 Standard Fire Orders will not be compromised. **Don't Bend Them, and Don't Break Them!** On every fire, look up, look down, look around, and assess the fire environment against the 18 Watch Out Situations, and mitigate those situations as needed.

Code of Conduct 2002, Thirty-mile Hazard Abatement Plan

- ❑ Firefighter safety comes first on every fire every time.
- ❑ The 10 Standard Firefighting Orders are firm: we don't break them; we don't bend them.
- ❑ All 18 Watch Out Situations must be mitigated before engagement or re-engagement of suppression activities.
- ❑ Every firefighter has the right to know that their assignments are safe.
- ❑ Every fireline supervisor, every fire manager, and every administrator has the responsibility to confirm that safe practices are known and observed (Executive Summary, Responsibilities).

All employees are responsible for protecting themselves and other fire fighters from injury or accidents. It is understood through the annual fire safety refreshers presented by Forest and District fire managers that individual fireline personnel have the responsibility and the right to question the actions of the IC to gain a better understanding of the tactics and safety mitigation measures incorporated into executing a particular suppression strategy.

All individuals will wear personal protective clothing and equipment as outlined in the *Health and Safety Code Handbook*, FSH 6709.11 and the *Fireline Handbook*, FSH 5109.32a, page 42).

Fire Shelters

All fireline personnel will be issued fire shelters and will be expected to carry them, ready for immediate use, during wildland fire management activities—suppression and fire use operations. On an annual basis prior to fire season, all fire shelters will be checked to ensure that unacceptable wear has not compromised the designed effectiveness of the shelter. After each fire assignment, individual firefighters are responsible for checking the condition of their fire shelter.

All fireline personnel will attend the annual Fire Safety Refresher training, which includes fire shelter training. Additionally, they are required to successfully complete S-130 and S-190

Forest Pocket Card, Incident Response Pocket Guide, Fireline Handbook, Standard for Fire and Aviation Operations 2002 “Red Book”

*Pocket Card.* All firefighting personnel are issued a “Pocket Card” and *Incident Response Pocket Guide* (NFES 1077/PMS 461). They are required to carry and use them on each incident. The Pocket Card lists the Fire Danger Area, Fire Danger Interpretation, Local Thresholds, describes the Fire Danger Component used, and Past Experiences. ( See **Appendix L.**)

The *Incident Response Pocket Guide* includes the following: operational procedures, all risk checklists, personnel safety, aviation, and other references.

*Fireline Handbook.* All first line supervisors will be issued a *Fireline Handbook* and are required to carry them into the field. The *Fireline Handbook* provides ready access to the 10 Standard Fire Orders, 18 Watch Out Situations, the principles of LCES, Common Denominators of Fire Behavior on Tragedy Fires, and Downhill Line Construction Guidelines. Fire suppression actions shall comply with the Fire Orders and incorporate appropriate mitigation measures based upon the Watch Out Situations.

The *Standards for Fire and Aviation Operations Handbook* (referred as the “Redbook”) was developed to provide clear policy and guidance for fire suppression and aviation operations. Additionally, the *Handbook* provides a reference for current operational policies, procedures, and guidelines for managing wildland fire and aviation operations. All first line supervisors will be issued a “Red Book” and are required to carry them into the field.

## Engines

Each engine will maintain the minimum standard components for pump capacity, tank capacity, hose quantity, and number of personnel for the engine typing identified in the *Fireline Handbook*, 1998, PMS 410-1. Additionally, the engines will maintain the minimum stocking levels required in the Standards for Fire and Aviation Operations, 2002, Appendix G-4, without exceeding the vehicle weight limitations.

## Southeast Zone Coordination Center Operations

The Coordination Center receives operational direction from the Southeast Arizona Zone Board. It functions as the Southeast Zone Interagency Coordination Center (Coordination Center) and coordinates, supports and assists in dispatching for other cooperators within the Southeast Arizona Zone. Another primary function of the Coordination Center is to provide initial attack dispatching for Forest Service, US Fish & Wildlife Service, and National Park Service fires, utilizing both pre-planned and closest forces dispatching. Additionally, they support other cooperators both within and outside the SEZ in fire non-fire management activities.

The Coordination Center links the Coronado with other Forests and the Zone with the Southwest Interagency Coordination Center. The duties and responsibilities of the Coordination Center are set forth in the Southwest Area Mobilization Plan. The responsibilities will vary and the

Coordination Center will try to meet the needs of all the agencies in the Zone. Members of the Board consist of USFS, NPS, USFWS, BLM (Safford), BIA (Tohono O'Ohdam & San Carlos Apache), and AZSLD. The Southeast Zone Interagency Coordination Center Dispatch Plan is a supplement to this FMP and contains information on Forest dispatching procedures.

The Coordination Center will maintain an up-to-date record of resources available within the Zone, and keep computer generated overhead (Overstat) records current so these resources may be used both within and out-of-zone if needed. The availability list is updated every Thursday. The Center will relay to the Forest and the Zone daily weather reports, fire behavior forecasts, and reports of other fire activity within the Zone, Southwest Area, and nationally. On a daily basis during fire season, the Districts shall notify the Coordination Center of resource availability, which can be used either within the Zone or beyond the Zone.

The Coordination Center will flight-follow aircraft in the Zone according to the procedures set forth in the *Southwest Area Mobilization Guide*, section 25.2. Procedures for using and tracking aircraft are also presented in the Forest Aviation Plan. All requests for the use of Aircraft must come through the Coordination Center.

All fires occurring on or close to the Forest will be reported directly to the Coordination Center by the quickest means possible. They will coordinate with the District FMO or Duty Officer and will dispatch an initial attack force sufficient to confirm the fire's location, threat, and intensity, which will assist in the determination of the appropriate management response.

The Coordination Center will also provide expanded dispatching services for all fires that escape initial attack. These services will continue until the support services are no longer needed or a separate support services dispatch center is established. The SEZ Expanded Dispatch Plan, which is currently being revised, delineates the procedures for establishing an expanded dispatch operation, and is a supplement to this FMP.

#### Communications, Radio Use, and Frequency Management

Regional guidelines for the use of computer, telephone, and radio communications in aviation and fire management are provided in the Southwest Area Mobilization Plan and the Region 3 Aviation and Fire Management Communication Plan. Some of the actions planned to make communication more efficient on the Coronado are discussed below.

Plain language (clear text) is to be used in all radio transmissions. The use of codes tends to be agency-specific and is a barrier in the transmission and sharing of information. In emergency response situations, communications are absolutely critical, and the need for clarity and understanding by all involved is imperative.

The Coordination Center is responsible for monitoring Forest radio procedures and correcting improper use, and for assigning radio use to the highest priority need. In times of heavy radio traffic, fire, administrative or other uses should include the nature of their transmission, or priority of their need, e.g., "Dispatch, 5-5-5, medical traffic". This gives the dispatchers on duty

the information they need to clear the air for the priority situation. Radio transmissions usually fall into one of the following categories:

1. Life Threatening Emergency
2. Aviation Communications
3. New Fire Starts
4. Communications Essential to On-going Incident Management
5. Weather Forecasts and Reports
6. Routine Check-ins
7. Administrative Field Use

To maintain consistency Forest-wide, the Coordination Center in cooperation with the Forest Telecommunications Manager, will assign radio call signs to each unit needing one. Every individual will not have an assigned call sign; in those cases, last names will be used. The Forest recommended call number scheme is located in the Forest Health and Safety Plan.

The Coordination Center is responsible for coordinating and assigning frequencies when required for either projects or fire emergencies. The Forest's radios will be programmed in accordance with the 6640-2/5100 letter of June 6, 1991, outlining regional radio frequency programming guidelines. Channel 1 and 2 are assigned the Forest Net frequency and its repeater frequency. Channel 3 and 4 will be the Forest Fire Net and repeater frequency. The remaining channels, 5 through 8, maybe programmed to meet S.O. or District needs. Channels 9 through 16 will be programmed as indicated by the Regional Office. The following is the standard programming for the Coronado:

#### Coronado Frequency List

1	169.600	Forest Net	10	168.200	BIFC TAC 2
2	170.525	Forest Net Repeater	11	168.050	BIFC TAC 3 SEZ
3	168.150	Forest Fire Net	12	168.350	National Travel
4	172.275	Fire net Repeater	13	169.150	Air-Ground SEZ
9	168.600	BIFC TAC 1	14	168.625	Air Guard

The Forest repeater system has channel guard capabilities. The following mountain top locations require the indicated tones to open the repeater. The same tone applies to both Forest and Fire Net repeater frequencies.

#### Coronado Radio Tone List

100.0	West Peak	Tone 1	114.8	Mount Hopkins	Tone 5
103.5	Mule Mountain	Tone 2	118.8	Heliograph Peak	Tone 6
107.2	Atascosa Peak	Tone 3	123.0	Huachucas	Tone 7
107.2	Antelope Peak	Tone 3	127.3	Mt. Lemmon (D5)	Tone 8
110.9	Mount Bigelow	Tone 4	131.8	Monte Vista	Tone 9

Forest Net frequency is the primary frequency used to dispatch initial attack resources. When initial resources arrive on scene, the Incident Commander will relay back important information to Dispatch concerning the fire. Size up should include the following:

- ❑ Incident Commander
- ❑ Location of fire (geographical/landmark, legal or lat/long)
- ❑ Character of fire or fire behavior e.g. creeping, running, crowning
- ❑ Estimated wind speed and direction
- ❑ Fuel type
- ❑ Position on slope
- ❑ Size
- ❑ Exposure and percentage of slope
- ❑ Potential hazards or structures threatened
- ❑ Additional resources needed
- ❑ Need for spot weather forecast
- ❑ Best access
- ❑ Name of fire
- ❑ Hazards or concerns (air & ground)

The *Fireline Handbook* and *Incident Response Guide* “Red Book” will be used to assist in fire size up. Once command has been established and reinforcements have arrived, units will switch over to Fire Net, which will allow Forest Administrative traffic to continue on Forest Net. If Fire Net becomes busy, the Incident Commander can use tactical channels to facilitate ground operations, while scanning Fire Net to ensure communication with Dispatch in the Coordination Center.

Aircraft responding to and from a fire will flight follow with Dispatch on Forest Net. Once on scene, the aircraft should establish contact with ground crews on Air To Ground Frequency, 168.625. For local initial attack fires, all aircraft will still flight-follow with Dispatch.

The use of cellular phones is authorized and will actually reduce radio traffic during critical times. Cellular phones should only be used to communicate logistical requests, resource orders, and other non-tactical information.

Cellular phones will not be used to communicate tactical information, fire reports, or weather updates. These items must be transmitted over the radio to ensure everyone is informed in a timely manner and made aware of the situation(s).

#### International Agreement

The purpose of the *Wildfire Protection Agreement Between the Department of the Interior and the Department of Agriculture of the United States of America and the Secretariat of Environment, Natural Resources, and Fisheries of the United Mexican States for the Common Border*, signed on June 4, 1999, is to establish a joint program to prevent and manage wildland fires along the International Border, to protect life, property, and natural resources from wildland fires, and at the same time to minimize suppression costs.

Annually, Forest Service Fire Managers and their Mexican counterparts will meet to review and update the Southeast Zone Annual Operating Plan. The Annual Operating Plan for the

Suppression of wildland fires between Mexico and Southeast Arizona Zone and the draft Mexico/United States Wildfire Protection Agreement Guidelines for 2000 are kept in the Coordination Center. The Operating Plan covers protocols related to detection, vehicle insurance, passport/visa requirements. In addition, a vehicle listing is developed and conforms to the new Agreement. Specific commitments are found in the Agreement and the Operating Plan.

No resources will cross the International border unless directed by the Coordination Center, which obtains necessary approvals. All aviation resources must receive prior approval from the Forest Aviation Officer, Mexico Liaison, and Forest Fire and Aviation Staff Officer before crossing the border.

The Wildfire Protection Agreement, Guidelines, and Southeast Zone Annual Operating Plans are supplements to this Fire Management Plan. Currently, the cost of this agreement is \$75,000, which is funded by the Coronado.

The Coordination Center is responsible for notifying the Regional Office, Washington Office, the American Embassy in Mexico City, and the Arizona Border Patrol and Customs, whenever the International boundary is crossed during fire suppression activities. The procedures for contacting both American and Mexican officials about fires along the border are documented in the *Mexico Agreement Handbook*, also located in the Coordination Center.

#### Procedures for Fires in Mexico Threatening the Coronado National Forest

Forest Service units may take suppression action on **fires that threaten the Coronado National Forest** on the Mexico side of the border. The "zone of mutual assistance" means the area within 16 kilometers (10 miles) on each side of the United States-Mexico Border. Prior to any resource entering into the State of Sonora, the Southeast Zone Coordination Center must be notified to gain permission to cross. The Coordination Center must notify the U.S. Embassy in Mexico and Washington Office officials. When just crossing for fires within the "zone of mutual assistance", firefighters shall possess a valid drivers license or other proof of citizenship, which is normally used just for normal border crossings. If firefighters provide aid to Mexico beyond the zone of mutual assistance, then firefighters must have pre-season clearance through local U.S. Customs and Immigration and Naturalization Service.

Vehicle entry requires a copy of the Government vehicle title and insurance for coverage in Mexico. The Coordination Center will arrange for insurance **prior** to vehicles entering into Mexico. At least one person in the unit crossing the border into Mexico must have an Official Passport with a current visa. (Check Section C. Border Crossings in the Operational Guidelines for 2000).

Coronado aviation resources are not authorized to operate across the border unless specifically authorized by the Forest Fire and Aviation Staff Officer, Mexico Liaison or the Forest Aviation Officer. For specific airtankers allowed to cross into Mexico, check memo dated May 26, 2000 from Charlotte C. Larson, National Fixed Wing Specialist. This document is located in the Mexico/US Agreement book located in the Coordination Center.

## Procedures Fires in Mexico Not Threatening the Coronado National Forest

Requests for assistance with fire suppression in Mexico may come from several sources and channels. Request for crews, helicopters, airtankers, etc., will be made from SEMARNAT to the National Interagency Coordination Center (NICC) in Boise, Idaho. The National Multi-Agency Coordinating Group are the authorizing officials. Requests for assistance from participating Mexican agencies will be made from NICC to SEMARNAT. The authorizing officials are SEMARNAT Fire Director and/or Deputy Fire Director.

The process discussed above is the only authority that allows the Forest Service to expend funds on the suppression of fires in Mexico that are not threatening National Forest Lands in the United States.

### Cooperative Agreements and Coordination

Cooperative agreements between the Coronado National Forest and other agencies include descriptions of mutual support zones, support services, ordering procedures, and billing procedures. These agreement and related documents are considered to be supplements to this Fire Management Plan. Copies of each agreement are on file in the Coordination Center and on the Coronado Budget and Finance office. See Section V.C. for a brief description of each of the agreements listed below.

- ❑ Department Of Defense (DOD) Fort Huachuca and Coronado NF Agreements
- ❑ Buenos Aries NWR and the Coronado NF Agreement 1995 – 2000
- ❑ National Park Service within the SEZ and Coronado NF Agreement, 1995 - 2000
- ❑ Safford Bureau of Land Management (BLM) and Coronado NF Agreement, 1995 - 2005
- ❑ State of Arizona Department of Corrections Agreement, 2000 – 2005
- ❑ State of Arizona Department of Corrections Agreement, 1990
- ❑ AZ State Lands Department, Tucson Unit, Joint Powers Operating Plan, 2001 – 2006
- ❑ Air Resource and Interagency Smoke Management Program for the State of AZ, 1998
- ❑ Southeast Zone Charter

### SEZ/WMZ Type II Incident Management Team (IMT)

Since 1997, the Southeast Arizona Zone and the White Mountain Zone have formed a joint Type II IMT. The Zone Boards and Coordination Centers have developed details of Team membership and dispatch procedures.

The Hosting Zone follows the Zone who hosts the Incident Commander, which alternates ever two years, on responsibilities pertaining to the Type II team, and are as follows:

White Mountain Zone 2003 and 2004, 2007 and 2008

Southeast Arizona Coordination Center 2005 and 2006, 2009 and 2010

However, the Zone in which an incident occurs is responsible for the activation of expanded dispatch for that incident. Additionally, the respective Coordination Center is responsible for filling resource requests from SWCC for personnel and equipment from all agencies within their Zone. The Coronado fosters development of such interagency cooperation, since it maximizes efficient use of fire management resources.

#### FIRE PREPAREDNESS PLAN

Fire Preparedness Levels used on the Coronado are related to the Southwest Area Mobilization Guide, Chapter 20, Section 27, and to the National Interagency Mobilization Chapter 20, Section 26.

The purpose of the Fire Preparedness Levels is to relate fire prevention and suppression capabilities to the current fire hazard potential and the overall fire situation. Preparedness levels are based on various factors. The condition of fuels, the current and long-term weather situation, and the resultant burning characteristics determine the hazard, which are presented by any fire. Current fire activity within the Zone, in adjacent zones, in the Region, and Nationally, affect the ability to respond to fires. The availability of specific resources will determine preparedness to respond to specific fires.

Fire Preparedness Levels are determined using the following criteria:

- ❑ Fire severity, which is determined by analysis of the five-day average severity graphs.
- ❑ Local and regional current and long range weather forecasts.
- ❑ Current and forecasted fire behaviors, especially the Energy Release Component (ERC) and Fire Load Index (FLI) data.
- ❑ Comparison of ERC and FLI with averages and trends in severity and fire behavior data for the Zone.
- ❑ Current fire activity on the Forest and on other Agencies within the Zone.
- ❑ The Preparedness Level designated by SWCC for the Southwest Area
- ❑ Commitment and availability of resources within the Zone or outside the Zone.

Preparedness Levels consist of a description of conditions and a list of actions that should be taken or considered when a particular Preparedness Level is reached. The Coronado Preparedness Levels are related to Interagency Zone coordination procedures and are part of a proposed Zone Operating Plan.

#### Preparedness Level 1 (Low)

In Level I, most agency units have low to moderate fire danger; lower elevation areas may have high fire danger. Fire activity within the Zone is light and large fires are of short duration, i.e., one burning period. There is little commitment of Zone, Southwest Area, or national resources.

Each agency unit will determine appropriate prevention actions and staffing levels and will exchange weekly situation reports with the Zone Coordination Center.

*Fire Use:* Contingency resources for a prescribed fire that are not committed to the project must be identified and confirmed available with the Coordination Center before the fire is ignited. The Coordination Center should be included in the list of planned contingency resources. When a prescribed fire is underway, the unit must confirm contingency resource availability at least daily. It must be understood that “available” does not mean, “committed”. Once the fire has been lit, orders for contingency resources will be given the same consideration for priority as any other fire, based on the potential to destroy human life and/or property and resource values (*R3 Mob Guide*, Chapter 20, Section 27).

#### Preparedness Level II (Moderate)

In Level II, some agency units are consistently in high fire danger; lower elevation areas may be even higher. Numerous Class A, B, and C fires are occurring and the potential exists for escaped fires to become larger, and duration is more than one burning period. Resources within agency units are handling the situation, but the potential for movement of resources between units becomes more likely. Resources that are not committed are generally available for dispatch.

The following actions will occur *in addition to* those taken under Preparedness Level I.

- ❑ The Zone Coordination Center will be open seven days a week.
- ❑ Intelligence/situation reports will be completed daily.
- ❑ Agencies will coordinate press releases on the current fire situation and potential fire conditions.
- ❑ The availability of the Type II Interagency IMT members is assessed.
- ❑ The SEZ Expanded Dispatch will be prepared for activation.

*Fire Use:* Units considering prescribed fire activities must be prepared for the event that contingency resources may not be available when requested because of fire activity. (*R3 Mob Guide*, Chapter 20, Section 27)

#### Preparedness Level III (High)

In Level III, agency units are experiencing high or greater fire danger. High potential exists for fires to become Class D or larger. Holidays such as the Fourth of July increase the potential for new fires and the exhaustion of local resources. Incidents that occur require a major commitment of Zone, Southwest Area, and national resources. Competition may exist among agency units for resources.

The following actions should be taken *in addition to* those in use under Preparedness Levels I and II:

- ❑ One-half of the helicopters assigned to agency units should be kept within the Zone for initial attack.

- ❑ If the ERC is above the 90 percentile for fuel model B, a recommendation should be made to the Southwest Area Coordination Center to make fewer Zone helicopters available for dispatch outside the Zone.
- ❑ Libby Air Tanker Base is fully operational.
- ❑ As needed, operate the Zone Coordination Center on a 24-hour basis.
- ❑ Intelligence gathering will consist of 1) contact with Foresters in Mexico to assess the border situation and its possible impact on fire activity, and 2) assess resource availability within the Zone.
- ❑ Southwest Area Wildland Fire Fighting (SWFF) crews may be placed on standby and pre-positioned.
- ❑ Additional resources may be requested as listed in the *Figure 28*
- ❑ Zone Board members will discuss pre-positioning of resources and procedures for requesting backup resources.
- ❑ The Zone Board may also coordinate both wildland fire use implementation and prescribed fire activity.
- ❑ A review will be made of the need to impose restrictions and/or closures; this will be coordinated with adjacent zones and Forests.

*Fire Use:* When fire danger reaches high (Regional Preparedness Level III), Forest Supervisors shall retain approval authority (Go/No-go decisions) for natural ignitions to be managed for resource benefits (wildland fire use). (FSM 5140, R3 Supplement) Units considering prescribed fire activities must be prepared that contingency resources may not be available, because of the fire activity.

#### Preparedness Level IV (Very High)

In Level IV, agency units and adjacent zones are experiencing very high or greater fire danger. Class D and larger fires are common. The potential exists to exhaust Zone, Southwest Area, and National resources. Holidays and the approach of the summer "monsoons" may greatly increase the risk of fire and the depletion of resources. Competition for resources among agency units is likely.

The following should be under taken in addition to those taken under Preparedness Levels I - III.

- ❑ The Type II Interagency IMT may be put on standby.
- ❑ The SEZ Expanded Dispatch will be put on standby.
- ❑ Some Zone helicopters and SWFF Crews may be placed on standby and pre-positioned.
- ❑ If most or all Zone crews are committed, consideration will be given to ordering backup crews from outside the Zone.
- ❑ The availability of CWN helicopters will be ascertained in case they are needed to supplement agency unit helicopters; a CWN crew will be developed.
- ❑ Libby Air Tanker Base becomes fully operational.
- ❑ Air Tanker availability will be closely monitored. If no air tankers are available within 1.5 hours, request to position one in the area through SWCC.

- ❑ Additional resources may be requested as listed in the Supplementary Severity Resource chart.
- ❑ The Southeast Zone Board will meet to assess resource priorities.
- ❑ If a State MAC Group is activated, the Zone Board will establish a liaison, supervise contacts with the media, and provide direction to the Zone Coordination Center.

*Fire Use:* When Regional Preparedness Level reaches IV or higher, Forests must coordinate and receive approvals from the Regional Forester prior to committing resources to a fire use project. (FSM 5140, R3 Supplement)

The Southwest Fire Management Board will coordinate with agency heads and Zone Boards to suspend ignition of prescribed fires and declaration of wildland fire managed for resource benefits except those that are of no significance or risk. (*R3 Mob Guide*, Chapter 20, Section 27)

The National Fire Preparedness Plan for Level IV states that Wildland Fire Use and prescribed fire application can be continued or be initiated if the proposed action is recommended at the Regional or State level. The national agency representative will assess risk and impacts of the proposed actions and discuss it with the National MAC Group. This group will have an opportunity to provide information or perspectives to agencies wishing to proceed with or implement a Fire Use application. The final decision to implement resides with the implementing agency. (*National Mob Guide*, Chapter 20, Section 26)

Preparedness Level V. (Extreme)

In Level V, fire danger is extreme throughout the State. Several zones are experiencing major fires and the potential exists to exhaust Southwest Area and national resources. The assessment of priorities and the coordination of resource use become the emphasis and will benefit from preparedness planning.

In addition to the measures taken under Preparedness Levels I – IV, the following actions will be considered.

- ❑ Severity funding requests will be made to preposition air and ground resources.
- ❑ A Type II Interagency Incident Management Team is pre-positioned within the Zone.
- ❑ Additional resources may be requested as listed in the Supplementary Severity Resource chart.

*Fire Use:* When Regional Preparedness Level reaches V or higher, Forests must coordinate and receive approvals from the Regional Forester prior to committing resources to a fire use project. (FSM 5140, R3 Supplement)

The Southwest Fire Management Board will coordinate with agency heads and Zone Boards to suspend ignition of prescribed fires and declaration of wildland fire managed for resource benefits, except those that are of no significance or risk. (*R3 Mob Guide*, Chapter 20, Sec. 27)

The National Fire Preparedness Plan for Level V states, wildland fire use and prescribed fire application can be continued or be initiated if the proposed action is recommended at the Regional or State level. The national agency representative will assess risk and impacts of the proposed actions and discuss it with the National MAC Group. This group will have an opportunity to provide information or perspectives to agencies wishing to proceed with or implement a Fire Use application. The final decision to implement resides with the implementing agency. (*National Mob Guide*, Chapter 20, Section 26)

**Figure 28. Staffing and Response Level Guidelines**

Preparedness Level	Low	Moderate	High	Very High	Extreme
<b>Staffing:</b>					
SEZ Coverage	7 day	7 day	7 day	7 day	7 day
SEZ Hours	0730-1600	0700-1730	0700-1800	0700-1800	0700-1800
Helicopter Coverage			0930-1800	0930-1800	Consider Add. Ship
Engine	0730-1600	0930-1800	0930-1800	0930-1800	0930-1800
<b>Initial Response:</b>					
Engines	1	1	1-high 2-valley	2	3
IC				ICT4	ICT4
<b>Station Getaway Time:</b>					
Engine	10	5	5	5	5
Helicopter	40	20	20	20	20
<b>Air Operations:</b>					
Rappel modules			1	2/Heli	2/Heli
Air Tanker				1	1-2
Helicopter w/ bucket			Consider	1-2	2
<b>Detection:</b>					
Lookouts		5 Day	Consider 7 Day when lightning	7 day	7 day
Aerial	Request	Request	Lightning	Ltg/Scheduled Lightning	Scheduled Lightning
Ground Patrol			Consider		
<b>Equipment:</b>					
Dozers		Rental Agreements Completed As per FMP (4/1)	Confirm Availability	Track Location	Pre Position As Needed
Water Tenders					
Lowboys					
Busses					
<b>Prevention:</b>					
Burn Permits			Yes	Consider Coordinate	Consider Coordinate
Restrictions					
<b>Staffing Levels/Unit:</b>					
Engines Staffed/unit	NFMAS	NFMAS	NFMAS	NFMAS	NFMAS
Quick Response Teams				1	1
IA Personnel (Forest)				½ ENG ½ personnel	½ ENG ½ personnel
<b>Management:</b>					
Severity				Evaluate	Evaluate
Crew – Type 1				Consider	1-2

District Weather Station will be used for Fire Danger Ratings. Use fuel model "H". District staffing levels based on Burning Index.

*g. Aviation Management*

All aviation operations will comply with the 2002 Coronado National Forest Aviation Plan and the Aviation Incident/Accident Response Guide of 2001, which is incorporated as part of this Fire Management Plan. The purpose of the Aviation Plan is to provide a working tool and reference for aviation policies, regulations, procedures, and other necessary information for implementing a safe and cost effective aviation program on the Forest. Specific guidelines on aviation use and safety will be found in these documents. The Interagency Helicopter Operations Guide (IHOG) should be consulted on questions concerning the use of helicopters.

The Assessment of risk in the use of aircraft is an important aspect of aviation management. Attached as **Appendix M** are guidelines to be used in assessing the risk involved in the use of aviation resources in fire suppression or any other activity.

MODULAR AIRBORNE FIRE FIGHTING SYSTEMS (MAFFS)

The only approved operating bases in the Southwest Area for use of (MAFFS) are Tucson International Airport (TIA), Phoenix Sky Harbor International Airport, and Albuquerque International Airport. At least temporarily, TIA is not acceptable as a MAFFS base (because the tarmac has been deemed unsafe until extensive and costly repairs are done). The following information is included in case Tucson or Fort Huachuca should be certified as MAFFS bases in the future. The procedures for activating and releasing these units are given in the *Southwest Area Mobilization Guide* (25.7.7); listed are the equipment and personnel which the Forest must supply. The form used to order MAFFS is in Section 29, Exhibit 11. Chemonix of Phoenix supplies retardant and must be contacted if a MAFFS unit is activated. In addition, contact must be made with TIA Authority and the Coronado's Contracting Officer.

For complete information, consult the current *MAFFS Operational Plan*, which is an addendum to the Forest Aviation Plan. Chapter 70 of the *Military Use Handbook*, NFES 2175, 1997 should be consulted for general information about working with the military.

USE OF MILITARY HELICOPTERS

See Southwest Area Mobilization Guide, Section 25.8.8 on Military Helicopters, and Section 28 on the general use of military resources. The following are considered supplements to this Fire Management Plan:

- Washington Office memo on the use of military helicopters; the *Military Use Handbook*, NFES 2175, 1997, Chapter 70, which has important information on working with military helicopters;
- "Use of Military Helicopters for Project Work" letter
- Procedural letter for helicopters and pilots at Fort Huachuca to be certified to transport Forest Service personnel
- The Interagency Management Review Team letter of July 10, 1995

### 3. INITIAL ATTACK

The circumstances under which a fire occurs—and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected—dictate the appropriate management response to the fire. This response will be one that most efficiently meets fire management direction under current and expected burning conditions. The suppression response may range from an aggressive suppression action to confinement. These strategies are applied on the Coronado National Forest as either the only available response to an area (Wildland Fire Suppression FMU) that is not identified in this plan and that allows for wildland fire use, or the result of Stage I: Initial Fire Assessment within the Wildland Fire Use FMU. All person-caused ignitions require an immediate suppression response (FSM 5143, R3 Supplement 5100-2000-2).

#### *a. Information Used to Set Initial Attack Priorities*

New incidents occurring on the Forest will be given top priority for resources required to stop spread at initial attack. The following is a list of information sources for completing the Stage 1: Initial Fire Assessment, and for setting initial attack priorities:

- ❑ Wildland Urban Interface areas
- ❑ Net Value Change Table
- ❑ Mexican Spotted Owl Protected Activity Centers and protected areas
- ❑ Northern Goshawk Post-Fledgling Family Areas, nesting areas
- ❑ Wet Canyon talussnail area in the Pinaleno Mountain Range
- ❑ Threaten and Endangered species and habitat map
- ❑ Surveyed archaeological sites
- ❑ Fuel loading maps

The Coronado needs to develop an Initial Attack Dispatch Plan, which includes all specific area responses, as well as the overall direction for Initial Attack Response dispatch. These procedures establish requirement to ensure prompt and orderly action on all incidents in accordance with established resource management objectives. It should be designed to be efficient, cost effective, and results in minimum fire resource exposure. Additionally, it should include pre-planned initial attack strategies.

#### *b. Criteria for the Appropriate Initial Attack Response*

##### LRMP FIRE MANAGEMENT/SUPPRESSION ZONES

Two fire suppression zones are identified in the Forest LRMP, which outlines fire management direction for these zones. (See Section III, Figure 7 for Forest fire suppression zone maps.) These zones are based on resource management objectives with consideration given to the value of property and resources to be protected:

*Fire Management/Suppression Zone 1* is an area of high resource value and improvements. The appropriate suppression response in this zone will be predicated upon preventing fires from

reaching or damaging high value resources and improvements. Aggressive initial attack will be used to accomplish this objective during very high and extreme fire danger. Aggressive initial attack for Fire Danger Classes Very High and Extreme will be accomplished through *maximum* use of people and equipment needed to control and suppress any wildland fire as expeditiously as possible, by the most direct method possible.

*Fire Management/Suppression Zone 2* is an area of lower resource values. The appropriate suppression response in this zone will be predicated upon responses that will suppress wildland fires at the least cost with acceptable damage to improvement, while maintaining sufficient forage to sustain livestock grazing operations and ground cover to keep watersheds in satisfactory condition. A full range of suppression actions will be used to meet these objectives.

The appropriate response within Fire Management Zone 2 will be accomplished through *minimum* use of people and equipment. For each fire, the responsible line officer shall evaluate and document the suppression response prior to each burning period. If the response is no longer consistent with fire management direction, or is anticipated to become inappropriate, the fire shall be considered an “escape” and a WFSA will be prepared.

*c. Confinement as an Initial Attack Suppression Strategy*

Confinement may be used as a strategy during initial attack actions as long as it is not used to meet resource objectives. As stated in Section IV.A.1, Implementation Procedures, the requirements to complete the decision checklist as part of Stage 1, the Initial Fire Assessment, is met through this Fire Management Plan for ignitions occurring within the Wildland Fire Suppression FMU. Confinement can also be a strategic selection through the Wildland Fire Situation Analysis (WFSA) process when the fire is expected to exceed initial attack capabilities or planned management capability. Prepare a WFIP or WFSA as the fire or management considerations dictate.

*d. Response Times*

Individuals and modules with initial attack responsibilities must respond within two to five minutes of a dispatch during normal duty hours. (See Section IV, **Figure 27** for Staffing and Response Level Guidelines.)

*e. Restrictions and Special Concerns*

The table below (**Figure 29**) shows the limitation on equipment use, aircraft use, chemical fire retardants, tracked equipment, and other mechanized equipment for wilderness and special Management Areas on the Coronado. Approvals for mechanical use in wilderness and special Management Areas during fire suppression or wildland fire use only applies when the fire is not controlled. Otherwise, approvals are the same as needed for Project Use.

**Figure 29. Approvals for Mechanical Use in Wilderness and Special Management Areas**

ITEM	Wilderness Areas (Chiricahua, Galiuro, Santa Teresa, Pusch Ridge, Rincon Mountains, Miller Peak, Mt. Wrightson Pajarita)			Special Management Areas (South Fork of Cave Creek, Guadalupe Canyon, Wet Canyon, Research Natural Areas, Rock Corral Watershed, Sabino Canyon)		
	Emergency Use		Project Use	Emergency Use		Project Use
	Fire	S&R		Fire	S&R	
<b>Helicopters</b>						
▪ Helispot Construction	S	S*	R	S*	S*	S
▪ Landings	S*	S*	R	OK	OK	OK
▪ Cargo Drops (Slings, etc.)	S*	S*	R	OK	OK	OK
<b>Fire Retardant</b>						
▪ Clear (Fugitive dye)	S*			OK		
▪ Colored (Regular dye)	S			S		
<b>Vehicles</b>						
▪ Trucks, etc.	S*	S	R	OK	OK	OK
▪ Trail Bikes	S	S	R	OK/S Sabino?	OK	OK
<b>Other Motorized Equipment</b>						
▪ Pumps	S*	S*	R	OK	OK	OK
▪ Chainsaws	S*	S*	R	OK	OK	OK
▪ Winches, etc.	S	S	R	OK	OK	OK
<b>Dozers</b>						
▪ Fireline or trail construction	R	R	C	S	S	S
▪ Other Work	R	R	C	S	S	S
<b>Miscellaneous</b>						
▪ Smoke Jumpers & Cargo	S*	S*	R	OK	OK	OK
▪ Fireline Explosives	S	S	R & C	S	S	R & C

- S\* Forest Supervisor Advanced Approval Granted
- S Forest Supervisor Approval Needed
- R Regional Forester Approval Needed
- C Chief's Approval Required
- OK No Approval Needed

*f. Social and Political Concerns*

Wildland Fire Use in the Pusch Ridge area may be restricted from implementation to the fullest extent possible, because of its proximity to Tucson and Oro Valley. A separate risk analysis may need to be developed.

Wildland Fire Use in the Pinaleno Mountains Wilderness Study area may be limited, because of the high fuel loadings in the mix conifer surrounding the Mt. Graham Astrophysical Area. Fuels treatment is limited to Prescribed Fire, and should be used to reduce fuel loadings and stand densities prior to full implementation of Wildland Fire Use.

Wildland Fire Use in the Rincon Mountains would require coordination with the Saguaro National Park and Arizona State Land Department. Additionally, an agreement should be developed to jointly manage natural ignitions for resource benefits. Until the Park completes their Fire Management Plan and a joint agreement is developed, the Coronado cannot extend any Maximum Manageable Area beyond the existing Wilderness Boundary.

#### 4. EXTENDED ATTACK AND LARGE FIRE SUPPRESSION

Prior to each fire, the responsible line officer shall evaluate and document the suppression response prior to each subsequent burning period. If the response is no longer consistent with fire management direction, or is anticipated to become inappropriate, the fire shall be considered an “escape fire”. An escaped fire is a fire which has exceeded or is anticipated to exceed pre-planned initial action capabilities or the fire management direction.

##### *a. Determine Extended Attack Needs*

Extended attack action is necessary on wildland fires that cannot be controlled during the initial suppression response action or where the appropriate management response has not been successful. An initial suppression response action can last for an unlimited number of burning periods, so long as the action is still consistent with management direction evaluated prior to each burning period (R3 Supplement 5100-91-1). The Incident Commander shall determine when the fire exceeds initial attack capabilities, and that additional resources need to be ordered. A WFSAs shall be completed and a new suppression strategy for the fire will be selected.

If a fire use project (wildland fire use or prescribed fire) exceeds or is anticipated to exceed planned limits, and the Fire Use Manager (FUMA) or Burn Boss determines the fire use project cannot be returned to planned limits with available resources within 48 hours, the fire shall be declared ‘escaped’ and a WFSAs prepared to determine the appropriate suppression response.

##### *b. Implementation Plan Requirements – WFSAs Development.*

The responsible line officer shall promptly organize and implement an appropriate suppression response for each escaped fire. Preparation of the WFSAs for extended attack and large fire suppression should be done to evaluate suppression responses to wildland fires that have exceeded initial attack response or exceeded planned management capabilities. Enhanced resource values may be a collateral benefit of the planned action under the WFSAs, but cannot be part of the objective of the action.

Line officers are encouraged to utilize the PC-based automated WFSAs. This tool provides an automated version of the WFSAs as well as displaying a tradeoff analysis for the decision maker. Guidelines for the WFSAs are found in section 5131.1 of WO Amendment 5100-98-7. Information to complete the WFSAs, which can be downloaded to a disc, is located at [www.fs.fed.us/r3/fire](http://www.fs.fed.us/r3/fire), then go to Fire Management and select WFSAs. A hardcopy version of the WFSAs and the Region 3 Cost Estimating Guide for large fire suppression planning is located in **Appendix N**. A computer version of the WFSAs, with the Coronado’s NVC (**Appendix O**)

loaded and the cost risk assessment (**Appendix P**) included, will be located in the Coronado's electronic file system.

A WFSA must be completed when the following occurs:

- ❑ A fire escapes initial action or is expected to exceed initial action.
- ❑ A fire being managed for resource benefits exceeds prescription parameters in the fire management plan.
- ❑ A prescribed fire exceeds its prescription and is declared a wildfire.

The WFSA is the decision-making process used by a line officer to evaluate alternative management strategies against selected safety, environmental, social, economical, political, and resource commitment objectives as selection criteria. This should be used in selecting a suppression strategy for a wildfire if containment is not expected prior to the second burning period. This process must include the following:

- ❑ Identification of clearly stated and measurable evaluation criteria. These should include management objectives, potential suppression costs and resource damage, and consideration of local, regional, and national fire activity and resource availability.
- ❑ The development of a range of reasonable suppression alternatives.
- ❑ The analysis of these alternatives using the evaluation criteria. Identify the alternative which minimizes suppression costs plus resource damage and which has an acceptable probability of success.
- ❑ Daily evaluation of the suppression decision.
- ❑ If necessary, revise and update the WFSA form.

The WFSA, including any revisions, shall be documented and filed with Form FS-5100-29, Individual Fire Report. A complete copy shall be kept in a permanent file at the Supervisor's Office.

*c. Complexity Decision Process From Initial Attack to Extended Attack*

The Incident Commander will determine when the fire exceeds initial attack capabilities and additional resources need to be ordered. The District initial attack Incident Commander, along with District and Forest Fire Management Staff and District Ranger, will determine the need for transition to a Type II or Type I Interagency Management Team. The Southwestern Region Incident Complexity Analysis Worksheet shall be used to determine the need for activation of a team (**Appendix Q**), and shall be completed and attached as part of the final fire package, which will be reviewed each operational period along with the WFSA.

If the incident complexity is appropriate to be managed by a Type II Interagency Management Team, the District Ranger may be delegated the authority to sign off on the WFSA. If the incident complexity is appropriate to be managed by a National Type I Interagency Management Team, the Forest Supervisor or designated representative retains the authority to sign off on the WFSA.

*d. Unit Example of “Delegation of Authority” for the Incident Commander*

The transfer of authority for suppression actions on a wildland fire is accomplished through the execution of a written delegation of authority from the line officer with responsibility for the land area involved to the incident commander, who will be assigned responsibility for implementing the agency’s strategic direction for management of the incident. In conjunction with the WFSA, the delegation of authority is the most important procedural responsibility the line officer has in managing the wildland fire.

An incident management team will assume the authority to manage suppression actions on a fire only after receiving a signed delegation of authority from the line officer, which is definitive enough for the situation and mutually acceptable. The delegation is a part of the briefing package provided by the line officer and appropriate staff to the incident management team. (See **Appendix R** for the Coronado National Forest Delegation of Authority and Direction to the Incident Commander.)

The Zone Dispatch and Ranger Districts have a complete Briefing Package that will be supplied to a Team upon their arrival. Those items have been given to each Ranger District and can be used to assist the Line Officers in preparing for a Management Team. Information on additional direction can be found on web page at <http://www.fs.fed.us/r3/fire/>. Each FMO and IC shall perform a critique after each ICT5 to ICT3 incident. This will be part of the 30 Mile mitigation process. (The form is in located in **Appendix S**.)

5. EXCEEDING EXISTING WFIP – SELECTING A NEW STRATEGY

When a wildland fire use event exceeds or is anticipated to exceed planned limits, and the Fire Use Manager (FUMA) determines the wildland fire use project cannot be returned to planned limits with available resources within 48 hours, the WFIP is considered exceeded and the fire shall be declared “escaped”. A Wildland Fire Situation Analysis (WFSA) is initiated at this Stage. Once a wildland fire use project has been declared escaped, it cannot be returned to wildland fire use status. The escaped fire must be suppressed.

Initiation of the WFSA is also necessary when the Burn Boss determines a prescribed fire cannot be returned to planned limits (prescription) with available resources within 48 hours. However, once the appropriate suppression response is achieved, the area may be treated with fire use in the future, but only after the original burn plan has been reviewed and revalidated.

When a fire use project (wildland fire use and prescribed fire) escapes and is declared a wildland fire, acres accomplished prior to the escape shall be considered acres accomplished for resource objectives. All acres burned after the declaration as a wildland fire, both inside and outside the planned burned area, shall be considered wildland fire acres. Report any escaped prescribed fires and any escaped wildland fires use fires within 24 hours after escape (R3 Supplement 5100-2000-2).

Situations that could require selection of a new strategy through the WFSA include, but are not limited to, the following:

- ❑ Exceeding periodic assessment criteria, i.e., management action points (trigger points), air quality
- ❑ Unacceptable risk to natural or cultural resources, firefighter or public safety, watershed or visual resource values, caves, or improvements
- ❑ Fire leaving or threatening to leave the Maximum Manageable Area (MMA)\*
- ❑ Increasing demand of national and local fire management situation or agency administrator prerogative
- ❑ Fire exceeds prescribed fire

(\* Chapter 4, page 49 and 50 provides the further direction regarding MMAs. All wildland fires being managed under appropriate management response strategies requiring WFIP Stage I, II, and III (meaning those fires where the WFIP planning has progressed to Stage III) will have a defined MMA. MMAs will be developed as part of Stage II of the WFIP. This is to ensure that there is a clear and common understanding of the authorized size and location of the fire among agency administrators and cooperators.)

The MMA delineates the ultimate acceptable size for a wildland fire. It provides for closely directed fire management application in a specific area defined by resource objectives, fire and weather prescription elements, social needs, political considerations, and management capability.

All MMAs must meet the following criteria:

- ❑ Based on predetermined MMAs identified in the FMP or be developed as part of Stage II of the WFIP.
- ❑ Be fixed and not subject to change once established and approved by the agency administrator.
- ❑ Serve as a definition of firm limits of management capability to accommodate the social, political, and resource impacts for all wildland fire managed for resource benefits or other management considerations.

However, there may be isolated cases when formal implementation of the WFSA process is not prudent or logical because a wildland fire exceeded an established MMA. In these situations, experience may indicate that a wildland fire will exceed the MMA on a very small or non-threatening scale. Management options in this situation includes:

- ❑ Constraining the fire spread to the small or non-threatening overrun of the original acceptable area using available holding forces currently in use and identified in the WFIP, Stage II or III. This return must be accomplished within two burning periods.
- ❑ In the case of relative long-range spotting, treat an isolated spot generated by this natural process as a separate fire. Determine appropriate management action for this new ignition separately from the original wildland fire based on criteria specific to this fire.

If the agency administrator or fire management officer determines that the fire cannot continue to be managed within its original approved boundary, a WFSA will be utilized to select a new strategic alternative and appropriate management response.

The principal criteria for setting incident priorities when the WFIP is exceeded, include but are not limited to the following:

- ❑ Firefighter and public safety
- ❑ Risk of damage to high value or cultural resources
- ❑ Efficient deployment of critical resources
- ❑ Any known safety hazards

Conduct suppression in a manner compatible with overall wilderness management objectives. Preference will be given to the method that will cause the least

- ❑ Alternation of wilderness landscape
- ❑ Disturbance of the land surface
- ❑ Disturbance to visitor solitude
- ❑ Reduction of visibility during periods of visitor use
- ❑ Adverse effect on other air quality related values

In the event of an escape, only qualified personnel designated under the *National Interagency Fire Qualification System Handbook* and FSH 5109.17, *Wildland Fire Qualifications Handbook*, will accomplish the suppression response.

Report any escaped wildland fire use fires within 24 hours after escape. Using the appropriate fire management reporting form, report within 30 days the individual project, along with accompanying acreages for those fires that transitioned from prescription to suppression alternative.

## 6. MINIMUM IMPACT SUPPRESSION TACTICS (MIST) REQUIREMENTS

Minimum impact suppression tactics (MIST)—“Light hand on the land” approach—should be considered if a suppression response is necessary for managing wilderness areas or wilderness study areas within the Wildland Fire Use FMU. Additionally, when normal or usual fire suppression practices are not compatible with the objectives of other areas outside the wilderness, these same principals of suppression should be applied.

- ❑ Use natural barriers when possible to avoid cutting or scraping the fireline on the perimeter of the fire. Where the fire has stopped, “cold trail” by feeling the line to make sure it’s out.
- ❑ Utilize water where possible to halt fire spread. If direct attack is needed, construct fireline as narrow and shallow as possible. Avoid cutting brush and branches.
- ❑ When necessary to fell a tree or snag, leave the bole intact without bucking.

- ❑ Use water saturation where practical during mop-up to avoid stirring or mixing ashes or otherwise further disturbing the burn area.
- ❑ As time permits during mop-up, let fuels consume naturally.
- ❑ Use natural openings for helispots as needed, and minimize clearing new sites. Forest Supervisor approval is required for any new helispot construction within the wilderness.
- ❑ Reduce the use of chemical retardants. Fugitive dyed retardants are recommended.
- ❑ Pack out all material transported to the fire.

## 7. OTHER FIRE SUPPRESSION CONSIDERATIONS

Any other considerations related to fire suppression could be included here.

### C. WILDLAND FIRE USE

Wildland fire use refers to the management of naturally ignited wildland fires to accomplish specific, pre-stated resource management objectives in predefined geographic areas as defined in the Coronado's LRMP (Section II of this FMP) and outlined in this Fire Management Plan (Section III.C, D.1, and **Figure 3**). The information found in this section can be used by fire managers in development of a WFIP for wildland fire use for resource benefit. Operational management decisions are described in the WFIP. Specific WFIP requirements are outline in Chapter 4 of the Implementation Guide (FSM 5132.32). The following is a brief description for each of the WFIP stages.

*WFIP, Stage I* is the initial assessment of the fire, which addresses threat to life and property, threat to the Wildland Fire Use FMU boundary, Energy Release Component, forecast fire weather and expected fire behavior, availability of resources to manage the fire, air quality, local, regional, and national wildland fire situation, and the decision criteria checklist. The agency administrator evaluates the criteria based on staff input, and determines if the fire should receive an appropriate management response to achieve resource benefits or a suppression-oriented response. In all cases, this response must be completed within two hours of the fire's confirmation.

*WFIP, Stage II* is initiated immediately after the approval of the Stage I analysis. Stage II consists of the short-term implementation actions, including fire behavior predictions and risk assessment, implementation actions, complexity analysis, and the Need Assessment Chart for WFIP, Stage III. The WFIP is the governing management document, (commensurate with the complexity), and this stage will be completed within 24 hours after completing Stage I.

The Complexity Analysis used for Wildland Fire Use is different than the Prescribed Fire Complexity Rating and the Southwest Area Complexity used for a suppression strategy. The Complexity Analysis used for Wildland Fire Use incorporates an assigned numeric complexity value for specific elements weighted in their contribution to the overall complexity. The worksheet and guide are included in the Implementation Guide and in **Appendix T**.

*WFIP, Stage III* consists of the long-term implementation actions, which includes defining the maximum manageable area (MMA), long-term fire behavior predictions, long-term risk

assessment, and implementation actions. This stage will be completed when the Periodic Wildland Fire Assessment indicates the need to move into Stage III.

The Periodic Wildland Fire Assessment includes completion of the Revalidation and Stage III Needs Assessment Chart on the assigned frequency. The periodic assessment is the tracking and validation process, which affirms the appropriateness of continued management of the fire for resource benefits and confirms that decision as it pertains to the need to develop and document the WFIP, Stage III. As determined in Stage II, the Forest Supervisor, or his designated Acting, or designated District Ranger, certifies that the fire can be maintained within the provisions of the WFIP and that management capabilities are adequate. As a guide, the recommended frequency for assessment is based on vegetation types. Assessment should occur daily for grass, and every one to five days in shrub and timber vegetation types.

The WFIP implementation stages, requirement status, and completion timelines are described in the following table (*Figure 30*).

**Figure 30. WFIP Implementation Stages, Requirement Status, and Timelines**

Requirement Status Key:

1. mandatory
2. mandatory, but can be preplanned
3. optional
4. completed if Stage II or Periodic Fire Assessment, Part 2 indicates need
5. completed if fire exceeds management capabilities
6. completed if Periodic Fire Assessment, Part 1 indicates need

WFIP Stage	Planning and Assessment Element	Requirement Status			Maximum Completion Time Frame
		Initial Attack	Suppression Oriented Appropriate Management Response	Fire Use Actions	
<b>WFIP Stage I: Initial Fire Assessment</b>	Fire situation	1	1	1	As soon as possible
	Decision criteria checklist (initial Go/No-Go decision)	3	1*	1	2 hours after first fire detection
<b>WFIP Stage II: Short-term Implementation Action</b>	Short-term fire behavior predictions and risk assessment	3		1	24 hours after Stage I completion
	Short-term implementation actions	2		1	
	Complexity analysis	3		1	
	Stage III needs assessment chart	NA		1	
<b>WFIP Stage III: Long-term Implementation Actions</b>	MMA determination	3		4	Within 24 hours after Stage II or periodic fire assessment indicates need
	Fire behavior prediction	3		4	
	Long-term risk assessment	3		4	
	Long-term Implementation actions	3		4	
<b>Periodic Fire Assessment</b>	Part 1: Re-validation	NA		1	on assigned frequency
	Part 2: Stage III need assessment chart	NA		1	
<b>Wildland Fire Situation Analysis</b>		5	5	6	Before implementing new strategy

\* If the analysis of the wildland fire causes the line officer to classify that fire as a suppression event, then the appropriate response will be guided by the unit fire management plan and a wildland fire situation analysis, if required. Further use of the wildland fire implementation plan to evaluate and document management strategy for an unwanted wildland fire is not appropriate.

## 1. OBJECTIVES

The objective of the wildland fire use program is to permit lightning caused fires to play—as nearly as possible—their natural ecological role within the Wilderness Areas, Wilderness Study Area, and Natural Research Areas on the Coronado.

By managing natural ignitions for resource benefits through wildland fire use, as described for Management Areas 2A, 8, 8A, and 9, the Forest will meet the LRMP objectives.

- ❑ Manage for wilderness values and uses while providing opportunities for non-disruptive research and education within Natural Research Areas (Management Areas 8 and 8A).
- ❑ Manage to provide opportunities for astronomical and biological research, perpetuation of wilderness values, and unique wildlife and vegetative species. Increase habitat for the endangered Mt. Graham red squirrel while allowing for a minimum level of astrophysical facilities development within Management Area 2.
- ❑ Manage for wilderness values while providing livestock grazing and providing recreation opportunities that are compatible with Wilderness values. Fire management emphasis will be to permit lightning-caused fires to play their natural ecological role (Management Area 9).

Fire will be used to reduce to an acceptable level the risks and consequences of wildland fire within the wilderness or escaping from the wilderness areas. Additionally, fire will reduce the density of native plant communities, restore age-class mosaic, and reduce flammability. Ultimately, reduced suppression costs and reduced exposure of suppression personnel to safety hazards will result. Wildland fire use will only occur in the Wildland Fire Use FMU.

## 2. FACTORS AFFECTING DECISION CRITERIA FOR WILDLAND FIRE USE

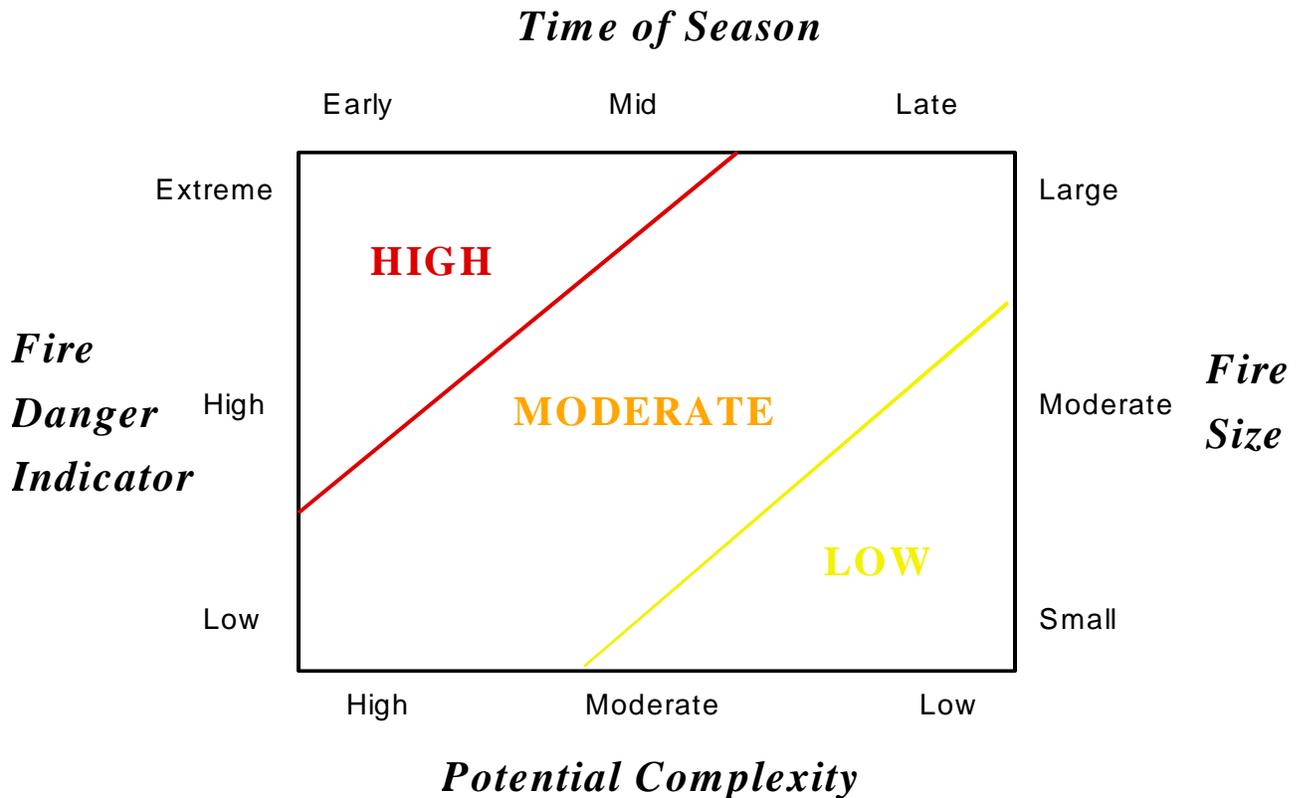
The decision to manage a wildland fire for resource benefit on the Coronado will be guided by several parameters, including time of year (seasonality), position of the ignition within the FMU, the fire danger indicator (ERC), and the relative risk of the fire creating negative economic value (cost + net value change). An analysis of the relative risk associated with any given wildland fire will be assessed using the Relative Risk Rating Chart (*Figure 31*), which considers the following four variables:

- ❑ *Time of Season.* An indicator of potential duration of newly ignited fires. The earlier in the season the ignition occurs, the longer the potential duration of the fire.
- ❑ *Fire Danger Indicator.* Derived from components or indices from NFDRS. The Coronado will use ERC for Fuel Model H as the fire danger indicator.
- ❑ *Potential Complexity.* An estimate of complexity. Refer to Implementation Guide (Chapter 4, page 43) for elements, which may be considered to estimate complexity.
- ❑ *Fire Size.* Represents the current fire size.

Since the decision to suppress or manage the fire must be made within a two-hour decision window, it may not be possible to complete a long-term assessment of risk. In lieu of the

quantitative long-term risk assessment (RERAP assessment), a qualitative assessment process has been devised to provide the agency administrator with a quick and fairly comprehensive assessment of the “relative risk” of the fire.

**Figure 31. Wildland Fire Relative Risk Rating**



To determine relative risk, connect lines between the top and bottom variables and the left and right hand variables. The intersection of lines represents the relative risk for the specific wildland fire.

In addition to using the Wildland Fire Relative Risk Rating, the following Coronado Risk Assessment Chart (**Figure 32**) will be used for assessing the risk of managing wildland fire use within the Wildland Fire Use FMU. The Risk Assessment Chart is used for the initial Go/No-Go decision. Again, this decision must be made by the appropriate Agency Administrator(s) or designated acting within two hours of the time of detection. The Energy Release Component (ERC) values for each of the adjective rating, coupled with the time of year help determine a base line potential risk.

Figure 32. Coronado Risk Assessment Chart

Adjective Rating*	4/3-4/14	4/15-4/29	4/30-5/13	5/14-5/28	5/29-6/12	6/13-6/27	6/28-7/11	7/12-7/26	7/27-8/11	8/12-8/26	8/27 →
LOW	High Risk	Moderate Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk				
MODERATE	High Risk	Moderate Risk	Low Risk	Low Risk	Low Risk	Low Risk					
HIGH	High Risk	High Risk	Moderate Risk	Low Risk	Low Risk	Low Risk					
VERY HIGH	High Risk	High Risk	High Risk	Low Risk	Low Risk	Low Risk					
EXTREME	High Risk	High Risk	High Risk	High Risk	Low Risk	Low Risk					

\*If long-term drought conditions exist, use next higher adjective rating



High Risk



Moderate Risk



Low Risk

The full Risk assessment chart for the Wildland Fire Use FMU can be found in **Appendix U**.

The location of a wildland fire ignition within an FMU guides the decision. The level of risk depends on the time of season, the NFDRS thresholds using ERC, and the following assessment considerations:

- ❑ Threat to Life or Human Welfare
- ❑ Fire Growth Predictions
- ❑ Local/Regional/National Status
- ❑ Fire Proximity to Boundary
- ❑ Fuel Condition/Adjacent Fuels
- ❑ Number of Wildland Fire Use Fires
- ❑ Impacts-Visitor/User/Community
- ❑ Impacts-Cultural/Archeology/T&ES
- ❑ Smoke Management Concerns
- ❑ Cause
- ❑ Availability of Resources
- ❑ Fire Behavior
- ❑ Drought Evaluation/Impact
- ❑ Current and Predicted Weather
- ❑ Duration/Season
- ❑ Fire Must be Within the Wildland Fire Use FMU
- ❑ Recent vs. Historical ERC Trends

The Adjective Rating used in the Risk Assessment Chart is a product of the NFDRS. It indicates the level of Risk on a given day for the potential of fire or multiple fire starts, and for large fire growth. It is based on weather and fire history over a very large area and should not be confused with Fire Behavior Calculations, which require local site-specific inputs of fuels, weather, and topography.

The following table illustrates stratification for the Saguaro weather station for Fuel Model H:

**Figure 33. ERC Values and Adjective Ratings**

ERC Value	Adjective Rating
00-20	Low
21-30	Moderate
31-40	High
41-50	Very High
51-70	Extreme

The following was the process used to determine the NFDRS thresholds used for the Forest’s Risk Analysis:

The Forest’s primary weather station, Saguaro, was used in developing the weather thresholds, since it’s one of the regional National Fire Danger Rating System (NFDRS) Class I weather station. Indeed, there are other Class II stations located in the Southeast Arizona Zone, but the Saguaro station has the best dataset of 30-years. The analysis period of February 1 through October 15 was selected based on the Forest fire business. However, the Risk Assessment Chart only identifies the primary fire season from the beginning of April through July.

Included in **Appendix U**, is the historical weather analysis for 1970 – 2001, which provides the basis for historic energy release component (ERC) for fuel model H. Fuel model H was chosen for this analysis, since it satisfied the “Goodness of Fit” test and is an excellent match for the Coronado. Using the Decision Point option of the FIRES program, the ERC thresholds for the five Adjective Ratings were adjusted to correlate with “Fire Business”. (Kramer 2002).

Tolerable limits to consider while evaluating a wildland fire as a candidate under the wildland fire use strategy include the following:

- ❑ The project lasts at least 50% longer than planned (Number of days you will tolerate? This will vary by EMA). On average in Arizona, the number of days the public will tolerate smoke or fire in the mountains is five to six days.
- ❑ Depending upon complexity and the number of fires under a suppression strategy, no more than seven to ten fires should be managed under wildland fire use strategy forest-wide. The Safford District may exceed this after evaluation and documentation. This will be evaluated on a case-by-case basis.

- ❑ The Forest should not manage more than seven to ten fires under a confinement suppression action at any given time, with a maximum of four per District. This will be evaluated on a case-by-case basis.
- ❑ The maximum number of hours the public will generally tolerate fires in the front range of the Santa Catalina Mountains is 48-72 hours.

### 3. PREPLANNED IMPLEMENTATION PROCEDURES

When the Southwest Area Preparedness Levels are at I through III, the Forest Supervisor, designee, or respective District Ranger (need delegation of authority) – with collaboration of the District Ranger, District Fire Management Officer, Forest Fire Staff Officer, wilderness, biologist, archeologist, and any other recognized resource staff—makes the Stage I decision and determines the appropriate management response of suppression or wildland fire use. When the fire danger reaches IV or higher, fire use coordination by the Forest Supervisor must be done with the Regional Forester (R3 Supplement to FSM 5140.42). For further information and specifics on preparedness levels, see the *Southwest Area Mobilization Guide*, Chapter 20, Section 27.

#### WFIP Stage II:

- ❑ Notify Arizona Department Environmental Quality within 24 to 48 hours by phone of the intent to implement a Wildland Fire Use action.
- ❑ Submit Stage II WFIP to Arizona Department Environmental Quality.
- ❑ Notify Fish and Wildlife Service for Emergency Consultation

### 4. IMPACTS OF PLAN IMPLEMENTATION

Wildland Fire Use programs will have both positive and negative impacts. However, wildland fire use will be designed to provide protection for life, property, public safety, and natural resource management. All programs will be planned with these concerns, along with cost effectiveness, as primary factors.

#### *Social Impacts*

- ❑ *Safety* (Fire Personnel and Public). All Fire Management activities, whether suppression or fire use, will have firefighter and public safety as the highest priority.
- ❑ *Cultural and Economics*. These impacts will be evaluated during the initial stages of the Wildland Fire Use process.

#### *Resource and Environmental Impacts*

- ❑ *Vegetation*. Historically, fire is a frequent, major, and integral ecological factor in North America. Land use changes such as agriculture and urbanization and land management actions, including land fragmentation and fire suppression, have contributed to a significant decline in the average area burned annually.

This decrease in wildland fire has been a destabilizing influence in many fire-adapted ecosystems, including much of the land managed by the Coronado National Forest. A lack of natural fire influences over the past century has changed the character of vegetative communities within the Forest. The natural role of fire has been virtually eliminated from many vegetative communities on the Forest, causing an unnatural accumulation of fuels and increased plant density, leaving many areas at risk of catastrophic fires. As a result, recent wildland fires are larger and more severe than previous historical fires.

The loss of a natural fire interval has also contributed to a decline of structural and vegetative diversity in forested areas. The absence of periodic fires has contributed to an increase of woody species and a decrease in grasses.

Wildland fires threaten public and private land, particularly where vegetation patterns have been altered by development, land-use practices, and aggressive fire suppression. Potentially, serious ecological deterioration is possible where fuel loads have become extremely high. To reduce the threat of these catastrophic fires, federal wildland fire policy was revised in 1995 and engages a proactive approach to managing fire.

- *Visual Quality.* Obviously, visual quality is seriously impacted by wildfire, especially catastrophic fires. This begins while the fire is still burning. In small fires or even multiple small fires, this does not usually present a problem. In the case of larger fires, however, mitigation measures may be needed. However, the impacts are short in duration. Another obvious impact is the forest's visual appearance after the fire has moved through an area. Decisions to improve visual quality are largely determined by the location of the burned area, and will normally be dictated by social policy, and resource management requirements.
- *Recreation Opportunities.* Recreation opportunities potentially impacted through Wildland Fire Use include temporary road or trail closures, posting of signs, and informing forest visitors through district Offices, Supervisor's Office, and press releases. In all but extreme cases (large fire area), there should not be any major disruption in recreational activities.
- *Wildlife.* While fire can cause death and injury to some wildlife species and habitat in the short term, it also renews fire-adapted habitats, creates edges, and increases available forage when followed by adequate rain.
- *Watersheds, Fisheries, and Soils.* Unless these fires is very large with high intensities, the threat to watersheds, fisheries, and soils usually remains minimal.

For the most part, Wildland Fire Use will play a beneficial role in re-establishing a balanced ecosystem. As proven by many scientific studies, fire is a valuable part of natural forest development. The long-term benefits usually out weigh the short-term problems. However, the many resource and environmental impacts mentioned above must be carefully weighed in fire management decisions and mitigated when possible and appropriate. Proactive public affairs and conservation education programs are essential to public understanding of the purpose and complexity of fire management decisions.

## 5. REQUIRED PERSONNEL

The number of personnel required for an incident will vary. Management could range from a Fire Use Manager and Fire Effects Monitor to a full Fire Use Management Team. Staffing levels will be re-evaluated on a daily basis and adjusted based on potential trigger points, numbers of ignitions, size of fires, predicted weather, complexity, etc.

A Fire Use Manager (FUMA) will be assigned once the determination is made to manage a wildland fire for resource benefits. If a FUMA is not readily available on the District, this position can be ordered through the Coordination Center. (See 5109.17, Chapter 20 for requirement need for the Fire Use Positions.) The FUMA may be responsible for more than one fire concurrently, but should not be responsible for more than one significant (high complexity) wildland fire being managed under the wildland fire use strategy. The FUMA will supervise the wildland fire use operations and remain available for the duration of the fire. The Forest Supervisor, designee, or District Ranger (need delegation of authority) and the FUMA will determine the remainder of the team's organization and expertise and/or the requirements set forth in the specific WFIP.

When wildland fires managed under the wildland fire use strategy exceed the span of control and complexity of the assigned FUMA(s), a Wildland Fire Use Management Team (FUMT) will be assigned to manage those events for resource benefit. The FUMT is ordered through the Coordination Center. The team's organization will be commensurate with the complexity of the anticipated holding actions disclosed in the respective WFIP, Line Officer Briefing Package, and their delegated authority from the Forest Supervisor.

The Coordination Center will maintain a list of Fire Use Managers and Fire Use Management Team members.

Staff positions responsible for initiating and implementing steps in the decision process necessary to support the appropriate management response include, but are not limited to the following:

- ❑ Forest Supervisor
- ❑ Forest Fire and Aviation Staff Officer
- ❑ District Fire Management Officer
- ❑ District Ranger
- ❑ Archaeologist
- ❑ Wildlife Biologist
- ❑ Wilderness Manager

(See Section IV.A.1 for Stage I Implementation Procedures recommended approval authority and Section IV.B.2.f. for Wildland Fire Use approval authority at various Preparedness Levels.)

Identify key resource draw-down levels that may preclude wildland fire use implementation. This can be determined after the Dispatch draw-down levels are developed.

## 6. PUBLIC INFORMATION

The Forest will assure that fire management operations will promote restoration, maintenance, or perpetuate desirable ecosystem characteristics, and improve forest health. All such actions will meet or exceed State Air Quality regulations, limit impacts on down-range non-attainment and Class I areas, and protect public health. The Forest will continue to involve and include the public as an integral part of the planning, implementation, and monitoring processes to further fire management efforts.

All news queries on wildland fires used for resource benefit will generally be directed to the Forest Public Affairs Officer (PAO) for coordination. Prompt reply to such queries is essential and should include interpretation of the wildland fire use program.

Current information should be transmitted by telephone to the PAO at least once a day, preferably in the morning to satisfy most morning newspaper and broadcast deadlines throughout the day. Special situations and live taped reports for radio will require additional reports and will be coordinated by the Forest PAO or a designee. Procedures to specifically address fires under a wildland fire use strategy in the Pusch Ridge Wilderness, Butterfly RNA, and Rincon Wilderness should be developed.

Request for media visits will be directed to the PAO and coordinated with the Fire Use Manager (FUMA). Requests for aerial photographic coverage by the news media for Wildland Fire Use events should be approved by the FUMA and coordinated with the Forest Aviation Officer, Southeast Zone Coordination Center, and the Forest PAO.

The Forest and each District will develop a list of key agency, interagency, State, and congressional delegation contacts for inclusion on each WFIP at the Stage III level.

## 7. RECORDS

A permanent project record will be kept for each wildland fire use event. The minimum documentation will include the following:

- ❑ Approved planning documents that guided management actions, (e.g., WFIP, WFSA, Risk Analysis, etc.). Include all amendments and revisions.
- ❑ Monitoring reports, summaries of findings, and a summary of all monitoring activities. Develop a monitoring schedule.
- ❑ Periodic Fire Assessment and certification documents.
- ❑ Funding codes and cost accounting.
- ❑ Permanent map of all fires greater than 100 acres for inclusion in the Forest corporate fire history database.
- ❑ Attach other information as appropriate for the situation, such as photo points and digital photos.

## 8. COST TRACKING

Natural ignitions managed for resource benefits, or wildland fire use, will record the work with a “G” code that permits tracking of resource benefit target accomplishments. “G” codes are used for lightning ignited fires if it is under a wildland fire use strategy. If the response changes to a suppression action, then the charging must be changed to a “P” code. The Coordination Center manages the distribution of charge codes pertaining to wildland fires.

### D. PRESCRIBED FIRE

#### 1. PLANNING AND DOCUMENTATION

Prescribed fire is any fire ignited by management to meet site-specific objectives. A written, approved prescribed fire burn plan (RxBP) must exist and NEPA requirements must be met prior to ignition. This plan describes the conditions under which the fire may be ignited by hand, ground-based vehicle, or aerial applications. Prescribed fire is one tool for enhancing a resource or providing protection. The order of hazardous fuel reduction priorities, as described in the National Fire Plan is 1) wildland urban interface, 2) municipal watersheds, and 3) crucial species habitat. The treatment objective can be hazard reduction or any other resource benefit where fuel manipulation is required. The timing, location, and decision to burn are within the agency’s control.

a. Annually, during the month of June, the Forest Fire Staff reviews the Districts fuels management project proposals for the next fiscal year and out year planning. Projects are prioritized based upon the budget advice and funding from the Regional Office.

b. The long-term prescribed fire strategy for each relevant Fire Management Unit by fire regime and condition class shows planned burn units that need to be developed. The fire regime and condition class classification system used for the Coronado’s fire management plan was developed by Schmit, et. al. (2002), which describes, albeit broad-scaled, the historical natural fire regimes for the Coronado National Forest. Since this method has been developed for coarse scale mapping and not for finer scale analysis, the Forest will not be able to analyze and address this section until a finer scale map is developed.

c. Before a prescribed fire may be implemented, the RxBP must be approved in writing by the appropriate line officer. Knowledge base, experience, and staff must be available at the District level to plan, develop, and execute fire use in the complexity ratings of Low, Moderate, or High in order for the District Ranger to be delegated authority for signing burn plans. If the knowledge base, experience and staff are not available, the Forest Supervisor retains the authority. A qualified burn boss must conduct each prescribed burn. The approved RxBP determines the remaining position needs (FSM 5145.2).

The line officer will identify the levels of complexity based on standards for personnel staffing, skill requirements, and appropriate level of detail. Wildland Urban Interface projects will rate “high complexity” and require a Type I Burn Boss (R3 Supplement). Projects will base the determination of prescribed fire complexity on an assessment of technical difficulty and potential consequences as follows:

- *Initial Determination.* Use the complexity elements and process identified in the National Wildfire Coordination Group (NWCG) Prescribed Fire Complexity Rating System Guide (NFES 2474) to determine initial complexity of the project elements as High, Moderate, or Low (**Appendix V**). The Complexity Rating Worksheet is located on pages 22 – 31 of this Guide (Appendix V).
- *Final Determination.* Make the final complexity determination based on the RxBP. Resources assigned, tactics, and strategy identified in the RxBP may result in mitigation of risk elements and a final complexity rating that is below the complexity level identified in the initial determination.

For high complexity prescribed fires, the Prescribed Fire Planner (RxPL) or Prescribed Fire Burn Boss Type I (RxB1) develops the RxBP (FSM 5145.21; R3 Supplement 5100-200-2). For moderate and low complexity fires, a Prescribed Fire Burn Boss Type 2 (RxB2) may develop the RxBP.

For the Coronado, **Figure 34** lists who can approve an RxBP after the above has been met. District delegation may occur on a case-by-case basis when the burn plan has been reviewed and endorsed by a RxPL or RxB1.

**Figure 34. RxBP Complexity Rating Approval Authority**

	Douglas	Nogales	Sierra Vista	Safford	Santa Catalina
Low	DR	DR	DR	DR	DR
Moderate	FS	FS	FS	FS	DR
High	FS	FS	FS	FS	DR

d. Prescribed fire on the Forest will be used to reduce fuel hazards, enhance wildlife values, and enhance visual resource. (See Section III.C for further explanation of prescribed fires within the Wilderness.) All projects that include prescribed fire will include specific burning prescriptions to ensure the fire can be controlled within established boundaries and that burning meets the desired resource objectives.

A monitoring plan will be included in the RxBP, which will address day conditions, fire behavior, smoke dispersal, first order fire effects, and cost per acre of treatment associated with the prescribed fire. Specify the weather information (forecasted and observed) required during all phases of the project, and if spot weather and smoke dispersal forecasts will need to be requested.

In addition to short-term monitoring, documentation of immediate results, long-term effectiveness monitoring objectives, and the use of any issues or concerns identified in the related NEPA documents is strongly recommended. Permanent photo points, transects, or plots that are revisited in years following a burn will provide information on successional trends resulting from the burn. Longer term monitoring may be necessary to determine whether

objectives were met. However, the monitoring plan contained in each RxBP must describe the protocols and criteria needed to determine when these objectives are met.

e. The Forest needs to develop a format for critiques of prescribed fire projects.

f. When a fire use project (wildland fire use and prescribed fire) escapes and is declared a wildland fire, acres accomplished prior to the escape will be considered as acres accomplished for resource objectives. All acres burned after the declaration as a wildland fire, however, both inside and outside the planned burned area, shall be considered wildland fire acres. Report any escaped prescribed fires and any escaped wildland fires use fires within 24 hours after escape (R3 Supplement 5100-2000-2).

g. The Forest needs to complete the historic fuel treatment map. Currently, it is 60% complete.

h. The Forest shall conduct prescribed fire in accordance with the Chief and Regional Forester's direction, as set forth in the Forest Service Manual, Washington Amendment No. 5100-99-1 and Southwest Area Regional Supplement 5100-2000-2, and the site-specific prescribed fire plan.

A Prescribed Fire Plan (**Appendix W**) must be prepared for every burn unit regardless of the size or the complexity of the project. Each prescribed fire burn plan must meet minimum Regional requirements. Because the RxBP has defined "fine tuned parameters," the burn plan is the Go/No Go decision document. If conditions are within your written prescription, it is a *Go* decision. If conditions are outside the prescription it is a *No Go* decision.

If you have a Go decision and initiate ignition on "day one", the Line Officer Daily Review Record must be completed and signed for Moderate and High Complexity burns, beginning on "day two" and then on a continuing "daily basis" until project completion. The Line Officer Daily Review record helps to ensure that the planned burn remains with the original parameters identified in the RxBP. A decision to amend an RxBP or a WFIP requires approval at the same or a higher level of authority as required to approve the initial plan (FSM 5140.31).

Line Officers shall ensure that interagency and intra-agency coordination occurs. To include, but not limited to the following: where applicable, public involvement and burn-day notification to appropriate individuals, including adjacent landowners, land managers, other agencies, high power transmission line contacts, utility, gas, and oil companies, and the general public.

Line Officers should be knowledgeable and in agreement with the contingency resources and contingency actions described within the RxBP. As stated in the *Southwest Area Mobilization Guide* on page 10-2, item 11.7: "Contingency resources are additional resources that may be needed to maintain a planned prescribed fire within prescription parameters, and/or quickly implement suppression alternatives if the prescribed fire exceeds those parameters".

To obtain the RxPB required elements, refer to the Wildland and Prescribed Fire Management Policy Implementation Guide, Chapter 4 page 68. All the elements are included in the R3 Supplement 5100-2000-2, Exhibit 1, Prescribed Fire Burn Plan for the Southwestern Area.

Within one month after completion of each accomplished prescribed burn project, each unit will submit a Prescribed Fire Report, 5100.30 (Regional Form), to the Forest Fuels Program Manager.

## 2. EXCEEDING EXISTING PRESCRIBED FIRE BURN PLANS.

Initiation of the WFSA is necessary when the Burn Boss determines a prescribed fire cannot be returned to planned limits (prescription) with available resources within 48 hours. However, once the appropriate suppression response is achieved, the area may be treated with fire use in the future, but only after the original burn plan has been reviewed and revalidated.

When a prescribed fire escapes and is declared a wildland fire, acres accomplished prior to the escape that were burned within prescription shall be considered acres accomplished for resource objectives. All acres burned after the declaration, both inside and outside the planned burn area, shall be considered wildland fire acres.

Only trained and qualified personnel (including those with certified appropriate fitness levels) will fill wildland fire positions once the fire is declared escaped.

Report any escaped prescribed fires within 24 hours after escape. Using the appropriate fire management reporting form, report within 30 days the individual project along with accompanying acreages for those fires that transitioned from prescription to a suppression alternative.

## 3. AIR QUALITY AND SMOKE MANAGEMENT

a. As specified in Section 118 of the Clean Air Act, (42 USC 7418), amended in 1992, USDA Forest Service fire management activities that result in the discharged of air pollutants (e.g., smoke, carbon monoxide, and other pollutants from fires) are subject to and must comply with all applicable Federal, state, interstate, and local air pollution control requirements. The Coronado National Forest is required to obtain necessary permits for prescribed fire and Wildland Fire Use fires, comply with the National Ambient Air Quality Standards (NAAQS) both inside and outside the Forest boundaries, and protect visibility according to its congressionally-mandated Class I area status.

The Districts are responsible for accomplishing the following tasks:

- ❑ Identify vistas and smoke sensitive areas (roads, campgrounds, developments) for which smoke management objectives will be created.
- ❑ Set prescriptions and objectives in prescribed burn plans that comply with smoke regulations and which are quantifiable and measurable. Air quality and smoke management practices will be updated and expanded to meet additional local, state, and federal air quality requirements.
- ❑ Design smoke management techniques and prescriptions that will achieve smoke management objectives. Best Management Practices (BMP) will be utilized for emission reduction whenever feasible. When practical, smoke management should be implemented for smoke generated by wildland fires.

- ❑ Maintain contact with the Air Quality Division/ADEQ and all inter- and intra-agency coordinators (NPS, BLM, State Lands, private landowners, USFS Regional air Quality coordinators). Visitors, neighbors, and employees will be notified when prescribed fires are planned and Wildland Fire Use fires are occurring. Public contact occurs through signs, phone calls, media, websites, and personal contacts to provide notification and warning about smoke.
- ❑ Provide for public education on the values of both clean air and the natural process of fire. The public should be made aware that the Forest is striving to protect air resources while allowing the natural process of fire to the fullest extent possible.

Areas classified as Class I under the Clean Air Act are the original Chiricahua Wilderness Area and the original Galiuro Wilderness Area. These locations and other Class I areas adjacent to the Forest (e.g., the Saguaro National Park and the Chiricahua National Monument) require special consideration in fire use planning. (See **Appendix X** for Arizona and New Mexico Smoke Management Maps.)

b. Each District is responsible for sending an annual prescribed fire burn registration to the Arizona Department of Environmental Quality (ADEQ) through the Coordination Center every year, not later than August 1<sup>st</sup>. The purpose of the registration is to inform smoke managers of anticipated prescribed fire activity for the upcoming year, and to report the completion of projects from the previous year. Annual registrations also assist with the maintenance of ADEQ Prescribed Fire Burn Plan (**ADEQ Burn Plan**) so that old plans may be archived, current plans may be kept readily accessible, and new plans entered into the ADEQ database and files (see **Appendix Y**). An ADEQ Burn Plan is required for all planned burn projects, including areas considered for potential wildland fire use fires for the following year. Each planned year extends from August 1 of the registration year to July 31 of the following year. Even though ADEQ gives us the flexibility to submit the ADEQ Burn Plan no later than 14 days before the date on which we request permission to burn, each District will use best efforts to register before August 1 of each year. Additionally, the Forest may amend a registration at any time.

As soon as this Fire Management Plan is approved, the Forest will submit the following information to ADEQ to register the areas for potential Wildland Fire Use:

- ❑ ADEQ Burn Plan (this will not be complete)
- ❑ Map of potential Wildland Fire Use areas
- ❑ Synopsis of fuels to include vegetation and fuel loading

Each individual prescribed fire plan will address site-specific smoke management concerns. The Coronado is guided by the information in the Arizona Department of Environmental Quality Smoke Management Guidelines. Procedures for contacting ADEQ and the public are part of the standard plan format. (For additional information see Region 3 Air Resource Impacts document *Describing Air Resource Impacts From Prescribed Fire Projects in NEPA Documents for Arizona and New Mexico in the Southwester Region.*)

Whenever a complex prescribed burn is implemented in the Tucson area, a determination for an on-site weather meteorologist from the Weather Bureau in Tucson is required. Contact will be

made with the Regional Air Management office to determine whether their representative should be at the burn.

The Prescribed Fire Smoke Management Guide (FSH 420-1; NFES 1279) serves as a manual for smoke management, and is considered a supplement to this Plan.

The Coordination Center shall report all wildland fires greater than 100 acres on a daily basis to ADEQ. The information shall include the location, estimated control date, and estimated incident size of each wildland fire.

The Air Quality Division of the Forest Service and ADEQ oversee implementation of statewide smoke management (see Arizona Administrative Code, R18-2-1500). The Coronado (Fire and Natural Resources) contributes \$15,000 per year to the Tonto National Forest to help fund the smoke management positions in the Arizona State Department of Environmental Quality office.

*Prescribed Fire:*

The Districts shall provide the following information on the ADEQ Prescribed Fire Burn Plan Form to facilitate the Daily Burn authorization process and submit it to the Coordination Center for further processing.

- ❑ Burn prescription
- ❑ Smoke management prescription
- ❑ The number of acres to be burned, type of fuel, and the ignition technique to be used
- ❑ A smoke plume map, depicting the potential impact of the smoke:
  - At 15 miles from the burn site, with smoke-sensitive areas delineated.
  - Forest map is adequate, scale 1:126,720
- ❑ Smoke modeling impacts for burns greater than 250 acres per day, or greater than 50 acres per day if the burn is within 15 miles of a Class I Area, an area that is in non-attainment for particulates, a carbon monoxide non-attainment area, or other smoke-sensitive area. The approved modeling program is SASEM.

Once a permit is issued, the District Fire Managers are responsible for submitting the Daily Burn Request (**Appendix Y**) on the form supplied by ADEQ to the Coordination Center as expeditiously as practicable, but not later than 2 p.m. of the business day preceding the burn. The SEZ will fax a copy of the request to ADEQ. ADEQ will approve, approve with conditions, or disapprove a burn on the same business day as the Burn Request submittal. If ADEQ does not communicate either its decision or a confirmation that the Burn Request was received by 10 p.m., the burn is deemed approved. Only one day will be approved at a time, although there may be exception made by ADEQ for multiple-day burning of small acreage (e.g., pile).

If weather conditions cease to conform to those in the smoke management prescription of either the Burn Plan or an Approval with Conditions, the District shall cease ignition and take appropriate action to reduce further smoke impacts, unless, after consultation with ADEQ, the smoke management prescription is modified.

Each District conducting a prescribed burn shall complete and submit to the Coordination Center Burn Accomplishments (**Appendix Y**) prior to 2 p.m. of the business day following the approved burning. The Coordination Center will forward the Burn Accomplishments to ADEQ.

*Wildland Fire Use:*

The ADEQ Burn Plan shall be completed and submitted to ADEQ (in a format approved by ADEQ) as soon as practical but no later than 72 hours after the wildland fire is first observed.

ADEQ shall approve or disapprove a Wildland Fire Use Plan within 3 hours of receipt. If ADEQ fails to respond to the submittal of the Wildland Fire Use Plan, approval may be assumed.

Daily consultation between the FUMA, FUMT, or District Fire Management Officer and ADEQ is strongly suggested. The Coordination Center shall notify ADEQ of any fire under a wildland fire use strategy when it is projected to attain a size of 50 acres within timber fuel or 250 acres within brush or grass fuel.

The District shall submit a Daily Status Report for each Wildland Fire Use event to the Coordination Center for each day of the burn that the fire perimeter increases. This shall include anticipated daily growth and location of the fire. The Coordination Center will forward this information to ADEQ.

#### E. NON-FIRE FUEL APPLICATIONS

Although this section concerns the hazardous fuels reduction program using non-fire fuel applications, ecosystem management principles are necessary for responsible land managers. As such, the fuel program is as much about holistic vegetation management as it is fire management. This program challenges fire managers to participate in a *primary role* of ecosystem management—no longer should fire managers be considered only a "service" to resource managers.

The Forest recognizes the importance of the following three principles to successful implementation of the fuel management program. These principles are taken from the nine Guiding Principles that are identified as fundamental to the success of the total Federal Wildland Fire Management Program and reiterated in the 1999 fire program review (See Federal Wildland Fire Management Policy & Program Review, December 18, 1995).

1. *Increase firefighter and public safety.* Firefighter and public safety is the first priority in every fire management activity. (Managers will be held accountable to minimize potential firefighter and public exposure to hazardous fuels).
2. *Reduce large fire suppression cost.* Fire management programs and activities will be economically viable based on values to be protected, costs, and land and resource management objectives.
3. *Recognize the role of wildland fire as an essential ecological process and natural change.* Land and resource management plans will set objectives for use and desired condition of fire based on the ecological role of fire.

The Coronado will use the practice of evaluating, planning, and treating wildland fuels to reduce flammability and to reduce fuels resistance to control through mechanical, biological, or manual means, including prescribed fire and wildland fire use in support of land management objectives. (See FSM 5105).

### Priority Setting and Collaborative Planning

The emphasis for the hazardous fuels reduction program on the Coronado is the treatment of heavy fuel load areas in the wildland urban interface, high resource value areas, and ecosystems currently at risk from catastrophic fire. Development of partnerships with State agencies, local rural fire departments, private landowners, and special use permittees is a priority established by the Regional Forester.

### MECHANICAL TREATMENT AND OTHER APPLICATIONS

a. The Coronado Forest Plan provides direction for non-fire applications of a fuel treatment method other than prescribed fire, which consists of mechanical thinning, fuelwood gathering, chipping, and lopping and scattering. Non-fire treatments *may* be used in the following Management Areas, using the methods listed:

*MA 1* (steep rugged lands, slopes are generally greater than 40%).

- Wood gathering for fuelwood

*MA 2* (coniferous forest lands that are suitable for a wide variety of recreational and special uses).

- Chipping, lopping and scattering, silviculturally managing the tree resource under uneven or even age management, thinning. Within suitable habitat for the Mt. Graham red squirrel in the Pinaleno Mountains, dead-and-down material will *not* be removed for fuelwood except for on-site recreational use.

*MA 2A* (coniferous forest lands that have been determined to be suitable for both astronomical research and habitat for old-growth-forest dependent species, such as the Mt. Graham red squirrel).

- Removal of vegetation is limited to research activities under permit, sanitation or salvage operations, and maintenance or improvement of wildlife habitat. Use of dead-and-down woody material for firewood is restricted to on-site recreational use within areas open to public use.

*MA 2B* (Wet Canyon watershed downstream to the mouth of Twilight Creek in the Pinaleno Mountains).

- Prescribe actions that reduce potential fire hazards related to talussnail protection

*MA 3* (undeveloped grasslands, woodlands, coniferous forest and riparian areas that have a high attraction to recreationists).

- ❑ Fuelwood harvest, chipping, lopping and scattering, and silviculturally managing the woodland tree resource under uneven age management with emphasis on recreation and visual quality

*MA 3A and 3B* (land suitable and capable of supporting recreational developments).

- ❑ Thinning, wood gathering in recreation sites will be limited to “dead and down” or standing trees that are a safety hazard and only for use in the area.

*MA 4* (land capable and suitable for fuelwood harvest, livestock grazing, and game habitat management. Includes desert scrub, grassland, chaparral, and woodland vegetation types).

- ❑ Silviculturally manage the woodland resource under uneven age management. Fuelwood, chipping, and lopping and scattering

*MA 7* (undeveloped lands identified as supporting flora and fauna associations that are unique enough to require special management practices. Includes identified riparian ecotypes, deciduous and coniferous forest types, and includes known essential habitats for threatened and endangered plants and animals).

- ❑ Fuel wood, chipping, or lopping and scattering.

*MA 7B*, Undeveloped lands that have been identified as supporting flora and fauna associations that are unique enough to require special management practices. Includes identified higher ecosystem extensions, such as oak and mesquite bottoms, and includes known essential habitats for threatened and endangered plants and animals.

- ❑ Silviculturally manage the woodland tree resource under uneven age management. Fuelwood, chipping, lopping and scattering

*MA 14* (lands within the South Fork of Cave Creek in the Chiricahua Mountains, and Guadalupe Canyon in the Peloncillo Mountains).

- ❑ Fuelwood, lopping and scattering

b. Non-fire applications are allowed within the Mexican Spotted Owl habitat protected and restricted areas, but with restrictions. (See pages 15-19 of the Forest LRMP for specific direction). Each protected activity center has a designated 100 acre “no treatment” area around the known nest site.

The Forest standards and guidelines for the Northern goshawk apply to the forest and woodland communities outside of the Mexican spotted owl protected and restricted areas. Non-fire applications may be used for landscapes outside Goshawk post-fledging family areas and landscapes within nesting areas, with restrictions. (See page 19-21 of the Forest Plan for specific direction). Limit human activities in or near nest sites and post-fledging family areas during the breeding season, which extends from March 1 through September 30.

Non-fire applications *cannot* be utilized in the following Management Areas:

- MA 8, Research Natural Areas
- MA 8A, Areas suitable for both wilderness designation and designation as research natural areas
- MA 9, Wilderness Areas

Actual treatment areas and methods are determined by District Fire Managers utilizing the fuel treatment priorities described for each Management Area in the LRMP. Site-specific objectives are outlined in the Forest LRMP.

c. Non-Fire Fuels Treatment on the Forest will be used to reduce fuel hazards, enhance wildlife values and habitat, and enhance visual resource. All projects that include non-fire treatment will include specific prescriptions to meet the desired resource objectives. It is strongly recommended that a monitoring plan be attached to the project plan, and that it include short-term monitoring procedures, immediate results, long-term effectiveness of monitoring objectives, as well as any issues or concerns identified in the related NEPA documents. Permanent photo points, transects, or plots that are revisited in years following a treatment will provide information on successional trends resulting from the project. Longer term monitoring may be necessary to determine accomplishment of objectives. The monitoring plan attached to each project plan will describe the protocols and criteria needed to determine whether these objectives are met.

d. The Forest needs to develop a format for critiques of non-fire treatment projects.

e. Within one month after completion of each project, each unit will submit an Accomplishment Report to the Forest Fuels Program Manager. Fuelwood sales is reported through Natural Resource, specifically timber management. Acres treated is reported as fuels treatment accomplishments.

#### F. FUEL TREATMENT FUNDING AND PROJECTS

Historically, fuel treatment funding has fluctuated significantly on the Forest; however, since 1995, funding has steadily increased (**Figure 35**). The Forest LMP suggests average annual fire management fuel treatment goals at 2,700 acres in planning period 5 (page 132 of Forest LRMP), and treatment of twenty-seven thousand acres in planning period 5 for wildlife habitat improvement projects using prescribed fire (page 142 of Forest LRMP). Regional and Forest Fuels management objectives are to 1) treat wildland urban interface in short interval fire dependant ecosystems, 2) treat hazardous fuels within and adjacent to wilderness areas in short interval fire dependant ecosystems, and 3) treat in a manner that reduces fire suppression costs by restoration and maintenance. The National Fire Plan priority hazardous fuel treatment areas are 1) wildland urban interface, 2) municipal watersheds, and 3) crucial species habitat.

**Figure 35. Coronado Fuels Treatment Funding**

<b>FY</b>	<b>M Dollars</b>
1995	103
1996	300
1997	367
1998	371
1999	477
2000	546
2001	934
2002	775

See **Appendix Z** for the proposed five-year fuels treatment projects for the Forest.

#### G. EMERGENCY REHABILITATION AND RESTORATION

The objective of a Burned Area Emergency Rehabilitation (BAER) team is to initiate action promptly for immediate rehabilitation of watersheds following a wildland fire, to minimize the potential threats to human health/safety, or prevent unacceptable resource degradation. (Refer to the *Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook*. See **Appendix AA**, Coronado Assignments and Responsibilities for Interdisciplinary Team Planning for Burn Rehabilitation and The Forest Service Incident Recovery Funding Matrix.)

The following was stated in the April 30, 1997 letter signed by the Deputy Chief for state and Private Forestry, William L. McCleese for Joan M. Comanor, and by Acting Deputy Chief or National Forest System Lyle Lavery for Janice McDougle: “Since 1995, the Forest Service has required that all employees engaged in fireline duties receive a minimum of 8 hours refresher fire training each year before they can be assigned fire line duties. Fireline duties include fire suppression and burned area rehabilitation on active wildland fires.” Participation as a member of a rehabilitation team requires the annual completion of the refresher training.

## V. ORGANIZATIONAL, AND BUDGETARY PARAMETERS

### A. CURRENT FISCAL YEAR BUDGET AND THE ABILITY TO SUPPORT PLANNED AND UNPLANNED ACTIONS.

In general, the National Fire Management Analysis System (NFMAS) is the periodic analysis used to update previous fire management documentation and determine organizations that meet national guidelines. The Forest evaluated the general effectiveness and efficiency associated with its fire suppression program and compared the efficiency of future options using the standards contained in FSH 5109.19 (Fire Management Analysis and Planning Handbook). Additionally, on an annual basis, the Forest Fire and Aviation Staff Officer submits to the Regional Office any adjustments to the Analysis, addressing potential changes, analysis of out-year budgets, organizations, and modifications to protection strategies.

In December 1998, the Forest completed a new analysis replacing the 1995 analysis. The new NFMAS analysis was certified in January 1999. Recently, in October 2002, the Forest updated the NFMAS analysis in preparation for the 2005 budget submission. The Coronado's Most Efficient Level (MEL) budget for FY02 is approximately \$7.1 million (in 2002 dollars). This excludes the cost of the Fuels program and the air tanker contracts. The MEL is based upon suppression cost plus loss and acres burned. (See **Appendix BB** for the *1998 NFMAS Analysis Documentation* for additional information.)

Natural ignitions managed for resource benefits, or wildland fire use, will record the work with a "G" code that permits tracking of resource benefit target accomplishments. "G" codes are used for lightning ignited fires if it is under a wildland fire use strategy. If the response changes to a suppression action, then the charging must be changed to a "P" code. The Coordination Center manages the distribution of charge codes pertaining to wildland fires.

### B. ORGANIZATION CHART SUPPORTED BY THE CURRENT FISCAL YEAR BUDGET.

Information on the efficient implementation of the fire management direction in the LRMP is derived from NFMAS. This data assists in determining budget mixes and protection efficiencies within current budget limitations. A list of Coronado resources, which served as the basis of NFMAS analysis, is in Section IV.B.2.c. The 5100-2 spreadsheet showing the current budget is located in **Appendix CC**.

### C. COOPERATIVE AGREEMENTS AND INTERAGENCY CONTACTS.

The ability to execute in a timely and cost efficient manner the daily emergency management of incidents on the Coronado is a direct result of how well we work with our cooperators. The proximity of some of the Coronado ranger districts to urban areas results in an aggressive program of fire protection and public safety. This cooperative effort is complex because of the diversity and number of organizations that require cooperative agreements and plans.

This section briefly describes the main cooperative agreements used in the Southeast Zone. Cooperative agreements between the Coronado National Forest and other agencies include descriptions of mutual support zones, support services, ordering procedures, and billing

procedures. These agreement and related documents are considered to be supplements to this Fire Management Plan. Copies of each agreement are on file in the Coordination Center and in the Coronado Budget and Finance office.

The Coronado has the following cooperative agreements with DOD Fort Huachuca:

- ❑ *Air Space Use Permit.* Allows the Coronado to fly within Fort Huachuca air space.
- ❑ *Land and Facilities Use Permit, 2002 – 2007.* This Permit allows the Coronado to use Libby Army Airfield as an Air Tanker Base.
- ❑ *Wildland Fire Suppression support, 1998 – 2003.* Describes Forest Service wildland fire suppression support to the Army at Fort Huachuca, Arizona, and support from the Army to provide wildland fire suppression support to the Forest Service within the Sierra Vista Ranger District. This Agreement also provides a basis for cooperation between the agencies of the DOD and the Forest Service on all aspects of fire suppression and management. DOD agrees to pay \$20,000 annually to have a Forest Service engine at the Libby Army Airfield during the primary fire season.
- ❑ *Natural Resource Management Support, Interagency Agreement, 1999 – 2004.* Provides the mechanism to collaboratively work toward improving forest management, maintenance of native vegetative cover, prevention/mitigation of forest soil loss, forest wetland protection, restoration of impacted areas, and to reduce adverse ecosystem impacts, etc.

*Buenos Aries NWR and the Coronado NF Agreement 1995 – 2000, completed.* Establishes Interagency Coordination and collaboration for efficient use of fire fighting resources, overall zone support to include administration, dispatching, and aircraft services for wildland fire suppression, training, and prescribed burning. The US. Fish and Wildlife Service provides funding of \$10,000 per year to partially support the overall zone support during the primary fire season.

*National Park Service within the SEZ and Coronado NF Agreement, 1995 – 2000, completed.* Permits the Coronado National Forest to provide initial attack dispatching, extended attack dispatching and support, processing weather data and providing fire danger rating indices, weather reports, aircraft flight following, etc., for the following Parks or Monuments: Saguaro NP, Chiricahua NM, Fort Bowie NHS, Coronado NM, Tumacacori NHP, and Organ Pipe Cactus NM. In exchange the Park will provide financial assistance toward one dispatcher in the Coordination Center and toward the Tucson Helicopter Contract during the primary fire season.

*Safford Bureau of Land Management (BLM) and Coronado NF Agreement, 1995 – 2005.* Allows the Coronado National Forest to take initial attack action on BLM lands adjacent to the Douglas Ranger District.

*State of Arizona Department of Corrections Agreement, 2000 – 2005.* Outlines the procedures for requesting assistance from the Douglas/Papago Unit inmates to accomplish project work

assignments, such as campground maintenance, litter and trash pick-up, painting, range and watershed projects, trail construction and maintenance, and similar projects.

*State of Arizona Department of Corrections Agreement, 1990.* Outlines the procedures for requesting assistance from the Safford/Fort Grant Unit inmates to accomplish project work assignments, such as campground maintenance, litter and trash pick-up, painting, range and watershed projects, trail construction and maintenance, and similar projects.

*Arizona State Lands Department, Tucson Unit, Joint Powers Operating Plan, 2001 – 2006.* Establishes procedures for fire protection services, which include prescribed fire, training, fire prevention, and other associated natural resource activities.

*Air Resource and Interagency Smoke Management Program for the State of Arizona, 1998.* Provides individuals coordinate and maintain the current air resource and interagency smoke management program in Arizona. Fifty percent of the program will address interagency statewide smoke management and coordination, and the remaining time, the program will focus on air resource issues for the Arizona National Forests.

*Southeast Zone Charter.* The objectives of the Charter are to provide 1) a basis for cooperation between the agencies in all aspects of wildland fire management and as authorized in non-fire emergencies, and 2) to facilitate the exchange of personnel, equipment, supplies, services, and funds between all agencies within the Southeast Zone.

*Wildland Fire Use Coordination and Cooperation.* Wildland Fire Use in the Rincon Mountains requires coordination with the Saguaro National Park and State Land Department. Additionally, an agreement should be developed to jointly manage natural ignitions for resource benefits. Until the Park completes their Fire Management Plan and a joint agreement is developed, the Coronado cannot extend any Maximum Manageable Area beyond the existing Wilderness Boundary.

The Fire Management Plan for the Chiricahua National Monument is in the development stage and should be completed prior to the Forest Amending the Forest LRMP. After a Decision is made on the Forest Amendment, any start from a natural ignition adjacent to the Chiricahua National Monument will be a candidate for wildland fire use, but not until then.

#### D. EMERGENCY EQUIPMENT RENTAL AGREEMENTS

The Forest Supply Plan is updated annually by April 1. The update is completed by the Purchasing and Procurement Section of the Coronado, and contains Emergency Equipment Rental Agreements (EERAs), Blanket Purchase Agreements, etc., used to fill requests for equipment and supplies during fires. The Forest Supply Plan is a supplement to this FMP.

#### E. CONTRACT SUPPRESSION AND PRESCRIBED FIRE RESOURCES

At this time, the Coronado does not contract for suppression or prescribed fire resources. However, competitive sourcing in 2003 will encourage contracting fire fighters and prescribed fire resources.

## VI. MONITORING AND EVALUATION

### A. ANNUAL MONITORING REQUIREMENTS

The purpose of monitoring and evaluating the implementation of the Forest LRMP is to inform the decision maker of the progress toward achieving the goals, objectives, and standards and guidelines. The LRMP monitoring guidelines identify the activities, practices, and effects to be measured as well as methods, frequencies, and degree of variation, which will require additional evaluation. Fire management monitoring focuses on protection. (See Pages 89 and 99 of the Forest LRMP for more complete information.)

Fire suppression effectiveness is monitored for Fire Management. This monitoring is conducted by “[p]eriodic inspections and reviews by specialist to determine if fire control organization is effective in controlling fire losses within acceptable limits.” Also the “[p]eriodic evaluations will be made to determine if the fire suppression organization is insuring compliance with a minimum of 80% of standards and guidelines are applied on 90% of fires.” (See **Appendix DD** for the fire management monitoring report submitted for the 2002 Forest’s Monitoring and Evaluation Report.) The NFMAS process is an ongoing evaluation of the fire program’s effectiveness and efficiency.

The report identifies the need for fire management to address appropriate management response and use of wildland fire, which needs to be added to the LRMP. A proposal to utilize wildland fire use for resource benefit has been submitted to the Forest Supervisor as an amendment to the current plan.

### B. REPORTING REQUIREMENTS

The following fire management reports are required at various times of the year. Responsibility for preparation and the due dates are listed below. Reports and information coordinated and distributed at the Forest level are also listed.

#### FS-5100-29 FIRE REPORT

This fire reporting process is designed to provide a database that can reflect up-to-date fire occurrence information with minimal impact on any organizational level. Accurate and timely submission of fire report data through the Firestat program is an essential part of the process. Fire reports should be completed and sent to the Kansas City Computer Center as soon as the fires are suppressed, with all reports entered no later than the *tenth* day after the fire is declared out (Ref. FSH 5109.14 Chapter 1.4). Additionally, all reports must be coded correctly, in accordance with the FSH 5109.14. All Districts will enter their fire reports directly into the Firestat program.

#### *Statistical Wildfires*

A *statistical wildfire* (commonly called a “stat fire”) is one that burns uncontrolled in vegetative or associated flammable material and either requires suppression action to protect natural

resources or values associated with natural resources, or is destructive to natural resources. Additionally, a statistical fire must meet the following criteria:

- ❑ Burns on National Forest System lands or other lands for which the Forest Service has protection responsibility; or
- ❑ Threatens to spread to lands under Forest Service protection and is suppressed wholly or in part by Forest Service employees. **Any wildland fire that occurs on Fort Huachuca would fall into this category.**

When fires burn from or into Mexico, provide a copy of the fire report to the appropriate national agency in the affected country through the Coordination Center.

#### *Non-statistical Wildfires*

- ❑ Railroad fires confined to the right-of-way that do not endanger Forest Service-protected land and are suppressed entirely by railroad employees.
- ❑ Burning buildings, equipment, sawdust piles, and other non-vegetative fuels that, under prevailing conditions present no significant threat of igniting Forest Service-protected lands.
- ❑ Wildland fires extinguished naturally prior to discovery, unless they are of sufficient size and intensity to cause reportable natural resource damage.
- ❑ Abandoned campfires that, because of fuel and weather conditions, cannot spread or are confined to improved fireplaces or camp stoves. If weather conditions are such that spread is not likely, the fire is non-statistical, e.g., during winter months—generally November through February, or if snow is on the ground, when it is raining, etc. (Abandoned campfires that have potential for escape in June or have escaped outside of the fire ring requiring suppression action are considered a statistical fire.)
- ❑ Wildfires from any cause that are confined to private or other public lands and that do not endanger Forest Service-protected lands.
- ❑ False alarms and suspected wildfires that result in a field check without suppression action.

All human caused fires will be assigned a unique P number. All lightning caused fires less than ten acres (size class A & B) will be assigned the standard ABC Misc., P number for the Coronado. When a lightning caused fire reaches and/or exceeds ten acres, a unique P number will be assigned.

#### ICS-209 INCIDENT STATUS SUMMARY

The incident status summary form must be completed on all fires over 100 acres in size that exceed two burning periods. The data must be submitted to the Coordination Center by 1800 each day until the fire is declared controlled. Because of smoke management concerns, this is required even for fires in confinement strategy.

Complete instructions for filling out the form are on the back of the form itself and included in **Appendix EE**. The Southwest Area has developed its own incident status form, which should be used in place of the ICS-209 if possible.

### *R3-FS-5100-30 Prescribed Fire Report*

For all complexities of prescribed fires will be reported on form R3-FS-5100-30. Exclude distinct blocks of unburned vegetation only when those blocks exceed five percent of the acreage treated within the fire area. For example, on a 1000-acre fire use application, if 90 percent for the area is directly burned in a mosaic pattern with no identifiable area greater than 50 acres, report 1,000 acres. However, on a 1,000-acre prescribed fire where 90 percent of the fire is directly burned but a distinct 90-acre block is unburned, report 910 acres (FSM 5147).

The Districts will submit within 30 days after completion of each accomplished prescribed burn project to the Forest Fuels Program Manager. A copy will be provided to the Coordination Center.

### *FS-5100-29t Fire Use Report*

For Wildland Fire Use events, a copy of the WFIP will be attached to the 5100-29t, and remain on file in the Coordination Center. For acres treated, report only the number of acres in the fire area that were directly treated by fire. Exclude distinct blocks of unburned vegetation only when those blocks exceed five percent of the acreage treated within the fire area. For example, on a 1000-acre fire use application, if 90 percent for the area is directly burned in a mosaic pattern with no identifiable area greater than 50 acres, report 1,000 acres. However, on a 1,000-acre prescribed fire where 90 percent of the fire is directly burned but a distinct 90-acre block is unburned, report 910 acres (FSM 5147).

## VII. ACTION ITEMS

<b>Action Item</b>	<b>Person Responsible</b>	<b>Due Date</b>
Results of Rattlesnake watershed destabilization results w/in the 1994 Rattlesnake Fire burn area. P 39	Sherry Tune	2/2004
Evaluate the need for Forest Manual Direction – Green Pages for Delegation of Authority from Forest Supervisor to District Ranger. Otherwise, the Forest Supervisor retains the authority for completing the WFIP Stage I: Initial Fire Assessment. P 74	Dean McAlister	When FS Determines
The Coronado shall develop fire danger rating weather areas, which describe the range of potential fire behavior, based on vegetation type and elevation. P 77	Dean McAlister	2/2004
Each District will maintain a minimum of one 100-person fire cache for District and Forest use. Annually, ea District will provide the Forest Fire Staff an inventory of their cache by April 30. p 88	Dean McAlister	April 30 2003
Identify 'S' number procedure for 2003. p 90	Dean McAlister	4/2003
The Coordination Center Manger will provide a brief description and use of ROSS for 2003. p 103.	Dean McAlister	4/2003
Developing Cultural Resource Protocol	Sherry Tune Bill Gillespie	2/2004
Develop fire danger rating weather areas, which describe the range of potential fire behavior, based on vegetation type and elevation. The ERC should be used to estimate potential fire behavior, since it is an estimate of potential available energy. p 76	Dean McAlister	2/2004
Confirm the use of three airtankers and dates of availability for fire season 2003. p 89 and 86	Dean McAlister Sherry Tune	3/2003
The following block of "S" numbers are assigned to the districts for initial attack support. These numbers should be used sequentially with Resource Order Numbers and P-numbers assigned by Dispatch, and with each new incident the sequence will begin over. Identify procedure for 2003. p 90	Dean McAlister Sherry Tune	3/2003
SEMARNAT or SEMARNAP ?? Verify the Mexico agency involved. P.107	Sherry Tune Rich Kvale	3/2003
What is its current status of the Zone Operating Plan? Develop? P. 108	Dean McAlister	3/2003
Create Forest Preparedness Levels matrix to identify specific actions for the Forest. P 108	Sherry Tune	3/2004
Confirm Dean's comment about addition to Preparedness Level III from Level V. p 109	Sherry Tune	2/2003
Update Staffing and Response Level Guidelines for 2004. p 110 (Dean)	Dean McAlister	2/2004
Develop drawdown levels for the Forest. P113	Dean McAlister	2/2004
Obtain a copy of the "Use of Military Helicopters for Project Work" letter (Where is this letter filed?) p 113	Sherry Tune	3/2004

Action Item	Person Responsible	Due Date
<p>Add the following as supplementary to the Forest Aviation Plan (p 113):</p> <ul style="list-style-type: none"> <li>▪ Washington Office memo on the use of military helicopters; the <i>Military Use Handbook</i>, NFES 2175, 1997, Chapter 70, which has important information on working with military helicopters.</li> <li>▪ Use of Military Helicopters for Project Work" letter</li> <li>▪ Procedural letter for helicopters and pilots at Fort Huachuca to be certified to transport Forest Service personnel</li> <li>▪ The Interagency Management Review Team letter of July 10, 1995</li> </ul>	Dean McAlister	3/2003
Develop an Initial Attack Dispatch Plan, which includes all specific area responses, as well as the overall direction for Initial Attack Response dispatch. P.114	Dean McAlister	2/2004
Develop a general communications plan for Wildland Fire Use. P 114	Dean McAlister Sherry Tune Gail Aschenbrenner	4/2003
Develop Fire Size matrix for Wildland Fire Relative Risk Rating (Small Moderate Large). This will be dependant upon vegetation type. Represents the current fire size. P. 125	Sherry Tune	4/2003
Locate <i>Guidelines for handling fires on the Front Range Urban Wildland Interface</i> . Has this been updated, do we want to revisit? P 129	Sherry Tune	4/2003
Delegation of Authority from FS to DR.WLFU p 129	Dean McAlister	TBD
The Forest needs to develop a format for critiques of prescribed fire projects. p 135.	Dean McAlister	2/2004
The Forest needs to complete the historic fuel treatment map. P 135.	Sherry Tune	2/2004
Verify if changes have been made to assigning unique P numbers to human caused fires. P 148.	Sherry Tune	2/2003

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**CORONADO NATIONAL FOREST**

**FIRE MANAGEMENT PLAN**

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