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Forest Service

Southwestern Region

2002 Forest Plan Monitoring and Evaluation Report

Prescott National Forest

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Section 1 – Resource Monitoring Summary

Introduction

Events of considerable magnitude changed the landscape of the Prescott National Forest in 2002. A man-caused wildfire, the Indian Fire burned 1,329 acres of ponderosa pine forest and also burned six structures on the edge of Prescott. Foresters and forest entomologists discerned the beginning of a bark beetle epidemic that has since killed hundreds of thousands of ponderosa pine trees. The Forest was gripped by an ongoing drought that elevated fire danger and stressed every ecosystem type on the Forest from grassland to shrubland to chaparral to pinyon juniper to ponderosa pine. Forest Plan monitoring is an ongoing process to assess the response of the forest environment to management activities undertaken to move the forest from an existing condition to a desired condition as described in the Forest Plan. Stress on the forest's natural systems by drought and other factors further elevates the importance of monitoring because of the need to assess the extent of the response of the ecosystems to the stress and to determine appropriate management actions.

The purpose of monitoring and evaluating the implementation of the *1986 Prescott National Forest Land Management Plan* ("Forest Plan") is to inform the decision maker of the progress toward achieving the goals, objectives, and standards and guidelines. This report documents and evaluates the results of the monitoring that occurred during fiscal year 2002 and describes the rationale for any changes to the Plan recommended by the monitoring team. This report meets the intent of Chapter 5 of the Forest Plan to "analyze and evaluate the significance of the results of the monitoring action plan" (p.95). It also provides an important communication link with the public and within the agency. By disclosing the effectiveness of the Forest Plan, the Forest is able to better identify future research needs and to shift monitoring activities to more effectively measure overall forest health.

One of the requirements of the Forest planning process was a commitment to monitor and evaluate how well Plans are implemented (*36 CFR 219.12(k)*). The process includes opportunities for modifications to the Plan in response to this monitoring. As stated in the Code of Federal Regulations, the purposes for evaluating Forest Plans are summarized below:

- To consider the effects of National Forest management on land, resources, and communities adjacent to or near the National Forest and the effects of National Forest management on nearby lands managed by other government agencies or under the jurisdiction of local governments (*36 CFR 219.7(f)*).
- To determine if budgets have significantly changed the long-term relationships between levels of multiple-use goods and services enough to create the need for a significant amendment (*36 CFR 219.10(e)*).
- To determine if conditions or demands in an area covered by a Forest Plan have changed significantly enough to require a revision to the Plan (*36 CFR 219.10(g)*).
- To determine how well the stated objectives of the Forest Plan are being met (*36 CFR 219.12(k)*).
- To determine how closely Forest Plan standards and guidelines are being followed (*36 CFR 219.12(k)*).

Forest Plan monitoring requirements are available upon request. For each activity or practice, the effect to be monitored, one or more measurement techniques, and the

expected future condition to be met is specified. A frequency for measuring and reporting the monitored item is established, and the expected precision and reliability of that measurement is stated. [Precision is the exactness or accuracy with which the data will be collected; reliability is the degree to which the monitoring accurately reflects the total Forest situation.] In general, monitoring will determine:

- If management prescriptions are applied as directed.
- If standards are being followed.
- If the Forest is achieving its objectives.
- If management prescriptions are responsive to public issues and management concerns.
- If effects of implementing the Forest Plan are as predicted.
- If costs of implementing the Forest Plan are as predicted and are acceptable.
- If management practices on adjacent or intermingled non-Forest lands are affecting Forest Plan goals and objectives.

Based on the evaluation of the results, the monitoring team makes recommendations to the Forest Supervisor. These can include: No Action Needed - monitoring indicates goals, objectives, and standards are being reasonably achieved; Refer Recommended Action to the appropriate line officer(s) for improvement or application of management prescriptions; Modify the Management Prescription or assignment of a prescription as a Forest Plan amendment; Revise the Projected Schedule of output; Initiate Revision of the Forest Plan; or Identify Research Needs.

It is important to note this is not a monitoring report on individual projects, which is an ongoing Forest activity. However, results of some individual projects have been considered in the preparation of this report. This report covers the time period from October 1, 2001 through September 30, 2002.

Fire

Winter/spring moisture was practically non-existent and all indications pointed to a severe fire year. Record dryness prompted the Forest to initiate Fire Restrictions in mid-May, the earliest date ever. Continued dry conditions and the 1,329 acre Indian Fire on May 15 forced a Forest-wide closure on May 24. The human caused Indian Fire started at approximately 2:50 pm on the north side of the Indian Creek Road west of Ponderosa Park. Within 1 hour the fire had jumped Highway 89 and by sunset had burned 3 miles to the north and destroying 6 homes in the Cathedral Pines area. Fire activity for the remainder of the year was light even with below average summer and fall precipitation. Fire activity was heavy elsewhere in the Southwest and Pacific Northwest. Crews and individuals spent several weeks on other units working on several note-worthy fires such as the Bullock (Mt Lemon, AZ), Rodeo/Chediski (eastern AZ) and Biscuit (southern Oregon).

The Forest continued to monitor the cumulative annual treatment of vegetation by prescribed fire in order to evaluate trends in vegetation change. The purpose is to keep prescriptions in concert with changes in vegetation conditions due to prescribed fire and naturally caused fire burning under prescription, and to update prescriptions as needed. The use of the fire budget analysis (NFMAS) process also helped determine fire management efficiency for wildfire management.

Very dry conditions throughout most of the year prohibited extensive use of prescribed fire. Mechanical treatment was also curtailed because environmental analysis had not been completed for any mechanical treatment. A non-existent summer rainy season, extensive insect attacks and lack of personnel eliminated any possibility of prescribed fire in September.

Table 1: Prescribed Fire History

YEAR	GRASS	CHAPARRAL	PINE	WOODLAND
1987	5,000	11,930	0	0
1988	3,500	9,358	984	0
1989	6,000	1,000	910	152
1990	3,500	0	1,150	270
1991	2,344	1,800	0	410
1992	2,500	0	75	1,176
1993	2,000	1,200	96	0
1994	1,500	4,800	150	0
1995	3,200	2,100	110	0
1996	0	1,200	241	0
1997	0	3,492	768	0
1998	0	6,000	0	0
1999	0	7,500	0	0
2000	3,000	2,500	1,100	0
2001	6,000	8,000	100	1,000
2002	0	300	288	0
TOTAL	38,544	61,180	5,972	2,008

Heritage

As in Fiscal Year 2001, listed properties were monitored to assure protection of cultural resources and field checks were conducted on selected ground disturbing projects during implementation or conclusion of the project. Field and office record surveys of proposed project areas were conducted. These surveys and the accompanying reports were used to design projects that minimize the potential for damage to cultural resources present.

Insects and Disease

The Forest annually monitors insect and disease conditions in order to better predict future impacts. The desired condition is that insect and disease problems will not have serious adverse effects on the Forest due to an appropriate mix of silvicultural activities, treatment of slash, and various other control methods.

In 2002, mortality from Ips bark beetle increased significantly from the previous year. The increased mortality was due to an extended drought and crowded stand conditions. It is estimated that as much as 50% of the ponderosa pine stands on the Prescott National Forest were killed by the Ips beetle during 2002. Western pine beetle mortality remained steady, with only individual trees affected. Mistletoe continues to be a problem in some pine stands. Significant mortality in pinyon pines occurred in 2002 due to drought and the pinyon pine Ips beetle.

Lands

No rights-of-way were acquired in 2002.

Noxious Weeds

The Prescott NF remains concerned and extensively involved in efforts to eliminate noxious weeds. Weed inventories continued across the Forest with identified populations being added to the Northern Arizona weed atlas. The Forest is active in the Western Yavapai and Verde Valley Weed Management Areas and in the Southwest Weed Management Association. Copies of Arizona Invasive Weeds (Howery and Ramos, University of Arizona, Cooperative Extension Service) have been provided to all field going employees and to grazing permittees.

Preparation of an Environmental Impact Statement for the Three Forest (Kaibab, Coconino and Prescott) Noxious Weed analysis is on-going. The Forest has the lead for the invasive plant species analysis for the Verde Wild and Scenic River Environmental Analysis.

The sweet resinbush stand near Cottonwood was partially treated when Verde Valley Weed Control mowed most of the plants. The follow-up herbicide application was postponed when dry conditions kept the resinbush from greening up when this normally occurs in the fall. Hand removal of invasive plants was done by employees and by volunteers with activities in the Prescott Basin, Mingus Mountain and the Verde Valley.

Range

Increasingly severe drought dictated reductions in livestock grazing in 2002. By the end of the year all allotments had reduced stocking and 30 allotments had no livestock grazing. Reductions were initiated in 2001 and by late spring of 2002 a lack of forage growth and drinking water caused permittees to remove most remaining animals. The Forest sent letters to all permittees beginning in February documenting conditions and concerns and making management recommendations.

Grazing authorizations were issued for 12,434 cattle in December 2001 and January 2002. By the end of the year 3,650 cattle remained on the Forest. This is a reduction of 71% of the livestock authorized for the year.

Monitoring was conducted on 44 of the Forest's 62 allotments including all priority allotments (as identified by permit administrators and including allotments with T&E species or other particular resource values or concerns). Specific management direction was provided from information collected during inspections and monitoring. Rocky Mountain Range and Forest Experimental Station continued monitoring vegetation and banks of the Verde River and established ten new plots downstream of Camp Verde.

Range improvement construction lagged behind other years because of the reduced livestock numbers. Maintenance of improvements such as fences continued and three trick tanks received new surfaces on their pads. Pipelines from wells were extended to provide additional water and some springs and stock tanks were cleaned. Additional riparian fencing was done with water piped to troughs. Range improvement information was entered into the Forest Service Deferred Maintenance database.

Environmental analysis of grazing effects continued on six Chino Valley Ranger District allotments and four allotments on the Verde Ranger District. Data collection was done on other allotments on the Chino Valley and Bradshaw Ranger Districts. No decision documents for allotment management plans were issued. The Prescott is involved in the environmental analysis of the Verde Wild and Scenic River and development of the Comprehensive River Management Plan. The Forest has the lead for livestock grazing analysis that is an issue in the river corridor.

Recreation

Use of developed recreation facilities on the Prescott National Forest has been steady for the past several years. Most fluctuations in recreation use result from macroeconomic trends affecting tourism and outdoor recreation, such as changes in gasoline prices. In 2002, there were 241,336 visits to developed sites (37,853 overnight camp visits + 203,482 day-use visits). This equates to approximately 103,775 Recreation Visitor Days ("RVDs"), well below the Forest Plan level of 380,000 and the previous years RVD's of 107,302. During 2002, the entire forest was closed due to extreme fire danger for 59 days during the peak summer season. Developed recreation use continues to be concentrated on weekends during the late spring, summer, and early fall. The following list shows overall average occupancy in selected campgrounds during their open season:

- Groom Creek horse camp – 18%
- Hilltop Campground – 30%
- Yavapai Campground – 40%
- Lower Wolf Creek – 29%
- Lynx Campground – 60%

No specific dispersed site monitoring occurred in 2002. Actual use figures for Alto Pit and Hayfield developed Off-Highway Vehicle (OHV) parks totaled 12,708 visits. The National Visitor Use Monitoring Survey (NVUM) report identified, through field interviews, the following dispersed activity use as follows: hiking or walking 62%, viewing wildlife, birds, etc. 60%, off-highway vehicle travel (4-wheelers, dirt bikes, etc.) 13%, driving for pleasure on roads 20%, and bicycling/mountain biking 7%. 2001 was the last year monitoring was done for dispersed recreation. In 2001 the Forest implemented the Prescott Basin II decision regarding dispersed camping around the city of Prescott. As decided in the Prescott Basin Plan, 111 designated dispersed campsites were established to reduce impacts from unrestricted camping outside of developed campgrounds within the 50,000-acre Prescott Basin study area. Dispersed camping was only permitted at one of the designated sites during the spring and summer of 2001. Enforcement of the new camping policy included documenting actual use at the sites. Use from March – September 2001 was 1115 site-nights by 3700 people. The sites were at capacity only during the Memorial Day Weekend. The two main site use impacts appeared to be soil compaction and some loss of understory vegetation immediately around each site.

In addition, there are 166 concentrated use areas in general forest areas on the Prescott National Forest. The Prescott Basin use described above only accounts for dispersed camping in about seven of these concentrated use areas.

The table below displays the approximate number of visitors to six of the Prescott Forest's eight Wilderness areas during 2002. Only those visitors who stopped to register at a trailhead recorded Wilderness use, which undoubtedly underestimates actual use because 1) not every visitor registers, 2) there is not a register at every trailhead, and 3) there are gaps in the data. However, the counts do indicate the relative magnitude of Wilderness use on the Forest. A 1992 independent study of Granite Mountain Wilderness estimated use at approximately 8,300 visitors per year. Thus, if the trailhead registers underestimate use by a factor of 2, annual visitation to the six Wilderness areas is probably 15,374. The NVUM survey reported 16,735 total Wilderness visits for the Prescott National Forest. There is little visitation to the Apache Creek and Cedar Bench Wilderness areas.

Table 2: Wilderness Visitation

Granite Mountain	2,723
Pine Mountain	293
Sycamore Canyon	322
Juniper Mesa	149
Castle Creek	670
Woodchute	2,930
TOTAL	7,687

Due to limited funding, no trails in Wilderness were constructed or reconstructed. Trails maintained during 2002 include 28 miles within Wilderness and 18 miles outside Wilderness.

Roads

During fiscal year 2002, 5.0 miles of existing Forest roads were reconstructed to improve access and 548 miles were maintained. Of these, 245 miles were maintained to the desired maintenance standard. Approximately 29% of the total road miles on the Prescott National Forest (1,891 miles) were maintained. No miles of system roads were decommissioned; 12 miles of "unclassified" roads (usually user-created; not approved; not designed) were discovered.

Soil and Water

Information for the assessment of the Turkey-Humbug fifth code watershed has been collected and is being interpreted. The information collected includes vegetative cover, composition and structure (in addition to data already collected in the Ecological Inventory), soil stability and drainage function. Also, the effects of roads and other development and activities occurring in the watershed are documented.

The ecological inventory data and plot data from the Terrestrial Ecosystem Survey (TES) have been entered into a database to be used for the ecological classification and for project resource analysis. Work is progressing on the ecological classification and software has been obtained to conduct data runs to determine existing condition and similarity to TES potential. Various modeling protocols have been investigated to determine their effectiveness at producing desired data.

Reduction of juniper canopy continues in the upper Verde River watersheds. Adjustments in livestock grazing have been made to compensate for drought condition with removal of cattle to varying extents across the Forest. The Indian Fire burned 1,329 acres south of Prescott and emergency stabilization measures were implemented to stabilize the burned area. Among the measures used to stabilize the burned area were gabions and straw bale

check dams to protect drainages, log barriers to reduce overland flow, reseeding, and in some areas mulching to complement the reseeding.

Thirty structures (fences, spring boxes, troughs and/or pipelines) were constructed to protect riparian areas and springs while making water available to wildlife and livestock.

Best management practices are applied for livestock grazing, roads and trails, recreation, removal of bug killed dead trees, fire suppression and rehabilitation, and fuels reduction. Direction is contained in management plans, contract clauses, handbooks and design specifications.

An instream flow application for the upper Verde River is still pending. Instream flow measurements are being collected on six streams and an instream flow certificate has been applied for on Turkey Creek.

The Forest continues to participate in watershed organizations to provide continuity of management between federal lands and lands of other ownership and to foster public ownership in watersheds. Forest employees were instructors in environmental education programs including the Master Watershed Steward Program. The Prescott is privileged to have the Forest Hydrologist serve on the National Core Team for Range Protocols, this team will develop the protocols for vegetation sampling and monitoring.

Timber

Federal regulation requires the Forest to measure and report the amount of sawtimber offered annually for sale. The desired conditions is that annual sale offerings will be made on a sustained yield basis. The Forest sold approximately 4,200 cords (3,272 CCF) of firewood from various personal use and commercial sale areas.

Monitoring of the acres of intermediate harvest, regeneration harvest, and removal harvest is done to measure treatment prescriptions and effects. The desired condition is a more balanced age class distribution, appropriate growing stock levels, appropriate rotations, and provision for wildlife habitat needs. Acres of harvest treatment, from 1987 to present, are shown in the tables below:

Table 3: Harvest History, Pine Type

YEAR	REGENERATION HARVEST (ACRES)	INTERMEDIATE HARVEST (ACRES)
1987	0	116
1988	8	604
1989	256	931
1990	42	570
1991	0	146
1992	0	304
1993	12	0
1994	20	92
1995	0	0
1996	0	0
1997	92	478

YEAR	REGENERATION HARVEST (ACRES)	INTERMEDIATE HARVEST (ACRES)
1998	0	0
1999	0	0
2000	162	1082
2001	0	530
2002	0	0
TOTAL	**592**	**4,853**

Table 4: Harvest History, Pinyon-Juniper Type

YEAR	REGEN. HARVEST (ACRES)	INTERMEDIATE HARVEST (ACRES)	REMOVAL HARVEST (ACRES)
1987	0	0	
1988	0	0	239
1989	32	47	211
1990	0	166	44
1991	0	0	70
1992	0	0	202
1993	0	0	240
1994	0	0	120
1995	0	0	212
1996	0	0	247
1997	0	0	256
1998	0	0	256
1999	0	0	256
2000	0	0	250
2001	0	0	255
2002	0	0	250
TOTAL	**32**	**213**	**3,108**

Wildlife

Bald Eagle

The Forest cooperated with the Arizona Game and Fish Department Bald Eagle Nest Watch Program to monitor nest sites on the Prescott National Forest. Both Towers and Ladders sites successfully fledged two young. At Lynx lake and Perkinsville there were breeding pairs, but they were unsuccessful.

Mexican Spotted Owl

During 2002, the Prescott National Forest conducted informal occupancy and reproduction monitoring to standard in all 15 established Protected Activity Centers

("PAC"). Six of the PACs were occupied; four pairs and three single owls were found. No fledged offspring were observed.

Northern Goshawk

All eight of the Post Fledging Areas (PFAs) were monitored to standard. One PFA had a breeding pair with one or two young successfully fledged. The remainder was unoccupied.

Peregrine Falcon

Both Granite Mountain and Thumb Butte were monitored for peregrine falcon breeding activity. Both were occupied. The birds at Thumb Butte hatched young, but they did not fledge. The birds at Granite did not reproduce. The three remote territories on the Chino Valley District were not monitored.

Spikedace

As part of a program begun with Rocky Mountain Research Station in 1994, seven permanent sites on the upper Verde River were monitored in the spring and fall of 2002 for occurrence of spikedace and information on habitat conditions. Spikedace continued to be absent in fish surveys at all seven sites since 1996. Monitoring of livestock river crossings at Perkinsville determined effects to the habitat are minimal.

Management Indicator Species

Beginnings of large-scale changes to the ponderosa pine, pinyon juniper, chaparral and grassland-desert shrub were evident in 2002 due to beetle kill and drought. These changes would have long-term effects to Tassel-eared squirrel (Abert) (down), goshawk (down), p. nuthatch (down); turkey (down) and Hairy woodpecker (up).

Table 5: Management Indicator Species, Trends

SPECIES	HABITAT	POPULATION TREND
Turkey	Ponderosa pine, late seral	Decreasing
Mule deer	Pinyon-juniper/chaparral, early seral	Decreasing
Pronghorn antelope	Grassland, desert shrub	Decreasing
Macroinvertebrates	Riparian, aquatic, late seral	Stable
Goshawk	Ponderosa pine, late seral	Decreasing
Hairy woodpecker	Ponderosa pine, snags	Increasing
Lucy's warbler	Riparian, late seral	Stable
Juniper (Plain) titmouse	Pinyon-juniper snags	Increasing

SPECIES	HABITAT	POPULATION TREND
Pygmy nuthatch	Ponderosa pine, late seral	Decreasing
Spotted (Rufous-sided) towhee	Chaparral, late seral	Decreasing
Tassel-eared squirrel	Ponderosa pine, early seral	Decreasing

Section 2 – Progress Toward Desired Conditions

Fire

"Provide for fire management support services necessary to sustain resource yields while protecting improvements, investments, and providing for public safety. In as much as possible, return fire to its natural role in the ecosystem." (Forest Plan, p. 13)

FY02 funding was adequate to meet Forest Plan goals. Seasonal factors contributed to a low level of fire suppression on the Forest. There is no output statement in the Forest Plan for prescribed fire. Forest Plan objectives refer to burning in ponderosa pine only as a site preparation method that the Forest has not pursued in recent years due to the shift in timber stand management.

The Forest has only been partially successful in returning fire to its natural role in various ecosystems due to the complexity of implementing this strategy at a larger scale. Use of prescribed fire is expected to continue to increase, with success in fuels reduction and vegetation manipulation.

Heritage

"Heritage resources represent an opportunity for research, education, understanding and enjoyment that enhances their stewardship and protection." (Forest Plan, p. 12)

In general, budgets and staffing for Heritage Resource management is focused on inventory, documentation, and consultation with Indian Tribes and the State Historical Preservation Office. Little, if any, research, education, or enhancement activities are being conducted.

Budget constraints prevent comprehensive monitoring of all National Register sites or all project prescriptions. The number of sites and projects monitored in 2002 is typical of the level of monitoring that has occurred annually on the Prescott National Forest. Criteria used to determine which projects will be monitored include the magnitude of the action, the significance of the site, and the probability that actions will affect a site. Forest Plan monitoring has been more effective at discovering damage to sites from project implementation than it has been at preventing damage.

Many heritage sites on the Forest are visible and available. However, they tend to not be "glamorous" sites that attract hordes of visitors or warrant capital investment for interpretation and protection. Most Forest sites are remote, small, and susceptible to damage and vandalism. The sites that probably deserve further efforts at interpretation include the Bradshaw Mountain mining sites, various railroad grades, and the Verde Valley Salt Mine.

Insects and Disease

"The Forest is managed with a primary emphasis on healthy, robust environments with productive soils, clean air and water, and diverse populations of flora and fauna." (Forest Plan, p. 11)

The agency focus in dealing with the Ips beetle epidemic is to remove dead and dying trees to reduce the spread of the beetle and to thin stands to promote healthier and more

insect resistant trees. The absence of a market for timber products from the Prescott National Forest limits the Forest's ability to proceed with thinning projects designed to create a more fire and disease resistant forest.

Lands

"Conduct landownership adjustment, right-of-way acquisition, landline location and special-uses programs to promote efficient management." (Forest Plan, p. 13)

The Forest has identified needed rights-of-way in an acquisition plan and is proceeding through the list.

Noxious Weeds

"Control noxious weeds on rangelands to prevent significant population buildups." (Forest Plan, p. 45)

Mapping of weed populations is a product of other analyses and data collection efforts including the plant surveys of the Forest and NEPA for fuels, grazing and recreation. Employees in the course of normal work activities have identified some populations, while knowledgeable public and other agencies have provided locations of invasive plants. A systematic approach to inventory and management is not yet in place but the three-forest Noxious Weed Environmental Impact Statement should accelerate attainment of this objective. The widespread distribution of invasives has led to the creation of partnerships with members representing State, Federal and local governmental agencies, agricultural interests and the public. There is recognition that success can only be achieved through management without boundaries.

Range

"Provide forage to grazing and browsing animals to the extent benefits are relatively commensurate with costs, without impairing land productivity, in accordance with Management Area objectives. Cooperate with other agencies and private range landowners to reduce impacts of livestock grazing. Identify and manage areas that contain threatened and endangered species of plants." (Forest Plan, p. 11)

Analysis of the effects of livestock grazing slowed in 2002, as the drought demanded most of the Forest's time. Range personnel participated in administering the Forest closure for extreme fire danger and were active in fire management in Region 3. Trend monitoring was not conducted due to the drought and the associated difficulty in obtaining accurate information. The Forest Management Indicator Species report addressed the effects of grazing and other activities on MIS habitat.

Recreation

"Recreation users enjoy a full spectrum of experiences and benefits in appropriately managed facilities and other Forest settings. All recreation sites are managed at a capacity of use level that ensures that natural resources will be maintained at a desirable condition over the expected life of the project and/or activity." (Forest Plan, p. 12)

Based on the Prescott National Visitor Use Monitoring Survey (NVUM), forest visitors gave the Prescott Forest high marks for visitor satisfaction in all major categories:

Developed Day Use and Overnight Sites, Wilderness, and general Forest areas. On a scale of 1 to 5, 5 being very good or very important, the Mean Satisfaction Rating for each of the four categories was 4+.

The NVUM Survey showed the five most used facilities/areas were: non-motorized trails, designated OHV areas, Forest Service office/info sites, scenic byways, and developed campgrounds.

Recreation planning efforts seek to provide diverse recreation experiences. This diversity was accomplished by providing interpretive and accessible trails. Considerable progress has been made in providing interpretation of the Prescott Forest through environmental education. A mix of multiple purpose and non-motorized trails will be a primary focus for the next few years. Diverse camping opportunities exist throughout the Prescott Forest at both dispersed and developed sites. There is a severe backlog of maintenance needs on trails and at campgrounds due to lack of funding.

Roads

"Maintain a transportation system to support resource goals." (Forest Plan, p. 13)

The Prescott National Forest is progressing to the desired road conditions by decommissioning roads, maintaining roads, adding newly discovered roads to the "unclassified" lists and maps for management decisions, and reconstructing roads to the objective maintenance level prescribed by management.

Soil and Water

"Protect and improve the soil resource. Provide for long-term water flow needs through improved management and technology. Avoid adverse impacts to the public, government facilities, and all uses in floodplains and wetlands. Restore all lands to satisfactory watershed condition." (Forest Plan, p. 13)

The Forest continues to refine its Terrestrial Ecosystem Survey derived ecological database. The ecological inventory data is being used in environmental analysis and this practice will increase as the availability of that information gains recognition. A analysis of the juniper stands on the upper Verde River watershed, Chino Valley Ranger District is continuing for the purpose of determining protocols for identifying woodlands that would benefit from appropriate treatments. Treatments to improve watershed condition are being implemented. Management Area 2 (MA2) (woodland) has the majority of the Forest's unsatisfactory condition soils – an on-going assessment of most of MA2 will provide a systematic approach to treating priority acres to improve watershed condition and wildlife habitat.

Watershed condition assessments have been scheduled for two fifth code watersheds in the Agua Fria drainage. One of these areas includes occupied habitat for the Gila chub, a fish proposed for protection under the Endangered Species Act.

"Riparian dependant resources have preference over other resources. Improve all riparian areas and maintain in satisfactory condition." (Forest Plan, p. 13)

Riparian areas continue to improve through improved livestock management or exclusion from grazing and impacting access. Monitoring is conducted regularly to monitor riparian conditions.

Timber

"Provide for non-declining sustained yield of timber. Establish improved balance in age class distribution through silvicultural prescribed stand management. Focus on reducing constraining components of stand strata. Improve stand productivity through management. Provide green and dead fuel wood and other forest products on a sustained yield basis. Timber harvest will be used as a tool to accomplish multiple resource objectives when it is identified as the optimum method through site-specific environmental analyses." (Forest Plan, p. 12-1)

In general, the Forest is meeting Plan expectations in terms of stand structure and productivity although achievement of those expectations is not occurring at the rate projected. The Prescott Forest will continue to supply firewood sufficient to meet existing demand, although availability of the resource will probably shift from the Bradshaw Ranger District to the Chino Ranger District. The Ips beetle epidemic will have a large impact on the future of ponderosa pine stands on the Prescott National Forest. As the epidemic progresses, the desired condition for this ecosystem will be reassessed.

During the first six years of the Forest Plan, the number of ponderosa pine acres treated by intermediate and regeneration harvests was relatively constant. Since 1992, treatments have become sporadic; the only large-scale treatments have been the Maverick, Schoolhouse, Deering and Goldwater Timber Sales. According to the Forest Plan, there are 130,350 acres in the Pine Management Area (Management Area 4 – "MA 4") of which 30,653 are considered commercial timberlands. There are also 2,962 acres of commercial timberland in the Woodland and Chaparral Management Areas (MA 2 & 3, respectively). Through fiscal year 2002, approximately 18% of the commercial timberland was treated. In 2002, Lynx Timber Sale could not be offered due to the heavy Ips beetle mortality within the timber sale affecting the live volume of the sale. If the Ips beetle epidemic continues, it may affect the ability of the Forest to providing a non-declining sustained yield of timber. In 2003, the timber program will focus on salvaging dead and dying beetle killed trees.

Mixed conifer areas on the Forest are also included in MA 4. Since the Forest Plan was written, there have been virtually no treatments in mixed conifer or aspen stands to improve stand productivity. As a result, conifers are replacing aspen in many locations. One of the concerns during the Forest planning process was "Demand is expected to exceed the Forest's production capability for sustained yield of pinyon-juniper from accessible lands." Only a small percentage (0.5%) of the 454,598 acres of juniper/pinyon-juniper in MA 2 (woodland) have been treated since 1986. At a generous estimate of 15 cords/acre, this would be 2,820 cords per year sold, roughly equivalent to 1,410 MBF; the projected harvest in the Forest Plan was 3,401 MBF. There are a number of factors for the lesser volume: reduced demand, due to increased availability and relatively lower cost of electricity and natural gas; and less desirable stands of smaller trees in more remote locations offered for sale. It was also originally envisioned that the Chino Ranger District would be the primary provider of green firewood products. Instead, most of the green firewood volume has come from Sycamore Mesa on the

Bradshaw Ranger District. In FY03, the emphasis in firewood products is expected to shift to the Chino RD as most woodland stands on the Bradshaw District have now been treated.

The significant change from harvesting timber to produce a commodity to harvesting timber for the purpose of restoring or improving forest health is a factor in the protection and recruitment of old growth. This shift has resulted in increased sales of non-traditionally sized trees and subsequent declines in market. Beginning in 2002, old-growth ponderosa pine stands became more susceptible to mortality from the Ips beetle epidemic.

Wildlife

"Manage for a diverse, well distributed pattern of habitats for wildlife populations and fish species in cooperation with states and other agencies. Cooperate with Arizona Game and Fish Department to meet or exceed the management goals and objectives in Arizona Cold Water Fisheries Strategic Plan. Maintain and/or improve habitat for threatened or endangered species and work toward the eventual recovery and de-listing of species through recovery plan implementation. Integrate wildlife habitat management activities into all resource practices through intensive coordination. Support the goals and objectives of the Arizona Wildlife and Fisheries Comprehensive Plan as approved by the Southwestern Regional Forester and the Director of the Arizona Game and Fish Department." (Forest Plan, p. 12-1)

In 2002, habitat management was largely out of our control as drought and an unprecedented bark beetle outbreak killed thousands of acres of ponderosa pine. The drought also killed many pinyon and some junipers. The drought curtailed growth in the grasslands and chaparral. Wildlife populations will shift accordingly, to reflect these changed habitat conditions; the species composition will shift toward those species that favor open forests. Habitats in ponderosa pine, and pinyon-juniper vegetation communities will become more patchy and diverse than previously, with open areas on ridges and pockets of dense forest remaining in protected canyons.

Wildlife personnel have been closely involved with all vegetation manipulation projects, from grazing allotments to fuels reduction.

Progress toward improving habitat for threatened and endangered fish species is uncertain. Habitat for threatened spikedace, and other native fish, in the Verde River has been protected for several years from impacting activities, specifically livestock grazing and OHV recreation. In addition, there has been a lack of flood disturbance events since 1995. As a result, aquatic habitats have become narrower, deeper, and reduced in size because of encroaching riparian vegetation and streambanks becoming more stable. Monitoring data indicate spikedace in the Verde River have apparently been eliminated by non-native predator fish. The USDA Forest Service Rocky Mountain Research Station continues to investigate relationships between native fish and nonnative fish, flood disturbance events, and Forest management practices. This partnership is helping to develop crucial information about management of native fish habitat on Prescott National Forest Lands.

Section 3 – Barriers To Effective Monitoring

Heritage

Forest resources are focused on planning and record keeping rather than on implementation. For example, management of Heritage Resources involves an excessive amount of record keeping. Each day in the field generates approximately one day of paperwork. This intensity of record keeping inhibits broader field investigations. Although the importance of monitoring is recognized Forest-wide, this importance is not reflected in terms of budget, staff, or work plans. Invariably, this hinders or prevents monitoring accomplishment.

Noxious Weeds

Education of employees and forest users to the effects of invasive plant species on native ecosystems needs to continue. This education needs to include identification of invasive species so they can be recognized. The local impact of invasives is not great and neither are concerns about the ramifications of increased populations of noxious weeds.

Wildlife

As in previous years, it is evident that items monitored are not always relevant to determining progress in meeting Forest Plan goals. Monitoring non-game birds as a measure of riparian health is probably not useful in measuring accomplishment of Forest goals. Reporting acres treated and volume of wood sold does not provide a means to measure and evaluate forest health. To make monitoring useful, more needs to be done to accurately determine what is important, relevant, and meaningful to measure. Other items are not practical or are difficult to measure. Wildlife population monitoring is an enormous undertaking – cause and effect relationships are hard to determine because of extrinsic factors (e.g. neo-tropical migratory bird populations). Such an undertaking needs to be closely coordinated with State and other agencies. To be effective, monitoring needs to be simple and easily implemented while providing a true picture of progress toward an objective. There is a need to adapt monitoring so changes can be made in on-going programs/projects as soon as potential problems are identified.

All of these needs will be addressed in future Forest Plan amendments, Forest Plan revision, and other changes.

According to Forest biologists, the greatest impediment to achieving wildlife goals is the amount of time they spend addressing litigation issues and preparing environmental analyses and environmental analyses-related documentation in support to other programs' projects. The requirements for environmental documentation have become very complex, and are changing frequently. In addition, litigation-inspired legal interpretations of MIS analysis requirements and Migratory Bird analysis requirements added by Executive Order in 2001 continue to add to the environmental analysis workload. It is estimated that more than 50% of wildlife staff time is now spent participating in litigation-driven issues instead of implementing field projects that directly benefit wildlife.

Section 4 – Emerging Issues

Heritage

Native American consultation procedures have changed under new Federal regulations implementing Section 106 of the Heritage Resources Protection Act. Identification and management of traditional cultural properties will become increasingly important. Identifying and managing these cultural properties will require adequate ethnographic investigation, including origin stories and oral tradition.

Insects and Disease

The most critical resource issue facing the Forest is the extensive insect attack in ponderosa pine. All of the pine stands are affected to some degree with areas within the wildland urban interface having the heaviest impact.

There is an urgent need to cut dead and dying trees infected by the Ips beetle epidemic to protect the residual stand, protect private homes and landscapes adjacent to forest lands, and for public safety issues regarding the potential of dead trees falling. Limits to our ability to remove these dead and dying trees include steep slopes, no road access and no existing timber industry infrastructure to purchase, remove and utilize the wood. The ongoing drought situation in the Southwest will enhance and continue the Ips beetle epidemic and associated pine mortality. The 2002 aerial photo inventory for insect and disease monitoring revealed a serious increase in ponderosa pine mortality. It is estimated that as much as 50% of the ponderosa pine stands on the Prescott National Forest were killed during 2002.

Noxious Weeds

Treatment of noxious weeds in areas with special designation will be contentious; these areas include Wilderness and the Verde Wild and Scenic River. There is a concern about manipulating the environment in locales that may be perceived as sacrosanct. Another area of contention is the riparian community where invasives are most abundant. Currently there is interagency disagreement on management of salt cedar. Salt cedar displaces native shrubs and trees but provides habitat for birds including the southwestern willow flycatcher.

Range

Potential conflicts between livestock grazing and antelope fawning cover and forage were identified in Game Management Unit 21 on the east side of the Forest. An interagency group (AGFD and Prescott NF) was formed to address this issue.

Recreation

Population increases in the north Williamson Valley area are creating additional recreation use and a need for more developed recreation opportunities in the Walnut Creek/Campwood area. Similarly, rapid population growth in the Paulden and Chino Valley communities is impacting the Upper Verde River ecosystem through increasing dispersed recreation activities in this area including camping, picnicking and off-highway vehicle use. The Chino Valley District Ranger requested that an analysis of the impacts of dispersed recreation on the upper Verde River be undertaken.

Large trees in developed recreation sites are succumbing to the Ips beetle epidemic. Treatment options should be considered as soon as possible.

An Environmental Impact Statement is being completed to analyze the impacts of cross-country travel by off-highway vehicles on five Arizona forests including the Prescott.

Soil and Water

The effect of insect and drought mortality on trees and shrubs in both the short term (open canopies and potentially extreme wildfires) and long term (ecosystem alteration) may affect resource management focus on the Forest. Competition between invasive and native plant species is an issue that has to be addressed particularly in riparian ecosystems.

Timber

The need to salvage trees burned by the Indian Fire was identified for fuel reduction, public safety, visual quality and forest health concerns.

Wildlife

There is continuing debate and research on the restoration of the Verde River system and what constitutes "good" aquatic habitat for spikedace and other native fish in the presence of non-native fish species. The restoration to a more stable aquatic system may favor established populations of non-native, predatory fish over native species. Better understanding of the interactions of native and nonnative fish, natural disturbance events i.e. flooding, livestock grazing, and aquatic habitat changes would greatly aid the Forest's ability to manage for multiple use of the land. Furthermore, if there were to be widespread abandonment or substantial alteration of ranching on allotments, there would be a cumulative effect on wildlife. In addition, increased population and urbanization around the Forest has led to increasing public pressure (e.g. recreation) on threatened and endangered habitats, especially in and along the Verde River.

Other emerging wildlife issues:

- Change in forest habitat due to bug kill.
- Noxious weeds are expanding and could eventually impact wildlife habitat.
- Housing developments and new roads are fragmenting grassland habitat and pushing pronghorn into lower quality habitat on National Forest land. Herds may lose resilience as they become isolated.
- Drought impacts on habitat.
- The pumping of groundwater on private lands may begin reducing flows in the Verde River on the forest.
- Increase in off-highway vehicle use on some areas of the forest threatens wildlife and fish species and their habitats.

Section 5 – Recommendations

- Develop a five-year plan that defines strategic goals and specific treatments that minimize the risk of catastrophic fire to natural resources and private property. Continue planning fuel reduction/forest health projects to promote wildland urban interface safety and to reduce the risk of insect and disease outbreaks.
- Emphasis should be placed on maintaining open savanna-like juniper stands through mechanical treatment and burning.
- Continue monitoring noxious weed populations and actively pursue an integrated noxious weed eradication program.

Section 6 – Certification of Forest Plan Sufficiency

I have reviewed this annual Forest Plan Monitoring and Evaluation Report for Fiscal Year 2002 and determined that:

- While management activities on the forest continue to lead toward desired conditions, the ongoing drought compounded with the recent ponderosa pine Ips beetle epidemic will require new management strategies and urgent action.
- The report is responsive to monitoring information as identified in Chapter 5 of the Prescott National Forest Plan. The monitoring plan and monitoring activities conducted by the Forest are based on National Forest Management Act regulations and Forest Service Manual guidance.
- An amendment addressing wildland fire use, fuelwood management and Forest Plan monitoring is currently underway on the Forest.

Therefore, I have determined that the Forest Plan as currently amended remains sufficient (although in need of further change) to guide the Prescott National Forest implementation activities over the next fiscal year.

/s/ Michael R. King, Forest Supervisor Date