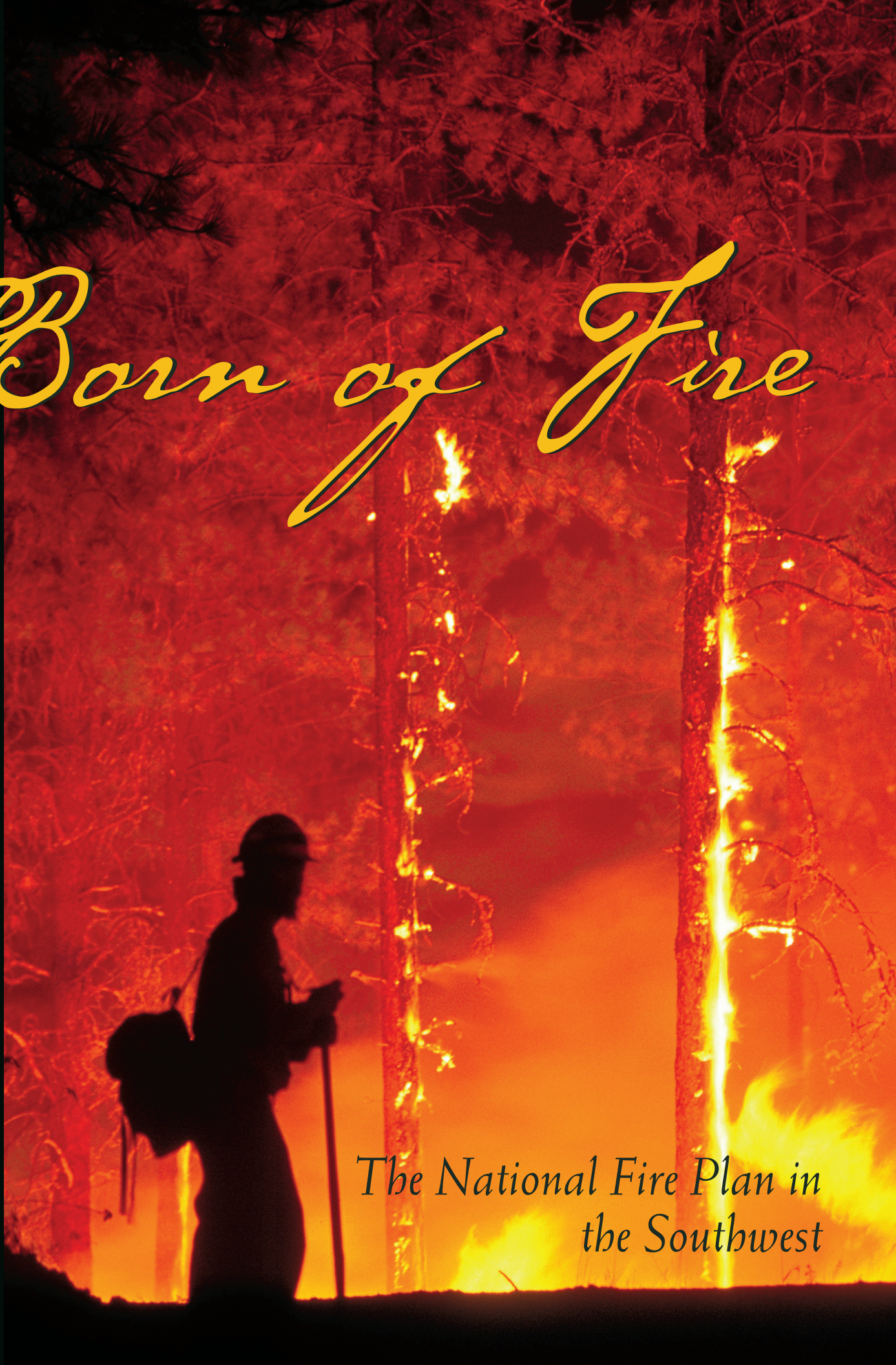
FOREST GUARDIANS

Born of Fire



The National Fire Plan in the Southwest

MISSION STATEMENT

FOREST GUARDIANS seeks to preserve
and restore native wildlands and wildlife
in the American Southwest
through fundamental reform
of public policies and practices.

Front Cover Photo: courtesy of Karen Wattenmaker Photography
Back Cover Photos: from top, clockwise, Karen Wattenmaker Photography, George Wuerthner Photography, USGS, Karen Wattenmaker Photography

Born of Fire

The National Fire Plan in the Southwest

EXECUTIVE SUMMARY

Fire has eclipsed management policies and plans on federal lands in recent years and full fire suppression is still the norm at significant economic and environmental cost. The National Fire Plan however recognizes the essential ecological role of fire and sets direction for safeguarding forest-interface communities while allowing more fires to burn in backcountry forests: protecting the lives of firefighters, saving taxpayer dollars, restoring forest ecosystems, and protecting communities. A comprehensive Forest Guardians' review of fuel treatment programs and fire management plans in the Southwestern Region of the U.S. Forest Service demonstrates that although the agency has developed consistent fire plans that do consider wildland fire use, many forests are failing to implement those fire plans and still spend hundreds of millions of dollars on unnecessary fire suppression: wasting tax dollars, ignoring science and promoting unhealthy forests.

This report answers the following questions: Is the U.S. forest Service in New Mexico and Arizona abiding by federal standards and using up-to-date science to manage fires? Can fire be used more effectively to manage fuels?

- The USFS Southwestern Region spends between $58,000,000 and $146,000,000 annually in fire suppression and spent a total of $396,000,000 on fire suppression from 2001 to 2004 alone;
- The Southwestern Region spent approximately $35,736,000 in 2003 and $28,148,000 in 2004 on mechanical fuels treatments, even though prescribed burning is 20 times more cost efficient;
- Outside of congressionally-designated Wilderness areas in the Southwest, managers continue to aggressively suppress fires, despite most fire management plans calling for the use of wildland fires;
- More than half of the national forests in the Southwestern Region have never allowed a naturally-ignighted fire to burn, since the fire plans were adopted, even though allowing some natural fires to burn is recognized as an efficient method of reducing fire risk, restoring ecosystems and reducing fire suppression costs;
- The Southwestern Region as a whole is utilizing fire more often than mechanical means for fuels treatments, though this trend is not consistent over the last two years for all forests;
- The majority of forest lands treated in the Southwestern Region are inside the Wildland Urban Interface (WUI) and the Region has made major progress focusing treatments away from the backcountry in 2003 to 2004;
- In a Forest Guardians systematic evaluation of fire management plans no forest in the Southwestern Region scored higher than 83%, the Gila receiving the highest score and the Tonto the lowest;
- The Department of Interior prepares Fire Management Plans in accordance with the National Environmental Policy Act (NEPA), however not one FMP in the Southwestern Region of the Forest Service was developed through NEPA and its citizen input processes;

Introduction

"We didn't invent fire as we did things to make and use it, like candles and matches. It was already out there—has been on the planet for at least 400 million years. And it will outlive us, all of our monuments, all our words. When the Earth itself ends, it will likely do so in a flash of solar fire."[1]

The vast forests of the western United States were born of fire and fire shaped these forests and their wildlife communities up until Euro-American settlement. There are no forests in the Southwest that have not been visited by fire to some degree and it is likely that during pre-fire suppression history, smoky skies were common-place during the fire season. Anecdotal records from the 19th century indicate that smoke was prevalent; the 1896 Forest Committee fielded by the National Academy of Sciences declared in their six week tour of six states they were never out of the sight of smoke.[2]

Native Americans were the first humans to understand the utility and importance of fire often burning western forests for various ends including hunting and managing game populations. The degree to which Native American burning changed western forests is not clear, but it is likely that completely natural fire regimes and forests have not existed since humans began their pyrotechnic manipulations.

Early western foresters were blinded by demand for wood products and believed that suppression of fire would lead to more abundant and profitable harvests resulting in its exclusion. However, this miscalculation proved disastrous; robbing forests of vital nutrients and generating dense conditions of small trees and underbrush. By the 1970s, the number of acres burned by wildfires in the lower 48 had dropped to 5 million from 50 million in the 1930s.[3] A literal invasion of domestic sheep and cows in concert with the logging of 95% of old growth forests and fire suppression dramatically changed the Southwest.

After several tremendous fire seasons in the western United States, in which New Mexico, Arizona and Colorado set modern precedents with some of the largest fires in recorded history and fire suppression costs to the government exceeding a billion dollars annually, the federal government began a fundamental redirection in its fire policies.

The 1995 Federal Fire Policy was the first attempt at developing a policy that recognized the essential ecological role of fire. The policy recognized the need to restore the role of fire through prescribed burning and Wildland Fire Use, where fires are allowed to burn without aggressive suppression to achieve ecological objectives. Together with the National Fire Plan this policy, updated in 2001, provides direction for fire management through the mandatory establishment of Fire Management Plans (FMPs) for every burnable acre of vegetation on public lands.

FMPs provide the foundation for the implementation of the Federal Fire Policy, and are one of the most important components of fire management activities on the ground. FMPs direct how the restoration of fire-adapted ecosystems will be accomplished, provide guidance on reducing the impacts of fire suppression, encourage collaboration between land management agencies, delineate specific performance measures, provide for monitoring and incorporate the "best available science."

In addition to the review and update of the 1995 Federal Fire Policy that resulted from the 2000 fire season, Congress and the Administration developed the National Fire Plan to address concerns over the acres burned and the rising cost of fire suppression. Starting in 2001, Congress doubled funding for fire management to approximately $3 billion. Land managers were directed to reduce the risk of future fires through thinning, prescribed burning, and the development of FMPs. Further, funding was increased for preparedness, research, and grants to state and local fire departments to increase their firefighting capacity.

ARE RECENT WILDFIRES UNUSUAL?

Some degree of wildfire has always blazed in western forests. That much is agreed upon. The size and severity of historic fire and whether modern forest fires reflect natural parameters is still debatable. Of course the largest

hurdle in modern times is the struggle between human settlement and the wild forests of the west. Can we live with fire? Can we live with the smoke that accompanies the fire season? These are questions society must face given the cost efficiency and ecological necessity of fire use.

The Forest Service in the Southwestern Region (AZ and NM) reports that only 24% of wildfires from 1986 to 2002 were characterized as high intensity.[4] This portion is not necessarily significant and even less so considering this number is likely overstated. (Kotliar et al 2003). Although portions of recent large fires (e.g. Cerro Grande) have been unnaturally hot, overall these big fires may not be out of the ordinary and in reality may be consistent with historic burns, contributing to healthy functioning ecosystems. (Ibid; Baker and Ehle 2003). Recent science indicates that perhaps large scale wildfires as well as high intensity wildfire may have been a natural phenomenon related to drought and climatic conditions. (Whitlock 2004; Pierce et al. 2004).

WILDFIRE AND WILDLIFE

The impacts on wildlife from large fires are unclear and it appears from preliminary information such fires may not be as bad as once thought. Several reports assessing the effects of fire on Mexican spotted owl habitat have suggested that low- to moderate-intensity wildfires did not adversely impact occupancy. (Yasuda 1997; Scott 1998; Jenness 2000). In fact, fire may be beneficial for owls because of the "mosaic" of successional stages that result leading to enhanced prey diversity and density as well as easier hunting.

Data from 15 years of research on the spotted owl and fire impacts, including Arizona, led scientists to conclude that spotted owls have the ability to withstand the immediate affects of fire at primarily low to moderate intensities and that the owl may be adapted to survive wildfires of various sizes and severities. (Bond et al. 2000).

In addition to spotted owls, research indicates that other birds and even stream insects respond well to wildfire in healthy forest ecosystems. (Minshall G.W. 2003; Johnson and Wauer 1996). However, when forest systems have a history of intense management and are less than healthy, more time is necessary for aquatic insects to recover and any additional impacts including fire suppression and recovery efforts may worsen the situation. (Minshall 2003).

BOB SHINDELAR

WILDFIRE AND WATER

Most of us have heard the dire predictions that fire will burn entire watersheds and threaten municipal water supplies. There is very little information to support such "sky is falling" pronouncements. Generally, wildfires burn in "mosaics" of high, mid and low severity, by far the lowest portions in the latter category. When big, hot fires occur it is most often because of "severe fire weather;" characterized by hot, dry and windy conditions in which fire is mostly unstoppable. In the Santa Fe Watershed for example, the Forest Service concluded that the probability of conditions necessary to support such an event occurring on a single day in the year is just 37%, and that the probability of ignition on such a day is only 20%. (USDA Forest Service 2001 at 49)

Despite these severe fire conditions being rare, when they do occur in the "perfect storm", prior fuels treatments, whether mechanical or prescribed fire, are mostly ineffective. (USDA Forest Service 2003). Further most wildfires are suppressed effectively in municipal watersheds. Society should be asking which is more harmful to our forests and the clean and abundant water they provide: fire or the fuel reduction activities meant to suppress it.

Entering forests with the goal of reducing fuels mechanically, whether trees are removed or not, usually requires roads and will result in impacts on water quality as well as wildlife habitat. In particular any thinning for fuels reduction that requires mechanized equipment and access for that equipment will likely reduce water quality regardless of mitigation measures. (Rhodes and Purser 1988).

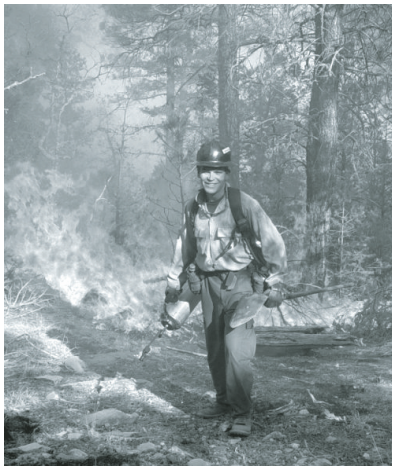
WILDFIRE AND ROADS

Wildfire frequency and seasonality are related to road density. (USDA Forest Service 2000; Hann et al. 1997; Swetnam and Baisan 1996). In national forests in California over 52 percent of human-caused fires occurred within 33 feet of a road edge (Johnson, 1963). Roads result in human access which is strongly correlated with fire ignitions outside of the natural fire season and in unplanned locations. These unseasonable fires can result in loss of control and unwanted effects on ecosystems as well as human communities. Reducing the miles of roads, which both contribute to poor water quality as well as undesirable fire ignitions during inappropriate weather conditions, would result in both fewer unwanted fires and improved water quality.

FIRE MANAGEMENT PLANS AND WILDLAND FIRE USE

Fire Management Plans (FMPs) provide the underlying direction for fire management activities including fire suppression, prescribed burning, fuels reduction, post-fire rehabilitation and Wildland Fire Use (WFU). In addition, the plans detail organizational and budgetary needs to implement an effective fire management program. Finally, the plans provide guidance for monitoring and evaluating FMP implementation. The plans are to be updated regularly, with more substantial rewrites occurring as indicated through regular monitoring and review.

Wildland Fire Use is the management of naturally-ignited (i.e. lightning) wildland fires to accomplish specific pre-stated resource management objectives in pre-defined geographic areas outlined in Fire Management Plans. By allowing some fires to burn, land managers can reduce the cost of fire suppression, restore fire-adapted ecosystems, reduce future fuel accumulations, and safeguard firefighters. Without an approved



SW FUTA

FIRE MANAGEMENT PLANS GRADING SYSTEM

National Forest FMP	Points Received												
QUESTION #	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	Final Grade
Apache-Sitgreaves National Forest	5	10	5	3	10	10	6	0	0	5	5	0	59–D
Carson National Forest	3	10	0	3	10	6	7	0	0	5	5	0	49–F
Cibola National Forest	5	10	0	10	10	8	9	5	0	5	5	0	67–C
Coconino National Forest	3	10	0	10	10	10	10	0	0	5	5	0	63–C
Coronado National Forest	8	10	6	6	10	5	8	0	0	5	5	0	63–C
Gila National Forest	0	10	10	10	10	8	10	5	0	5	5	0	83–A
Kaibab National Forest	3	10	7	2	10	8	10	3	0	5	5	0	64-C
Lincoln National Forest	3	10	0	8	10	8	10	0	0	5	5	0	59–D
Prescott National Forest	2	10	2	10	10	8	10	0	0	5	5	0	62–C
Santa Fe National Forest	3	10	8	7	10	8	10	5	0	5	5	5	76–B
Tonto National Forest	0	0	0	9	10	6	7	2	0	5	5	0	47–F

QUESTIONS:

1) Does FMP incorporate best available science? (10)
2) Does the FMP consider WFU? (10)
3) What are the number of acres ascribed to WFU use as a percentage of the total number of acres on the management unit (i.e. total number of wilderness acres, acres ascribed to WFU by the Forest Plan or the WFU Implementation Plan) Has WFU ever been applied? (10)
4) What is the ratio of prescribed burning to mechanical treatments (acres of prescribed fire vs. acres of mechanical treatments as a percentage of the total acres treated from 2003-2004) What portion of total acres treated were WUI vs NON-WUI (2003-2004)?(10)
5) Does the forest plan allow for fire use, if not, are they amending it to allow for fire use? (10)
6) Are FMU's/FMZ's present, and are they delineated by natural/ecological boundaries or by resource boundaries? (10)
7) Are FMP's developed across agency boundaries or with collaborative partnerships? (10)
8) Do FMP's contain a discussion of public involvement? (5)
9) Did the FMP go through the NEPA process? (10)
10) Were fire management records released when requested? (5)
11) Does the FMP consider economics? (5)
12) Does the FMP have standards or guidelines for cost containment? (5)

Wildland Fire Use plan, managers have no option other than suppression. However, with an approved plan in place, managers have more flexibility to manage fires, thereby reducing future risk, safeguarding firefighters and saving tax dollars.

FIRE MANAGEMENT PLANS ARE INADEQUATE OR UNIMPLEMENTED

In response to the 1995 Federal Fire Policy and its revision in 2001, the national forests in the Southwestern Region developed Fire Management Plans (FMP). In order to assess the FMPs in the Southwestern Region, FOREST GUARDIANS used a grading system based on twelve objective questions. The questions were designed to achieve an understanding of the FMPs in relation to whether they used the best available science, involved the public and other interested parties, complied with the NEPA, considered prescribed wildland fire use, and incorporated financial considerations. The forests were given a grade based on weighted points received on each question.

In addition, FOREST GUARDIANS used information provided by the Southwestern region on fuel treatments in fiscal years 2003 and 2004 as well as the portion of treatments applied inside the Wildland Urban Interface (WUI) and those outside of the WUI. Because the WUI is not consistently defined by the Forest Service, it is difficult to make conclusions regarding this variable and because the Southwest region does not track costs of these fuels treatments or did not provide them upon request, those costs were estimated using the median of the low and high estimates available in the literature. (Aplet and Morton 2003). Though this information was critical in our critique of the National Fire Plan's implementation in the Southwestern region, only the portion of fuels treatments inside the WUI was used in the grading of the FMPs.

Better than 90% of the Southwestern national forests did not incorporate the 'best' available science on fire ecology into their respective FMPs. Most Southwestern national forests allow WFU in isolated areas such as Wilderness, but have never actually applied the tool in practice and only 3 national forests allow WFU outside of Wilderness areas. In short, the principles and management practices identified in the FMPs are often not put into practice and do not reflect contemporary fire ecology wisdom.

We estimated that over $395 million was spent suppressing forest fires from 2001 to 2004 on U.S. Forest Service lands in AZ and NM alone. In those two years, approximately $65 million was spent on mechanical thinning of trees despite these treatments costing anywhere from three to twenty times more per acre than prescribed fire in the region. (Aplet and Morton 2003; Forest Guild 2004) If prescribed fire had been used on these acres rather than thinning, the cost might have been $45 million fewer tax dollars in just these two years.

FOREST GUARDIANS' FIRE VISION FOR THE SOUTHWEST

As a result of rapacious logging, fire suppression, overgrazing, and increasingly, human population growth, southwestern forest ecosystems and their vital functions are critically endangered: the one component essential to their renewal and vitality—fire—is being vilified and marginalized.

SOUTHWEST REGION WILDFIRE SUPPRESSION COSTS

National Forest	2001	2002	2003	2004	Total 2001-2004
Apache Sitgreaves	$1,858,906.71	$24,907,127.24	$15,113,984.82	$12,120,091.62	$54,000,110.39
Carson	$2,488,755.97	-$165,563.97	$7,156,129.29	$2,550,221.80	$12,029,543.09
Cibola	$5,197,321.61	$5,409,916.79	$1,845,419.88	$8,690,640.77	$21,143,299.05
Coconino	$5,838,479.80	$10,496,906.22	$3,808,321.37	$5,110,632.52	$25,254,339.91
Coronado	$2,892,742.08	$26,597,982.32	$24,701,357.04	$14,002,435.46	$68,194,516.90
Gila	$2,257,140.59	$10,595,548.64	$19,302,176.26	$5,056,593.89	$37,211,459.38
Kaibab	$4,163,442.55	$6,585,641.87	$1,114,264.38	$3,275,975.94	$15,139,324.74
Lincoln	$10,655,279.12	$13,012,030.17	$2,782,563.82	$10,044,502.82	$36,494,375.93
Prescott	$1,057,133.55	$6,053,241.29	$603,684.85	$5,154,049.84	$12,868,109.53
Santa Fe	$8,574,453.29	$15,941,031.62	$7,733,961.30	$3,908,865.65	$36,158,311.86
Tonto	$6,347,198.41	$6,403,509.00	$10,096,216.60	$20,936,838.31	$43,783,762.32
Regional Office	$6,111,208.81	$19,587,237.34	$5,930,578.36	$1,858,166.27	$33,487,190.78
TOTAL	**$57,442,062.49**	**$145,419,597.23**	**$100,188,815.57**	**$92,708,814.89**	**$395,759,290.18**

BOB SHINDELAR

FOREST GUARDIANS believes the managers of our Southwestern forests must do more to foster fire as a cost-efficient and environmentally-preferable management tool. Not every acre can be burned without prior mechanical treatments, but FOREST GUARDIANS will ensure that thinning projects are geographically limited and ecologically grounded, as we believe thinning in most areas is not appropriate when prescribed wildland fire can accomplish the same goals.

The priority for forest managers in the Southwest should be to provide the greatest possible degree of protection to interface communities through joint-fuels reduction programs. The obligation however should be on the private property owner as the structure and its surroundings in a 200 ft. radius are most critical in withstanding severe fire conditions. (Cohen 1995; Cohen and Butler 1998; Cohen 1999).

Actions to reduce home ignitability include using fire resistant construction materials (especially roofs), removing flammable materials like firewood from around the house, cleaning flammable debris from roofs and gutters, pruning the lower branches of trees, raking needles and leaves and mowing grass adjacent to the house and thinning dense groups of trees. Homes will not survive even low-intensity ground fires if the above firewise precautions have not been taken. For example, many of the homes lost in Los Alamos during the 2000 Cerro Grande fire were consumed by surface fires that spread through pine needles, dry vegetation and wood piles in contact with wood siding or other flammable parts of the structure. (Cohen 2000).

Once communities in the forest interface are reasonably protected, FOREST GUARDIANS believes that fire must become a viable forest management tool. In order for people to feel safe, their immediate surroundings must be treated, local fire departments must be adequately funded and adequate evacuation routes must exist and be identified.

In some cases, thinning forests will be necessary; however this should be a last resort for both economic and ecological reasons. Prescribed fire can be as much as twenty times more cost efficient per acre than mechanical treatments such as thinning. (Forest Guild 2004). In addition, less than 3% of the trees on Forest Service lands in Arizona and New Mexico is larger than 16 inches in diameter; less than 2% is larger than 18 inches in diameter and only 0.12% is larger than 29 inches.[5] Therefore, if thinning is required, the largest and oldest trees should be preserved while addressing the preponderance of small trees.

Emotion has trumped understanding as the driver of forest ecosystem management. Forest fire hysteria, ignited by a fearful public and fanned by politicians who want to exploit this fear in order to increase logging on national forests, has become the greatest obstacle to our forest protection efforts. Fire, though much more ecologically complex than policy debates admit, is a vital element in every forest ecosystem in the Southwest. With the increase in exurban growth into forested ecosystems, fires and fire policy are now the catalyst for increased logging and thinning as the U.S. Forest Service claims it can log these forests back to health.

FOREST GUARDIANS believes we must work to transcend this paradigm of fear-driven politics to assert positive economic and biological values of forests ecosystems-namely watershed and wild habitat values. FOREST GUARDIANS will work proactively to engage fellow environmental advocates, the Forest Service and communities to ensure that progressive fire related policies and plans are implemented allowing fire back into the system.

RECOMMENDATIONS

In order to improve the management of fuels on Forest Service lands in the Southwest, restore the critical role of fire, reduce the risks faced by firefighters, and control the rising costs of fighting fires, FOREST GUARDIANS offers the following recommendations.

1. Federal agencies responsible for forest management in the Southwest must focus National Fire Plan resources on the Wildland Urban Interface;
2. Private property and home owners should be encouraged to take steps to "firewise" their immediate surroundings and National Fire Plan funds should be considered for this work;
3. Communities must ensure adequate evacuation routes and identify them prominently;
4. Once the Wildland Urban Interface is adequately treated, using both thinning and prescribed burning,

FUEL TREATMENT TYPES AND COSTS ACROSS THE SOUTHWEST

National Forest 2003-2004	Fire Use (acres)	Approx. Fire Cost ($300/acre)[1]	Mechanical (acres)	Approx Mech. Cost ($1,000/acre)[2]	WUI (acres)	non-WUI (acres)
Apache-Sitgreaves NF	21,831	$6,549,300	9,592	$9,592,000	21,821	9,602
Carson NF	4,548	$1,364,400	3,576	$3,576,000	4,264	3,860
Cibola NF	17,174	$5,152,200	3,598	$3,598,000	13,712	7,060
Coconino NF	27,028	$8,108,400	6,629	$6,629,000	32,276	1,381
Coronado NF	29,364	$8,809,200	3,336	$3,336,000	6,904	25,796
Gila NF	44,988	$13,496,400	1,396	$1,396,000	29,642	16,742
Kaibab NF	13,658	$4,097,400	11,376	$11,376,000	18,642	6,392
Lincoln NF	18,288	$5,486,400	8,985	$8,985,000	23,687	3,586
Prescott NF	12,682	$3,804,600	2,890	$2,890,000	16,838	-950
Santa Fe NF	17,287	$5,186,100	7,521	$7,521,000	21,481	3,327
Tonto NF	23,303	$6,990,900	5,021	$5,021,000	28,824	1,800
Total	**230,046 (76.6%)**	**$69, 013,800**	**63,884 (19%)**	**$63,884,000**	**218,091 (76%)**	**78,596 (24%)**

[1, 2] Estimates based on the median of high and low values provided in Applet, G. and P. Morton. 2003. *The Economics of Fuel Treatment: Can we Afford to Thin Everywhere?* The Wilderness Society. http://www.wilderness.org/Library/Documents/upload/Economics-of-Fuel-Treatment.pdf.

fire should be used nearly exclusively to manage fuels in the remaining backcountry;

5. The Fire Management Plans should be updated and reissued under the National Environmental Policy Act;

6. Wildland Fire Use should be prioritized in all Southwestern Fire Management Plans and implemented to the degree directed in the plans;

7. Revise the Wildland Fire Situation Analysis (WFSA) model to incorporate the negative impacts associated with aggressive fire suppression; and,

8. A more rigorous financial assessment must be conducted on fire suppression operations so that taxpayer dollars are used efficiently and not needlessly spent on wildfire suppression where it is unnecessary or environmentally damaging.

FOOTNOTES

[1] Pyne, Stephen J. 1999. *Whole Earth* Winter 1999.

[2] Pyne, Stephen J. 2005. Personal Communication.

[3] *Managing the Impact of Wildfires on Communities and the Environment:* A report to the President in Response to the Wildfires of 2000. September 8, 2000. http://www.fireplan.gov/reports/8-20-en.pdf

[4] USDA Forest Service. 2004. *Biological Assessment for the Continued Implementation of the Land and Resource Management Plans for the Eleven National Forests and National Grasslands of the Southwestern Region.* April 8, 2004. Albuquerque, NM. 820 pp.

[5] From U.S. Forest Service Forest Inventory and Analysis (FIA) data collected in 1999 under the Resource Planning Act. Complied and reported by the Southwest Forest Alliance. http://www.swfa.org/pr_2004/Big_Tree_paper.pdf

[6] Adapted from Eugene Bender. *Chicago Wilderness Magazine.* Text Archive Web-Published March 2002. Original Print Publication Date: Fall 1998.

APPENDIX
INDIVIDUAL NATIONAL FOREST EVALUATIONS

APACHE-SITGREAVES (F)
This Fire Management Plan (FMP) received a total of 59 points. The FMP fails to incorporate a discussion of up-to-date fire ecology principles, does not have guidelines for cost containment, does not incorporate a discussion of public involvement, and was not developed through the NEPA process. Collaborative partnerships developed the FMP, although collaboration in the field primarily focuses on a suppression approach to fire. The plan designates Wildland Fire Use (WFU), but only on 9% of the 2.11 million acres of forest land base and only within wilderness areas. In the past 10 years, naturally ignited fires have been used a total of only 5 times. During the period 2003-2004, 30% of the fuel reduction prescriptions were outside of the Wildland Urban Interface (WUI) and mechanical treatments have increased, reducing prescribed fire use. Although mechanical treatments made up only 28% of fuel treatment prescriptions, the total acreage is 9,952 acres at a cost of approximately $9,592,000 during years 2003-2004. The FMP is an operational plan delineating suppression components such as preparedness and dispatch methodology.

CARSON NF (F)
This FMP received the second lowest score of 49 points. The FMP fails to incorporate a discussion of up-to-date fire ecology principles, does not have guidelines for cost containment, does not incorporate a discussion of public involvement, and was not developed through the NEPA process. Collaborative partnerships were implemented, primarily focused on a suppression approach to fire. The FMP permits WFU, but only in wilderness which comprises less than 6% of the 1.5 million acres of forest land base. To date, WFU has always been suppressed and never used on the forest. Fifty percent of fuels reduction projects were outside of the WUI and 50% of those are mechanical at a cost of approximately $3,576,000 during years 2003-2004. The FMP is an operational plan delineating suppression components such as preparedness and dispatch.

CIBOLA NF (C)
This FMP received 67 points. The FMP includes a discussion of public involvement and has a discussion of out-dated fire ecology science. Collaborative partnerships developed the FMP, although interagency collaboration in the field has focused on a suppression approach to fire.

Seventy percent of the fuel treatments were within the WUI boundaries and 83.5% of those were burns. Mechanical treatments took place on 3,598 acres at a cost of approximately $3,598,000during years 2003-2004. The FMP does not have guidelines for cost containment and was not developed through the NEPA process. The FMP designates WFU, but that designation encompasses just 7% of the 1.95 million acres of forest land base. WFU has never been used on the national forest despite its use being permitted in the FMP.

COCONINO NF (C)
This FMP received 63 points. The FMP provides a weak discussion of fire ecology principles and has been developed through collaborative partnerships, although interagency collaboration in the field primarily focuses on a suppression approach to fire. Approximately 95% of fuel treatment prescriptions are focused within the WUI, and 80% are prescribed burns totaling 27,028 acres during years 2003-2004. Twenty percent of the fuel treatments are mechanical and total 6,629 acres at a cost of approximately $6,629,000. The Coconino has a Wildland and Prescribed Fire Management Policy Implementation Procedures and Reference Guide. Although this guide provides parameters for WFU, it has never been applied. WFU is not allowed outside of wilderness areas. Of 182,000 acres of Wilderness areas, the plan designates only Kachina Peaks for WFU; comprising just 7% of all Wilderness on the forest or 19,038 acres. The FMP does not have guidelines for cost containment, does not incorporate a discussion of public involvement, and was not developed through the NEPA process. The FMP is an operational plan delineating suppression tactics such as preparedness and dispatch.

CORONADO NF (C)
This FMP received 63 points. The FMP was developed through interagency collaboration, contains provisions for "sound science" and includes discussions of fire ecology. Over 29 thousand acres were burned with prescribed fire on the Coronado comprising 77% of fuels treatments, the second greatest number of acres of any national forest in the Southwestern region during years 2003-2004. Mechanical thinning increased in years 2003-2004 totaling 3,336 acres at a cost of approximately $3,336,000. In 2004, almost 50% of the fuel treatments

were mechanical. The FMP focuses on suppression and is divided into two Fire Management Zones recognized as suppression zones. Fire Management Units (FMU's) are managed according to these zones and dictate collaborative suppression in the field responses by their resource and property values. The FMP allows WFU throughout the 335,695 acres of wilderness comprising 27% of the land base and is guided by the Wildland Fire Use and Implementation Guidebook and preseason public notification. However, WFU is restricted to wilderness areas and none of the 423,000 acres of inventoried roadless areas are eligible for WFU. The FMP does not have guidelines for cost containment, does not incorporate a discussion of public involvement, and is not developed through the NEPA process.

GILA NF (A)
This FMP received the highest score of 83 points. Over 41,000 acres have been burned during 2003-2004, the most of any national forest in the Southwestern region. Although 50% of the fuel treatment prescriptions are outside of the WUI, 89% of the prescriptions are prescribed burns. Mechanical fuel manipulation has been limited to 1400 acres, the smallest acreage of any national forest in the Southwestern region. The Gila is one of just three of the 11 Southwestern national forests that permit WFU outside of designated wilderness areas. However, it is the only one that has ever applied WFU outside of its 3.3 million acres of wilderness.

The FMP fails to incorporate a discussion of up-to-date fire ecology, does not have guidelines for cost containment, and was not developed through the NEPA process. The FMP specifically acknowledges, "…the forest plan does not adequately address restoration of fire-adapted ecosystems. A Forest Plan Amendment, designed to address these inadequacies in the Forest Plan is scheduled to be completed by October 2005."

KAIBAB NF (C)
This FMP received 64 points. The FMP fails to incorporate a discussion of up-to-date fire ecology, does not have guidelines for cost containment, and was not developed through the NEPA process. The FMP was developed through collaborative partnerships, although in-the-field collaboration primarily focuses on a suppression approach to fire. The FMP permits WFU and is one of only three of the national forests in the Southwestern Region that allow WFU outside of wilderness areas. In 2004 regional fire plan report, the Kaibab applied WFU to 5,491 acres. Twenty-six percent of the fuel treatment prescriptions were outside of the WUI and 50% were mechanical during years 2003-2004. Mechanical prescriptions are highest on this forest totaling 11,376 acres in just two years at a cost of approximately $11,376,000.

LINCOLN NF (D)
This FMP received 59 points. The FMP fails to incorporate a discussion of up-to-date fire ecology principles, does not have guidelines for cost containment, does not incorporate a discussion of public involvement, and was not developed through the NEPA process. The FMP was developed through interagency collaborative partnerships, although in-the-field collaboration primarily focuses on a suppression approach to fire. The fire plan is an operational plan delineating suppression components such as preparedness and dispatch. Although the FMP considers WFU it has restricted its use to Wilderness areas only and it has not been applied to date on this forest.

To this national forests' credit, eighty-five percent of fuel treatment prescriptions were within the WUI during 2003-2004. During 2003 and 2004, 8,895 acres were mechanically treated at a cost of approximately $8,895,000. Eighty-two percent of fuel treatment prescriptions used prescribed fire to meet desired conditions and fire use increased 4 fold from 4,000 acres in 2003 to 14,000 acres in 2004.

PRESCOTT NF (C)
This FMP received 62 points. The FMP fails to incorporate an up-to-date discussion of fire ecology, does not include guidelines for cost containment, does not incorporate a discussion of public involvement, and was not developed through the NEPA process. The FMP was developed through interagency collaborative partnerships, although in-the-field collaboration primarily focuses on a suppression approach to fire. Prescott national forest is the only national forest in the Southwestern region that has directed 100% of its fuel treatments within the WUI. Of 15,572 acres of fuel treatments, 2,890 acres were mechanical at a cost of approximately $2,890,000 during years 2003-2004. The remaining acreage was burned using prescribed fire. The FMP considers WFU but has restricted its use to limited portions of designated wilderness. WFU has essentially never been applied (WFU has been used for single trees and *very* small acreages). The FMP is an operational plan delineating suppression components such as preparedness and dispatch methodology.

SANTA FE NF (B)
This FMP received 76 points. The FMP incorporated the public during development as well as collaborating across

agency boundaries. The Santa Fe National Forest is 1 of just 3 of the 11 national forests in the Southwestern region that permit WFU outside of designated Wilderness areas. However, WFU has not been applied to non-wilderness areas to date. Approximately 90% of fuels treatments have been focused within the WUI. Seventy percent of fuels treatments were prescribed burns comprising 17,287 acres and 30% were mechanical totaling 7,521 acres. Mechanical treatments are estimated to have a cost $7,521,000. The FMP includes cost containment standards. The FMP fails to include an up-to-date discussion of fire ecology and was not developed through the NEPA process. The FMP is an operational plan delineating suppression components such as preparedness and dispatch methodology.

TONTO NF (F)

The FMP received the lowest score of 47 points. The FMP fails to incorporate cost containment standards, any discussion of fire ecology, was developed through interagency collaboration, although in-the-field collaboration focuses on fire suppression and it was not developed through the NEPA process. FMUs are strictly defined by resource values, and WFU is not permitted. Approximately 90% of fuels treatments have been focused within the WUI. Seventy percent of fuels treatments were prescribed burns comprising 23,303 acres, and 30% were mechanical. Mechanical treatments are estimated to have a cost of $5,021,000. The FMP is an operational plan delineating suppression components such as preparedness and dispatch methodology.

LITERATURE CITED

Aplet, G. and P. Morton. 2003. *The Economics of Fuel Treatment: Can we Afford to Thin Everywhere?* The Wilderness Society. http://www.wilderness.org/Library/ Documents/ upload/Economcs-of-Fuel-Treatment.pdf

Baker, W.L. and D.S. Ehle. 2003. *Uncertainty in fire history and restoration of ponderosa pine forests in the western United States.* USDA Forest Service Proceedings RMRS-P-29. 2003. pp. 319-334.

Bond, M. L., R. J. Gutierrez, A. B. Franklin, W. S. LaHaye, C. A. May and M. E. Seamans. 2002. *Short-term effects of wildfires on spotted owl survival, site fidelity, mate fidelity, and reproductive success.* Wildlife Society Bulletin 30(4):1022-1028.

Cohen, J.D. 1995. *Structure ignition assessment model (SIAM).* In: Weisse, D.R., R.E. Robert, technical coordinators. *Proceedings of the Biswell symposium: fire issues and solutions in urban interface and wildland ecosystems.* February 15-17, 1994; Walnut Creek, CA. Gen. Tech. Rep. PSW-GTR-158. Albany, CA: Pacific Southwest Research Station, Forest Service USDA; 85-92.

Cohen, J.D. and B.W. Bulter. 1998. *Modeling potential ignitions from flame radiation exposure with implications for wildlands/urban interface fire management.* In: *Proceedings of the 13th conference on fire and forest meteorology.* Vol. 1. October 27-31, 1996; Lorne, Victoria, Australia. Fairfield, WA: International Association of Wildfire Fire; 81-86.

Cohen, J.D. 1999. *Reducing the wildland fire threat to homes: where and how much?* Gen. Tech. Rep. PSW-GTR-173. USDA Forest Service, p. 189-195.

Cohen. J.D. 2000. *Examination of the home destruction in Los Alamos associated with the Cerro Grande fire.* July 10, 2001; USDA Forest Service, Rocky Mtn. Research Station, Fire Sciences Laboratory, Missoula, MT.

Forest Guild. 2004. *Snapshot: State of the National Fire Plan.* Forest Guild Working Paper April 2004. Santa Fe, NM. http://theforesttrust.org/images/forestprotection/ Snapshop-Master.pdf

Hann, W.J.; Jones, J.L.; Karl, M.G.; Hessburg, P.F.; Keane, R.E.; Long, D.G.; Menakis, J.P.; McNicoll, C.H.; Leonard, S.G.; Gravenmier, R.A.; Smith, B.G. 1997. *Landscape dynamics of the basin.* Vol. II. In Quigley, T.M.; Arbelbide, S.J. eds. *An assessment of ecosystem components in the interior Columbia basin.* Gen. Tech. Rep. PNW-405. Portland, OR.

Jenness, J.S. 2000. *The effects of fire on Mexican spotted owls in Arizona and New Mexico.* Thesis, Northern Arizona University, Flagstaff, AZ.

Johnson, T.H. and R.H. Wauer. 1996. *Avifaunal response to the 1977 La Mesa Fire.* USDA Forest Service RM-GTR-286. pp. 70-94.

Johnson, R.F. 1963. *The roadside fire problem.* Fire Control Notes 24: 5-7.

Kotliar, N.B., Haire, S.L., and C.H. Key. 2003. *Lessons from the fires of 2000: Post-fire heterogeneity in ponderosa pine forests.* USDA Forest Service Proceedings RMRS-P-29. 2003. pp. 227-228.

Minshall, G.W. 2003. *Responses of stream macroinvertebrates to fire.* Forest Ecology and Management 178 (2003) 155–161.

Pierce, J.L., G.A. Meyer & A.J.T. Jull. 2004. *Fire-induced erosion and millennial-scale climate change in northern ponderosa pine forests.* Nature Vol. 432: 87-90.

Rhodes, J. and M. Purser. 1998. *Thinning for increased water yield in the Sierra Nevada: Free lunch or pie in the sky?* Pacific Rivers Council. August 1988. 26 pp. http://www.pacrivers.org/verityStorage/thinning.doc

Scott, J.E. 1998. *The Clark peak fire.* Arizona Wildlife Views 41: 13-15.

Swetnam, T.W.; Baisan, C.H. 1996. *Historical fire regime patterns in the Southwestern United States since AD 1700.* In: Allen, C.D., ed. *Fire effects in Southwestern forests,* Proceedings of the second La Mesa Fire symposium, Los Alamos, New Mexico, March 29-31, 1994. Gen. Tech. Rep. RM-286. Fort Collins, CO.

U.S. Department of Agriculture and U.S. Department of the Interior. 2000. *National Fire Plan: Managing the Impact of Wildfires on Communities and the Environment: A Report to the President in Response to the Wildfires of 2000.* (Washington, DC. September).

USDA Forest Service. 2000. *Forest roads; A synthesis of scientific information.* June 2000. http://www.fs.fed.us/eng/road_mgt/science.pdf

USDA Forest Service 2001. *Santa Fe Watershed DEIS.* Santa Fe National Forest, Santa Fe, NM.

USDA Forest Service 2003. *Hayman fire case study.* RMRS-GTR-114. pp. 11.

Yasuda, D. 1977. *Report on prescribed burning and spotted owls.* Page 4 in Larson, L. and T. Locker, Eds. Resource management: the fire element newsletter. California Fuels Committee, United States Department of Agriculture, Forest Service, Pacific Southwest, San Francisco, CA.

Whitlock, C. 2004. *Forests, fires and climate.* Nature Vol.432:28-29.

FEDERAL FIRE POLICY TIMELINE[6]

1910
5,000,000 acres of forests burn.

1916
U.S. National Park Service adopts strict fire suppression policy.

1921
U.S. Forest Service standardizes a policy of intensive fire suppression.

1945
"Smokey the Bear" appears.

1968
National Park Service recognizes fire as a natural phenomenon.

1989
Report of the US Fire Policy Review Committee concludes that prescribed and natural fires should be used more often to reduce hazardous fuel build-up.

1995
The Federal Wildland Fire Policy and Program Review is the first comprehensive federal fire policy recognizing for the first time the essential role of fire in maintaining natural systems.

2000
The National Fire Plan was developed in August 2000, following a landmark wildland fire season.

2001
Federal Wildland Fire Policy and Program Review updated and in August the Secretaries endorse A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Comprehensive Strategy.

2002
A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Comprehensive Strategy. Implementation Plan is published.

Report Authors:
Bryan Bird, Forest Program Coordinator
Chris Brittenburg, Program Associate
June 2005

Layout and Design: Janice St. Marie
Special thanks to the U.S. Forest Service Southwestern Region Fire and Aviation Staff and to the Idaho Conservation League.

This report is available online in PDF format at: www.fguardians.org
For more information: bbird@fguardians.org

Renewal after Fire

FOREST GUARDIANS

312 Montezuma, Santa Fe, NM 87501 www.fguardians.org