



**Annual Monitoring Report  
for Implementing the  
Kaibab National Forest Land Management Plan  
Fiscal Year 2000**

Forest Supervisor Certification

I certify that the Kaibab National Forest Plan as amended is sufficient to guide management of the Forest over the next year. Needs for change as identified in this document are necessary over time to maintain the viability of the Plan.

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COREY P. WONG  
Acting Forest Supervisor

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Date



# **Monitoring Activities**

## **Introduction**

The Monitoring Plan for the Kaibab National Forest Plan identifies 58 items to be tracked as measures of the effectiveness of the forest plan. Valuation of various forest resources by society, the Forest Service and other agencies has continued to change since the inception of this Plan in 1989. This has been expressed by public concern and action, as well as governmental action and funding of activities. This, in turn affects what can or should be monitored and how it will be done.

With monitoring, we believe the real question should often be, "Is the Forest better today than five years ago?" for particular conditions or habitats. The current monitoring criteria often do not address this issue in any meaningful way. In preparation for revision, scheduled for 2006-9, we are considering a forest plan amendment to bring the monitoring requirements up to date.

In FY2001, we also plan to be proactive and randomly select projects to monitor based on monitoring plans in the environmental document as ratified in decision documents. We plan to monitor both implementation and effectiveness of the decision and practices.

The following sections report what is being or has been accomplished recently by particular issue or concern areas, and what potential may exist to accomplish additional monitoring work, if necessary. For details on the last 5-year monitoring efforts, please see the FY1999 Monitoring Report.

## **Bridger Monitoring**

A master's thesis by an NAU student who helped design and collect data on tree mortality and damage is expected to be published in May 2001. Data collection occurred in FY1999, with re-reading of the plots described in 1997's report under "Bridger Salvage Sales." Rocky Mountain Station carried out an inventory of understory plants in the burn area. Also, a more extensive "floristic study" was contracted in FY1999 by the Zone Botanist for the Kaibab NF and is ongoing. Work on the analysis continued in FY2000.

## **Recreation**

One of the recreation goals, MPAOT-Days, is being reported for FY2000. The Kaibab NF completed the National Recreation Use Monitoring (NRUM) project (1/4 of the all forests were sampled in 2000). This project will provide information about the number of visitors on the Forest, as well as some information about user satisfaction and amount of dollars being spent by forest users on recreation activities. It should be noted that the numbers generated by the NRUM will reflect the drought conditions of a snowless winter and lack of runoff into the reservoirs, as well as a forest-wide fire closure during the summer. Recreation Visitor Day information is not being emphasized at this time. Several new databases are in use (Meaningful Measures, Infrastructure, Deferred Maintenance). These provide the detailed information about the cost of maintenance and operations, capital investment needs as well as meeting the financial health requirements stressed by Congress and the Washington Office. Generally, the goals for recreation are being met on this Forest within the fiscal constraints of the budget.

## **Skinner Ridge**

On April 19, 2000, the district silviculturist inventoried a portion of the Skinner Ridge prescribed burn ignited on December 2, 1999. The objective was to determine the amount of large downed woody material (12"+ dbh at 4.5 feet from the large end and at least 8 foot long) remaining after the burn, and to see if the objectives of the Scott EA were met.

Three different fuel type conditions were inventoried: a) ground fuels consisting primarily of pine needles; b) open areas, with grasses or bare soil; and c) either oak leaves alone or oak leaves with some pine needles. These three were looked at because it was assumed that the percent loss or retention is highly dependent on location.

**Results:** In the open areas, 73.7% of the large downed logs remained. Of the 14 logs remaining, 3 or 21% were partially consumed but still qualified as a large piece of downed woody material.

In the area of oak leaves or oakleaves with some pine needles, 25% of the large downed logs still remained. Total number of logs in the oak was only 4 and the one log remaining had been partially consumed.

In the pine needle area, 15.4% of the large downed logs remained. Of the 4 logs remaining, one or 25% had been partially consumed.

At this time mortality appears to be low. The area should be looked at again in four years, especially for yellows. In the inventoried area, there was an average of 12 logs/acre and after the burn an average of 5 logs/acre. This area still meets the desired average of 3 large downed logs/acre and the NEPA document accurately displayed the effects of the burn.

**Future Needs:** The district is installing one-acre pre-burn plots in the Scott Area. The plots are being situated in the same ground fuel conditions as this inventory, but with more information (e.g., diameters and length, soundness, etc.). Snags are inventoried if they are near the fixed plot. This information should allow better analysis on what is occurring to large downed woody material and snags when a prescribed burn takes place. The data obtained from this burn and others to be done in the future will help determine possible changes needed in the Forest Plan on large downed woody material, reduce the costs of protecting such features, and possibly provide a wider window for burning.

## **South Zone Fuels Monitoring**

The South Zone inventoried 3 sites (2 on Williams R.D. and 1 on Tusayan R.D.). The Stage site is about 10 miles southwest of Williams, Marteen is about 12 miles northeast of Williams, and Scott is about 8 miles southeast of Tusayan. The purpose of the monitoring was to evaluate the success of Rx burns with respect to burn plan objectives. They examined the following forest attributes:

- 1, 10, 100 and 1000-hour fuel loads
- Duff and Litter depths
- Live trees/acre (by species)

In addition, they established photo points. The data gathered is from nested circular plots that were systematically established with a random starting point. The overall results showed a tree density of about 500 trees/acre and a variable forest floor fuel load. The relatively high forest floor fuel load at Marteen is driven by one plot that had a large 1000-hour load. Please note that these numbers are preliminary and have not been evaluated by the district fuels specialist to date.

## **Vegetation**

The Forest continues to grow tree biomass at rates far exceeding losses due to all causes. When losses of significant magnitude do occur (such as the Bridger fire in 1996) they tend to be in relatively concentrated areas. While these changes create heterogeneity on the landscape, the patterns are probably little like those of pre-European landscapes.

Pediocactus (*P. paradinei*) monitoring has been carried out per the Conservation Agreement. A Conservation Agreement for bugbane (*Cimicifuga arizonica*) was signed in FY1999. Level 1 monitoring for bugbane was completed on the Bill Williams populations in FY2000.

## **Wildlife and Ecosystem Functions**

The following work was ongoing on the North Kaibab RD this year:

### ***I. Effects of Wildfire on Densities of Secondary Cavity Nesters in Ponderosa Pine Forests of Northern Arizona.*** Bill Block, Snag Study/Monitoring NAU; Jill Dwyer Graduate student.

#### **A. Summary of monitoring activities**

This study completed its third year and consists of looking at snag use by secondary cavity nesters in low, medium, and high intensity wildfire burns. They have collected two years of data with nest boxes, and one year of data without nest boxes. The FY2001 field season will complete the second year of data collection without nest boxes. This study has plots on Peaks and Happy Jack Districts of the Coconino as well as the North Kaibab.

#### **B. What we are learning**

This is an ongoing study. We have not yet received a summary of the research for this year from Bill Block. Jill Dwyer completed her Master's thesis for this study. Bill Block will be sending a copy of Dwyer's thesis, a manuscript from the Tall Timbers Symposium, and a manuscript that is in review for *Journal of Wildlife Management*.

#### **C. Recommendations**

Continue for the next year.

### ***II. Snag dynamics, use and associated bird communities in wildfire-burned ponderosa pine landscapes.*** Carol Chambers, Assistant Professor, NAU; Doug Koenig Masters student.

#### **A. Summary of monitoring activities**

This study is in its third year. This is a four-year project involving two masters students. Phase I involves investigating bird community response to recent fires (<5 years old), while Phase II will investigate response of birds to older fires (>10 years previous). During both phases, they will identify bird use of snags, snag longevity, snag spatial pattern, and other characteristics of snags that are selected by wildlife for nesting or foraging. Bird community response will cover effects on Neotropical migrants which ties back to the Bridger Monitoring and collaborative questions asked concerning Neotropical migrants.

#### **B. What we are learning**

This is an ongoing study and the District has not received a report on this past season's work.

#### **C. Recommendations**

Continue study.

### **III. Landscape Level Competition (including habitat, prey, and predation) between Red-tail hawks and Northern Goshawks on the Kaibab Plateau.** Teryl Grubb, RMRS.

#### **A. Summary of monitoring activities**

Third of a 4-year study. This year they continued monitoring and surveying the Plateau for red-tailed hawks.

#### **B. What we are learning**

This season focused on video monitoring of nests and continued surveying for nest sites. While we have received activity and nest location data for red-tailed hawk nests, we have not yet received a summary of last years study. They are still on track to begin separate master's studies summer of 2000 with Angela Gatto concentrating on foraging ecology and New Student concentrating on an adult telemetry study. Study plans were provided.

#### **C. Emerging issues**

As we implement the goshawk guidelines, areas of the forest may become more open. This creates concern for increased possibilities for direct competition between red-tail hawks (open forest habitats) and northern goshawk (more closed habitats). In addition, there is an opportunity for disturbance monitoring utilizing the red-tailed hawk as a surrogate for the goshawk. The red-tailed hawk is a raptor that is very common and is not Threatened, Endangered, or Sensitive, nor is it a species of concern. Yet we can learn from its behavior to such disturbances as hauling, planting with augers, road maintenance, etc. and in the future apply what is learned towards minimizing and/or eliminating disturbance to active goshawk pairs, while still meeting other management objectives.

#### **C. Recommendations**

Continue for next two to three years. The potential is great for this study to branch out in the near future.

### **IV. Northern Goshawk Demographics on the Kaibab Plateau of Northern Arizona.** Richard T. Reynolds, RMRS

#### **A. Summary of monitoring activities**

This study began in 1992 and has completed its ninth year looking at territory occupancy, fecundity, site fidelity, reproduction and other demographic parameters. This study is expanding into the effects of prey densities on reproduction. This study is of extreme importance due to the Kaibab population being the largest known population of goshawks in North America. This study may have a major influence on the status of goshawks in the West.

#### **B. What we are learning**

Greater than 95% (135) of the existing territories have been located on the Kaibab Plateau and it is just in the last two years of the study that enough information has been accumulated so that researchers can begin to determine how and if management activities are impacting the goshawk population on the Plateau. During that time, researchers have observed a possible cycle in small mammal populations, and goshawk occupancy and reproduction.

### **C. Research needs identified**

1. Effects of implementation of goshawk guidelines on goshawk reproduction.
2. Effects of human disturbance (e.g., logging activities, recreation activities, etc.) on goshawk reproduction.

### **D. Barriers to effective monitoring**

Consistent, long term funding.

### **E. Emerging issues**

1. Development of a reproductive/occupancy monitoring plan for after completion of Richard T. Reynolds study.
2. Effects of implementation of goshawk guidelines on goshawk reproduction is becoming a major issue for outside groups.
3. Effects of prescribed fire and Urban Interface treatments on goshawk reproduction.
4. Possible petition (again) for listing by USFWS in 2001.

### **F. Recommendations**

1. Continue demographic study for minimum of 1-2 years.
2. Encourage R.T. Reynolds to expand his study to look at effects of prescribed fire and Urban Interface treatments on goshawk reproduction.
3. Develop and implement a reproductive/occupancy monitoring plan with R.T. Reynolds and other goshawk Biologists (e.g., P.L. Kennedy, Colorado State University)
4. Develop and implement a disturbance study using the Red-tailed Hawk as a surrogate species (see T. Grubb study)
5. Develop and implement a study to evaluate the effects of implementation of goshawk guidelines on goshawk reproduction. A major commitment from the Forest, Region and Research Station is needed to undertake this huge, long term study.

## ***V. Development and Testing of Artificial Bat Roost Structures: Bat Bark.*** M.S. Siders.

### **A. Summary of monitoring activities**

Bat Bark has been installed on 67 trees in 11 locations on the Kaibab Plateau. These trees were monitored for bat use during the summer using both ocular estimations and limited infrared video monitoring. All (24 polyurethane, 16 fiberglass, 26 multi-chamber) bat barks were monitored this year. We were able to get some video of bats using the roosts.

### **B. What we are learning**

Of the Bat Barks monitored in 2000, 66.7% of the polyurethane, 68.7% of the fiberglass and 53.8% of the multi-chambered Bat Barks showed signs of bat use. Most of the Bat Bark showed signs of repeated use.

We continue to monitor the multi-chamber bat bark design to determine if it will be used by larger colonies. We hope to use infrared video footage to develop a video to be used in the Visitor Center



for interpretation purposes.

**C. Barriers to effective monitoring**

Funding.

**D. Emerging issues**

Public interest in purchase of the Bat Bark for their home use, or other institutions.

**E. Recommendations**

Continue for monitoring and development for the next one to two years.

***VI. Peregrine falcon monitoring.***

**A. Summary of monitoring activities**

Monitored 1 peregrine eyrie this season part of the requirements of the Biological Opinion for East Rim Overlook. Monitored two additional sites, Tater and Oak Canyon sites. Four visits per site.

**B. What we are learning**

East Rim and Taters peregrine eyries were not active. Oak peregrine eyrie was active.

**C. Barriers to effective monitoring**

Funding and locating skilled volunteers.

**D. Emerging issues**

The peregrine falcon has been delisted, however monitoring needs to continue for five years post de-listing. As Kane Ranch is implemented, peregrine eyries associated with the allotments should be monitored.

**E. Recommendations**

Continue for next five years to determine activity for all known eyries. Continue to monitor this and other eyries as time and funding permits. In order to stretch our resources, we work cooperatively with the Arizona Game and Fish Department and/or recruited volunteers in the past.

Progress moving toward desired future conditions. Although the species has been delisted, monitoring needs to continue for five years post de-listing.

***VII. Greater Western Mastiff Bat Monitoring***

**A. Summary of monitoring activities**

No work on this project in 2000.

The following work was ongoing on the Williams RD this year:

***I. Snag Longevity and Abundance.*** Joe Ganey, RMS – Flagstaff.

**A. Summary of monitoring activities**

Surveys of selected sites to establish baseline data that will be used to determine snag densities and longevity or trends. The first year of data collection has been completed and the results published in *Forest Ecology and Management*. The citation and conclusions are discussed under Wildlife 6 in the Monitoring Plan section below. Plots will be resurveyed in 4 years.

**B. Emerging Issues**

The minimum Forest Plan standard of 2-3 large, tall snags per acre is probably higher than the landscape average has ever been, even in either pre-European settlement times or unlogged, inaccessible current forested areas.

**C. Recommendations**

Continue the study. Fifth year plots will be measured in FY2002. Consider other studies that look at the value of “green snags” (live trees with structural defects). Consider changing (lowering) the snag standards in the future.

***II. Forest Restoration Project*** NAU, Southwest Forest Alliance, Kaibab NF and others.

**A. Summary of monitoring activities**

This project looks at some effects of a particular approach to "restoration" in the Frenchy area. Treatments on 37 acres have been carried out. Pre- and post-treatment measurements have been carried out. Results showed that no trees were cut in 48% of the stand, with 67% of all trees cut 5" dbh or less in diameter. Average basal area went from 95.7 square feet pre- to 79.1 post. With this level of treatment, there will limited diameter growth response, and no increase in forage production. In FY1999, 177 pre-treatment plots were also installed over about 465 acres within the adjoining Frenchy EMU project to be able to compare vegetative responses from different treatments, not just “restoration” treatments.

**B. Emerging issues**

This project represents an effort to collaborate with both the Southwest Forest Alliance and NAU in how to approach restoration of SW ponderosa pine forests heavily impacted by logging, grazing and fire-suppression.

**C. Recommendations**

No progress was made this year or last year on the planning due to a lack of needed proposed treatment descriptions by the Alliance. The Forest will be evaluating the Alliance's commitment to collaborate on this project this year to determine whether to continue.

**III. Effects of Fire and Fire Surrogates.** Carl Edminster, RMS – Flagstaff and Mark Herron, Kaibab NF, and others.

**A. Summary of monitoring activities**

Started in FY1999, two of ten research plots in fire-dependent ecosystems were planned to be established on the Williams RD in the Frenchy EMU to assess the ecological consequences and trade-offs of various management practices to reduce fire hazards. Work involves measurement of vegetation, wildlife, soils/hydrology, fuels, insects, economics, and social variables. Each replicate contains 4 treatment areas, each with a 10-ha interior sampling area. Each sampling area contains 36 permanent grid points. The tentative plan is to develop prescriptions for the treatment areas in spring 2001, mark the area in spring/summer, and offer it for sale (or service project with imbedded timber sale) before the end of FY2001. The details have not been worked out between the district and NAU, so this schedule may be pushed into next fiscal year.

**B. Emerging issues**

There is an opportunity to determine how “much” must be done to gain resiliency in our ponderosa pine systems and what the various costs and benefits of practices are in a comparative way. We may have the opportunity to move beyond posturing about what the relative benefits of various approaches are (from “Restoration” to “No Action”).

**C. Recommendations**

Continue project. The potential is great for this study to bring various groups along in a collaborative way if they can be involved in the project soon with regard to its purpose and methods.

**IV. Grass/forage Response from Treatments in Pinyon-Juniper Type,** Mark Herron, Kaibab NF

**A. Summary of monitoring activities**

Pre-treatment photo points were established in nine different treatment units in 1995. Treatment occurred from 1996-98. Most juniper greater than 5” dbh were removed. In FY 1998 photos were retaken at four plots to document conditions after harvest and prior to burning. In FY2000, prescribed burning was complete in the sites. Photo points need to be relocated and photos retaken. Photos will be retaken in all nine units following post-commercial treatments, and at 2-5 year intervals after that. Time-interval photo records will give us a visual record of treatment response. At this time, it is too early to fully assess results.

**B. Recommendations**

Continue to retake photos at established points and to assess results.

**V. Snag Production from Basal Burning.** Chuck Nelson, Ed Johnson, Kaibab NF

**A. Summary of monitoring efforts**

Basal burned eight trees to create wildlife snags. All trees have died; two have fallen over, and half of another tree has fallen over. Some activity in one tree, but no cavities were noted.

## **B. Recommendations**

Keep monitoring.

### ***VI. Snag Production from Innoculation.*** Chuck Nelson, Ed Johnson, Kaibab NF.

#### **A. Summary of monitoring activities**

In 1996, inoculated 60 trees with heartrot fungi to produce primary cavity-nesting habitat. After two years, one tree had died, and another tree had three cavities started, but no apparent nesting had begun. In FY2000 there was activity in one tree, but no new cavities. There was no activity in the other 57 trees.

#### **B. Recommendations**

Keep monitoring. This is a ten-year monitoring study.

### ***VII. Grazing Utilization on 27 Allotments on the South Zone.*** Derek Padilla, Tom Matza, Kaibab NF.

#### **A. Summary of monitoring activities**

Ocular inspections were performed on every active allotment to determine utilization. One indicated forage use above the allowable use, and the other 26 showed forage was being utilized at levels at or below allowable use.

#### **B. Recommendations**

Continue to monitor use on various allotments yearly to ensure use does not exceed allowable limits.

### ***VIII. Spotted Owl Monitoring/Surveying.*** Jennifer Monahan, Kevin Whelan and Kevin Probst, Kaibab NF.

#### **A. Summary of monitoring activities**

In FY1999 a total of 4,943 acres were surveyed to Region 3 protocol in one area on the district. No owls were found from the survey. Additionally 1 PAC on the district was monitored and had confirmed occupancy in it. They were unable to confirm reproductive success. In FY2000, 460 acres were monitored with 5 PAC's monitored, and two of them occupied. Two PAC's, Pumpkin and Newman, on Kendrick were damaged by the Pumpkin Fire in May and June. Of the two occupied, one PAC had reproduction confirmed with two juveniles.

#### **B. Recommendations**

Continue monitoring. In a letter dated 2/1/2000, the Rocky Mountain Research Station detailed the results of the annual meeting of the Mexican Spotted owl Recovery Team. A revised procedure for evaluating historical owl locations was attached which said, among other things, "If the area has been surveyed since 1990 according to an established protocol and no owls were detected, then no PAC needs to be established."

### ***IX. Northern Goshawk Monitoring.*** Jennifer Monahan and Chuck Nelson, Kaibab NF.

### **A. Summary of monitoring activities**

In FY2000, 45 territories were monitored on the Williams and Tusayan Districts, with 18 territories occupied; ten of those had nesting success and in those 13 birds were fledged. In all, 9500 acres (approximately) were surveyed. In the 35 territories that were monitored in FY1999 (including historical territories), 25 had no response, 10 of them were confirmed occupied. Of those, 8 nested. Reproduction was confirmed in 5 of the 8 territories, with 7 fledglings produced. A total of 8,926 acres were surveyed/monitored in FY1999.

### **B. Recommendations**

Continue project.

## **IX. *Cutting in Pine/Oak on the Williams District.* John Holmes, Kaibab NF.**

### **A. Summary of monitoring activities**

In spring of 2000 a portion of the Williams District was opened to personal use fuelwood gathering that had been closed to cutting since the listing of the Mexican spotted owl. The area chosen was a large area of pine and pine-oak (restricted habitat) west of the Perkinsville Highway (FR73) and south of the Bill Williams Lookout Road (FR111). The main concern in allowing wood gathering was the potential loss of large downed woody material (> 12" diameter logs). A series of plots were located throughout the wood gathering area, purposely biased toward accessible areas with concentrations of large downed woody material, particularly Gambel's oak. Reference points were established and marked to allow for relocation following the fuelwood season. The centers of the plots themselves were inconspicuously marked to avoid discouraging wood cutters from removing wood at these locations. The arrangement, size (diameter and length), and species of all downed/dead and dead standing wood greater than 3" in diameter was recorded for each plot.

### **B. What we are learning**

After the 2000 fuelwood season:

- Thirty-two of thirty-four established plots were relocated.
- Seventy-eight percent of these plots showed no cutting had occurred on them.
- A total of 110 large logs were on all plots prior to the fuelwood season. During the season 9 logs (8%) were removed. Of these 9 logs, 4 were oak, 4 were pine, and 1 was alligator juniper.
- Informal monitoring during the cutting season by Forest Service personnel indicated "heavy" traffic of fuelwood cutters in all the areas where monitoring plots were established.

Given the pent-up demand for access to this portion of the district for gathering fuelwood, particularly oak, the impact on large downed logs was minimal, especially considering plot placement near roads. Most of the fuelwood area was not near roads and did not receive any cutting at all. It is likely that more material was added to the forest through breakage and deadfall than was actually removed. Also, fuels reduction corridors are generally placed along roads and reduction of downed material here is not inconsistent with the objectives for these areas.

## B. Recommendations

- Expand the fuelwood gathering area on the Williams District to include all of the District south of I-40. This will dilute an already minimal impact on large downed woody material from gathering in a more limited area.
- Limit fuelwood gathering in the pine type north of I-40 to areas where we have created large concentrations of fuel that would benefit from cleanup provided by fuelwood cutting (TSI and PJ clipping areas).
- Keep the large area of PJ north of I-40 and west of Hwy 64 open as it has been.
- Open some or all of the PJ on the northeast portion of the district, based upon local demand and recent increases in smaller (<12”DRC) as a trial next season with monitoring of off-road use and/or pressure on closed roads.

## Monitoring Requirements of other Laws

### Clean Water Act, Clean Air Act, Endangered Species Act

We comply with the Clean Water Act through the implementation of Best Management Practices (BMPs) on our projects. We include these in design of allotment management plans, timber sales and road work. We also maintain contacts with the Arizona Department of Environmental Quality on large project proposals.

The National Forests in Arizona fund a position with ADEQ to coordinate our prescribed burning programs and ensure compliance with the Clean Air Act. This position and the relationships built between agencies has been quite successful in maintaining good will while accomplishing needed work.

The Endangered Species Act is complied with through project designs which meet recovery plan requirements and maintain the viability of all TE&S species. We also consult with the USF&WS on all projects where this is required. Biological Assessment and Evaluations must be completed prior to approval of NEPA decision documents and are maintained in the Supervisor’s Office.

## Research Needs Update

Many needs are previously discussed by project above and in previous monitoring reports.

## Emerging Issues and Trends

On this Forest, emerging issues are fairly typical of all Southwestern Forests with some exceptions. Collaboration and partnering are increasing. Riparian issues, including T&E species associated with them, are not becoming as critical as elsewhere.

We are experiencing changes in who uses the Forest and how they (and we) view it. Up until now, increases in recreational use have been within the bounds forecast in the 1988 Plan but the type of use is changing. Mountain bikes and off-road vehicle-use are growing in popularity. We expect increased fees and increasing limitations on visitation to Grand Canyon National Park to increase use of the Forest, including wilderness areas. The North Kaibab RD is partnering with NAU to implement a campsite monitoring and inventory sample in the Kanab Creek Wilderness which began in FY1999.

The National Recreation Use Monitoring project will give us a baseline measurement of the number of people recreating on the National Forest. It will also give us an idea of where the recreation use is occurring (wilderness, general forest area, or developed site), visitor satisfaction and the amount visitors spend on recreation pursuits. The South Zone (Williams and Tusayan RD) are also starting a planning process to look at existing recreation uses and conditions, and will develop some desired conditions. NAU will assist the Forest with the project by providing survey information about recreation visitor desires, willingness to make trade offs and awareness of local recreation opportunities. The planning process will provide information to be used in the upcoming Forest Plan revision. Two spinoffs of the planning described above will be an update of the Recreation Opportunity Spectrum and progress toward conversion from the Visual Management System to the Scenery Management System.

The risk and fact of catastrophic fires are being realized now, especially in the urban interface. People are increasingly supportive of action, although there are also those adamantly opposed to management to either mitigate risk or (especially) to salvage timber after large fires. Fire season 2000 was a critical year for wildland fire resulting in a National Fire Plan which promotes aggressive fuel treatments that will lead to wildlands that minimize uncharacteristically intense fires. The Kaibab is planning urban interface treatments to help meet the Region's priorities for treatment. They will provide opportunities for monitoring to see if they create the desired result. The Kaibab also approved a plan amendment for wildland fire use that identifies areas that will not automatically receive fire suppression.

The Forest is shifting much of its work emphasis to the range program due to several factors including compliance with the Burns Amendment schedule, the number of permits expiring soon and public interest in grazing effects. The Kane Ranch Allotment EA was completed in FY2000.

Antelope populations and their declining habitat began to attract more attention from both the Kaibab and Coconino National Forests after the Arizona Game and Fish Department approached the Forests with some population tracking information. Restoration of corridors, if not entire grassland/savannah areas, has become a planning issue on the Frenchy landscape and is actively being discussed at a multi-district scale across the two Forests. This issue is likely to become linked with efforts aimed at maintaining and restoring prairie dog and/or ferret populations over time.

Noxious weeds are not a severe problem on the forest yet, but there is still concern that if we do not begin progress towards containment and eradication they could become a severe problem. An integrated noxious weeds treatment EIS began this year in collaboration with the Coconino and Prescott National Forests. A decision is expected in early 2002.

## **Current and Potential Monitoring Partnerships**

Most of our current monitoring partnerships are with NAU (Bridger Salvage Sales, Kane Ranch, Kanab Creek Wilderness and Frenchy EMU), Arizona Game and Fish Department (Bridger Salvage Sales, bats and other wildlife populations, maintaining the Heritage database and water development maintenance) and Rocky Mountain Station (uneven-aged growth plots, goshawk demography).

Opportunities for partnerships probably exist for monitoring populations of rare or endangered species, including the Paradise plains cactus and noxious weeds through groups such as the Arboretum at

Flagstaff and even ADOT. Others who might be interested in helping monitor economic, social and biological conditions include, Grand Canyon Trust, the Southwest Center for Biological Diversity, permit holders and local residents. These opportunities have not yet been seriously pursued.



## **Barriers to Effective Monitoring and Evaluation**

The Forest Service has released draft forest planning regulations which would require extensive, well-designed and reviewed monitoring of various sustainability indicators. If these were adopted, much greater emphasis and expenditure on monitoring and evaluation would likely result.

The biggest barrier to effective monitoring and evaluation appears to be a lack of emphasis and resource allocation, both internally and externally; which other mandated or important activities will the Forest and/or others drop to do this work?

This year several projects will be randomly selected for implementation and effectiveness monitoring.