6. Forest Users and Uses

The purpose of this section is to describe various past and current uses of the Kaibab National Forest (KNF) as well as the multiple groups that engage in these uses. This includes use for both extractive and non-extractive purposes as well as special uses and user groups. The following subsections include historical context and user groups, extractive users and uses, non-extractive users and uses (including recreation; recreation planning; special users and uses, such as Native Americans, wildlife, wilderness; and illegal uses).

A review of available data on users and uses within the KNF is consistent with larger surveys of trends at the regional and national levels. These trends show a marked decline in extractive uses of national forests concurrent with an increase in recreational use, particularly in visitors to wilderness areas and users of OHVs. These and other socioeconomic factors discussed in this section present significant challenges for multiple-use management of the KNF.

6.1 Historical context and user groups

Federal agencies often struggle to balance the needs and wishes of different users on public lands. Not long after the establishment of the first national forest reserves in 1891, Congress passed the Organic Act to help direct the management of those forests. The forest reserves, later to become the national forests, were to be used in a way that protected or improved the forest itself (including protection from fire), secured waterflows for use in other areas, and provided a reliable supply of timber. Public lands deemed to be more valuable for mineral extraction or agricultural uses were not to be included in the national forests, and individuals were allowed free use for certain extractive purposes. Essentially, all types of use were permitted, provided that the use was not destructive to the forest. At the time, this was considered to include grazing, recreation, the construction of homes and resorts, and use for rights of way. The essential aim of the policy was to use the forests wisely to support local, regional, and national development and growth (USFS 1993).

A practical doctrine of managing for multiple uses eventually developed out of the conflict and cooperation among competing users and user groups. This doctrine was formally expressed in the 1960 Multiple-Use Sustained-Yield Act (USFS 1993). Managers were directed to give equal consideration to all resource users, and national forest lands were to be used in the ways that best met the needs of the American people. They were specifically not to be managed with the singular goal of maximizing output or economic profit (Fedkiw 1998). Similarly, the National Forest Management Act of 1976 “reinforces the mission laid out in other governing statutes—that the agency will both provide goods and services, such as timber and recreation, and protect forest resources, such as clean air and water, aesthetics, and fish and wildlife habitat” (GAO 1999a). However, multiple-use laws generally provide little or no guidance as to how forests should balance conflicting or competing uses (GAO 1999a).

Fedkiw (1998) describes managing for multiple uses as, “the fitting of multiple uses into ecosystems according to their capability to support the uses compatibly with existing uses... in ways that would sustain the uses, outputs, services, and benefits, and forest resources and ecosystems for future generations.” From this perspective, forest users and uses are seen as the primary drivers of management. These ideas will be crucial in this section, which aims to describe how the Kaibab National Forest is used, who uses it, and how trends in forest users and uses compare to historical and national trends.

Uses and users of the national forests can be defined roughly as being either extractive or non-extractive. Extractive uses include livestock ranching, timber cutting, and mining. While not strictly extractive, the use of public lands for infrastructure (such as power lines and communication sites) is also included in this group. Recreation is the most common non-extractive use although the national forests are also

commonly used for research and tribal activities. Hunting, fishing, and gathering, though arguably extractive, are included here because they are considered in recreation data. Notably, forest use can also be legal or illegal.

6.2 Extractive uses and users

Nationally, livestock grazing, timber cutting, and mining are the most common extractive uses on national forest land. Although extractive uses have historically played a major role in public-lands management, most recent evidence seems to suggest that they are being slowly succeeded in policy and management by non-extractive uses (Davis 2001). In fiscal year 2002, 7,750 operators were permitted to graze livestock on a total of about 95 million acres of available FS-administered land (Vincent 2004). [1] As Davis (2001) notes, the number of permits issued for livestock grazing on public lands has decreased slightly over recent years. The Kaibab National Forest issued thirty grazing permits in 2000, down from thirty-six in 1990 (Higgins, pers. comm.).

The FS sells timber for a variety of reasons, most commonly to support local mills and communities that were, in some cases, built around a specific forest's timber supply and to modify forest structure or composition to meet a variety of management goals (Gorte 2004). Timber sales on national forest land have been steadily decreasing since the late 1980s, when total production reached 11 billion board feet annually (GAO 1999b). In contrast, just over 2 billion board feet were harvested during fiscal year 2004, at a total value of approximately $218 million; an additional $3.17 million in special forest products, including Christmas trees, fuel wood, mushrooms and berries, and the like, were harvested that year (USFS 2005g). In 1997, the FS timber sales program reported a loss of $88.6 million (GAO 2001a).

The Kaibab National Forest issues permits for the harvest and sale of sawtimber, pulpwood, and commercial fuelwood. Between 1990 and 2000, Kaibab reported a drastic decrease in sawtimber permits (from over 57,000 to under 5,000 mbf), a decrease in commercial fuelwood permits (from 2,518 to 1,676 cords), and a large increase in pulpwood permits (from 30 to 4,770 cords). The forest also reports the sale of permits for non-commercial fuelwood gathering. 1,843 fuelwood permits were issued in 2000, down from more than 7,000 in 1990.

Mining in the national forests is directed by the General Mining Law of 1872, which allows individuals and corporations free access to prospecting on FS lands. Upon discovery of a mineral resource, an individual or corporation can then stake a claim, which allows full access to mineral development and can, in turn, be patented to claim full title to the deposit. Small fees are generally required to stake, maintain, and patent a claim (Humphries and Vincent 2004). Nationally, mineral and energy production, from gravel to gold to carbon dioxide, totaled about $2 billion in fiscal year 2003 (USFS 2005i). In 2002, Region 3 issued $557,042 in sale permits and $1,773,756 in free use permits for mineral extraction (Jevons, pers. comm.). In 2002, the Kaibab forest issued slightly more than $250,000 in mineral permits for about 100,000 tons of landscape rock, dimension stone, cinders, and sand and gravel.

Forests also commonly allow communities and other entities to use public lands for infrastructure, including power lines, rights of way, telecommunications, and the like.

6.3 Non-extractive uses and users

Non-extractive users, particularly recreation users, play a major role in forest use and planning. The national forests are mandated to provide outdoor recreation opportunities in natural settings, to maintain and enhance open spaces and public accessibility, and to maintain and enhance "cultural, wilderness,

[1] Data given are the most recent available.

visual, and natural resource values" through a variety of management tasks and activities (FSH 2302). However, unmanaged recreation has also been identified by the Forest Service as one of four "key threats" to the nation's forests and grasslands. As participation in outdoor recreation increases, the FS predicts that recreation pressure on undeveloped areas in most of the Southwest and Rockies regions will be heavy. Much of this pressure can be traced back to population trends throughout the West. The use of OHVs (discussed below) is seen as a major component of unmanaged use (USFS 2005j).

Recreation use has increased steadily throughout the history of the national forests. Over the past few decades, the growth in recreation has been truly extraordinary. Participation in camping has increased from about 13 million people in 1960 to 19 million people in 1965 to almost 58 million people in 1994-95 (Cordell et al. 2004). The 2004 Roper Report estimated that nine in ten Americans had participated in some sort of outdoor recreation during the previous twelve months (RoperASW 2004). However, the same report showed a decline in recreation participation beginning in 2001. It attributes this trend in part to travel concerns following September 11, 2001 but also to the expansion of indoor recreation opportunities through Internet and television (RoperASW 2004). Cordell and others (2004) also note slight decreases in several categories of outdoor recreation following September 11. Nationally, there were 209 million national forest visits in 2001. The forests of the Southwest Region (region 3) received 19.5 million visits[2] (USFS 2001e).

Arizona in particular (but also the West and the nation in general) has experienced significant demographic changes in recent years, and these demographic trends have likewise influenced recreation trends. In Arizona, where more than 42% of the land base is managed by federal agencies for public use, the population has increased about tenfold since 1940 to more than 5 million people in 2000. The state had the second largest growth rate in the nation in the 1990s (Arizona State Parks 2003). Perhaps even more importantly, the proportion of Arizona residents living in urban areas has increased dramatically, so that more than 88% lived in urban settings by the year 2000 (Arizona State Parks 2003). In phone surveys conducted by the Arizona State Parks in 1994 and 1998, nearly 50% of Arizonans said that they had visited an Arizona national forest within the previous twelve months (Arizona State Parks 2003). Access to public lands is considered a major contributor to quality of life by many Arizonans, and many parks and forests are experiencing very high recreational use even while urban expansion is decreasing the amount of available open space. As a result, this trend of increasing pressure on recreational resources can be expected to continue well into the future.

According to National Visitor Use Monitoring (NVUM) data, the 1.6 million acres of the Kaibab NF received about 560,000 visits during fiscal year 2000. A majority of visitors to KNF are male (83%). Visitors are predominately white (88.3%). Spanish, Hispanic, or Latino visitors make up approximately 4.1% of total visits while Asian users account for about 1.4% of visits. About 18.6% of users are under the age of 16 while relatively few visitors are between 16 and 30 or over 70-years old. An estimated 67.1% of visitors are between the ages of 31 and 70. Approximately 13% of visitors were from a foreign country. This number is much higher than in other Arizona national forests and is likely a result of Kaibab's proximity to the Grand Canyon. The most frequently reported zip codes suggest that most domestic visitors live in the Flagstaff area or, to a much lesser extent, in the Phoenix metro area (Kocis et al. 2001a).

The Recreation Opportunity Spectrum (ROS) system provides a framework for understanding recreation users, their needs and wishes, and the abilities of forests to accommodate these (USFS 1982). As understood through an ROS lens, a recreation opportunity consists of three elements: the activities, the setting, and the experience. All land and water resources are classified in one of six categories, based on physical, social, and managerial criteria.

[2] However, for the latter figure there is a 41.2% margin of error at the 80% confidence level.

Table 29. Description of ROS Classifications

Category	Description
Primitive	Setting is unmodified and remote and of a fairly large size. Users are generally isolated from one another, and typical activities include hiking and walking, viewing scenery, horseback riding, tent camping, and hunting.
Semi-Primitive Non-Motorized	The environment is predominately natural and of moderate to large size. Users' opportunities to experience solitude are less than in primitive areas, but user density remains low. Motorized activities are not permitted.
Semi-Primitive Motorized	Setting is similar to semi-primitive non-motorized, but off-road motor vehicles are permitted.
Roaded Natural	Setting is predominately natural but with a moderate level of human impact. There is a probability of contact with other users. Roads are present, and there may be substantial motorized use, including automobiles, buses, trams, and boats.
Rural	Setting is substantially modified. Facilities and management practices allow multiple uses and a large number of users and may be designed to facilitate specific activities. There is convenient access, and user density is moderate to high.
Urban	Levels of modification and user convenience are high and characteristic of urbanized areas. Opportunities to interact with other individuals and groups are emphasized.

Source: USFS 1982

Another important element of recreational setting is scenic integrity, or the visual quality of the landscape. The Scenery Management System guides forests in planning management activities that harmonize with existing natural landscapes (USFS 2001e).

The activities that recreation users prefer can also provide a guide for land management planning. The National Survey on Recreation and the Environment (NSRE), which tracks national outdoor recreation trends, lists the ten most popular recreation activities, summarized in Table 30 below for 2000-2001.

Table 30. Ten Most Popular Recreation Activities, NSRE 2000-2001

Activity	Percent of Population Participating
1. Walking for pleasure	83.0%
2. Family gatherings	73.5%
3. Visiting nature centers	57.1%
4. Picnicking	54.5%
5. Sightseeing	51.8%
6. Attending outdoor sports events	49.9%
7. Viewing historic sites	46.2%
8. Viewing/photographing wildlife	44.7%
9. Swimming (lakes, streams)	41.8%
10. Swimming (outdoor pools)	41.0%

Source: Cordell et. al. 2004

At the national level, walking is currently the most popular outdoor activity (Table 30). 83% of the adult population participates annually. Of the nearly 177 million people estimated to have walked outdoors for pleasure within the last year, an estimated 71 million did so in the form of a day hike or a visit to a wilderness or primitive area (Cordell et al. 2004). The most popular activities, such as picnicking, sightseeing, and swimming, tend to be available in a variety of settings and readily accessible to families and groups. Less popular activities, such as specialized hunting, rock climbing, and sailing, tend to require specialized equipment, specific skills and knowledge, and greater physical stamina (Cordell et al. 2004). Even activities that are only moderately popular, such as mountain biking, driving off-road, canoeing, or sledding, attract many millions of users annually (45.6 million, 37.2 million, 20.7 million, and 31.2 million, respectively). The three least popular activities, snowshoeing, orienteering, and migratory bird hunting, claim a combined total of approximately 13.1 million participants annually (Cordell et al. 2004). NSRE data for several general kinds of outdoor activities are summarized in Table 31 (Cordell et al. 2004):

Table 31. Participation in General Outdoor Activities, NSRE 2000-2001

Activity	Percent of Population Participating
Viewing/learning/gathering activities[3]	88.4%
Developed site activities	94.9%
Trail activities	40.4%
Swimming/surfing/beach activities	62.8%
Motorized activities	62.0%
Hunting and fishing	38.1%
Snow activities	19.3%
Risk activities	35.2%
Other non-motorized activities	22.8%

Source: Cordell et. al. 2004

[3] Viewing/learning/gathering activities are defined as, "visits to… recreation sites, wildland, or open space sites… to watch study, identify, photograph, sample, observe, and learn about natural or cultural history, or to gather natural products" (121).

Locally, recreation in the Kaibab National Forest is likely influenced by its proximity to the Grand Canyon. The forest borders both the north and south rims of the Grand Canyon and includes dispersed and developed camping sites, fishing, hiking trails, historic sites, and wilderness areas. The Kaibab Plateau–North Rim Parkway, one of only two National Scenic Byways in Region 3, offers visitors a superb scenic drive and opportunities to view wildlife, including the Northern goshawk and the California condor.

The most popular activities for visitors to the Kaibab were viewing natural features (64% participation), viewing wildlife (60%), general relaxing (47%), hiking or walking (44%), and picnicking and camping at developed sites (26% each). Driving for pleasure, visiting nature centers and nature trails, and visiting resorts and cabins were also very popular. The Kaibab differs from most other Arizona forests in that activities such as camping (both on developed and primitive sites), hiking, hunting, and horseback riding are much more popular while recreation centered around motorized vehicles is less popular (Kocis et al. 2001a).

6.4 Special users and uses

A number of special user groups merit attention in Arizona's national forests. They are unique in that they do not fit into the profile of the majority users described above. Some user groups need special accommodation, and this accommodation can at times become politically charged.

Tribes

Federally recognized American Indian tribes occupy about 53.5 million acres (7%) of land in the western states. These tribes are legally considered to be sovereign nations, so the relationship between the FS and tribes is a government-to-government relationship (Toupal 2003). Tribes that enter into contracts with the federal government do so just as state governments or sovereign nations do (NFF and USFS 2005). However, the federal government also holds a special responsibility to consult with tribes over management issues that may affect them. This process is governed by a variety of federal regulations and policies, including the Forest Service Handbook (FSH 1509.13), the National Environmental Policy Act, the National Indian Forest Resources Management Act, the Tribal Forest Protection Act, the Archeological Resources Protection Act, and several presidential executive orders.

Tribes' use of FS land includes free activities such as gathering boughs and basket materials for which permits are unnecessary as well as the use of products such as sawtimber, for which fees are charged (Jevons, pers. comm.). In 2003, the National Tribal Relations Task Force recommended a legislative proposal that would authorize the USFS to allow federally recognized tribes to use forest products for traditional cultural purposes free of charge. In addition, many national forests contain traditional cultural places whose locations are known only to the tribes. Because the tribes cannot divulge the locations, they cannot apply for permits (Jevons, pers. comm.).

OHV Users

On public lands throughout the country, the use of OHVs has increased in popularity and is now a major concern to many forest managers. Between 1982 and 2000, OHV users increased more than 109% nationally (Cordell et al. 2004). In 1995, a GAO study found OHV use on federal lands to be generally undermanaged. The FS, according to the study, devoted limited funding and staffing to managing OHV use and relied heavily on state funding (GAO 1995). According to surveys conducted by the Arizona State Parks, most Arizonans consider the provision of OHV recreation opportunities to be a lower priority

than other services, such as the preservation of cultural resources and natural areas. More Arizonans, however, considered management for OHVs to be important in a 1998 survey than in an earlier survey (Arizona State Parks 2003).

In 2004, the FS proposed a new rule to help manage OHV recreation in the national forests. Under the proposed rule, forests would establish a system of roads, trails, and areas designated for motor vehicle use and would prohibit the motor vehicle use that is off the designated system or inconsistent with the designations. This system would replace the previous assumption that all areas are open to OHV use unless specifically posted otherwise (USFS 2004j).

Wildlife Users

The National Survey of Hunting, Fishing, and Wildlife-Associated Recreation collects longitudinal data on anglers, hunters, and wildlife watchers in the United States (USFWS 2001). The 2001 survey found that 82 million U.S. residents 16-years and older participated in some wildlife-associated recreation during that year: 34.1 million fished, 13.0 million hunted, and 66.1 million engaged in some sort of wildlife watching activity (including photographing, observing, or feeding fish and other wildlife). Their spending totaled an estimated $108 billion, or 1.1% of the U.S. GDP. That year's 38.7 million hunters and anglers accounted for approximately $70 billion of that amount (USFWS 2001). Generally, the rate of growth in fishing participation has been greater than U.S. population growth since the survey began in 1955 whereas the growth in hunting participation has failed to keep up with population growth during that time. There has also been an overall decrease in wildlife-watching activities since 1980 (USFWS 2001). However, birding (viewing or photographing birds) has been the fastest growing recreational activity since the early 1980s, adding more than 50 million participants and growing 231% in just under twenty years (Cordell et al. 2004).

In the KNF, wildlife viewing is a more common activity than either fishing or hunting. National Visitor Use Monitoring (NVUM) data from 2002 show that 60% of the visitors interviewed participated in some sort of wildlife viewing activity. Only 15%, however, described it as their primary activity.[4] Approximately 14% of interviewed visitors hunted (with nearly all of those describing it as their primary activity), and only 5% fished. The Kaibab includes the nation's only designated game preserve.

Wilderness users

With the Wilderness Act of 1964, Congress laid the foundation for a National Wilderness Preservation System comprised of federal lands, "where the earth and its community of life are untrammeled by man, where man himself is a visitor and does not remain" (16 USC 1131 et seq.). Wilderness areas are designated by Congress and are generally protected from commercial enterprises, road construction, mechanical vehicles, and structural development. The Forest Service Handbook directs managers to minimize the impact of human use while protecting the wilderness character and public values of wilderness land (FSH 2320.2).

As a result of these management requirements, wilderness areas are open to some uses (e.g., primitive camping, backpacking, horseback riding, hunting, and fishing) and closed to others (many extractive uses, bicycling, and off-highway vehicles), and the decision to designate a roadless area as wilderness can be controversial. However, many forest users value the solitude and isolation, closeness to nature, and self-reliance experienced in wilderness areas. Activities available in wilderness or primitive areas attract millions of visitors nationally. For example, an estimated 34.1 million Americans participated in primitive camping in 2000-2001 while participation in backpacking and mountain climbing drew an estimated 22.8 million and 12.9 million visitors respectively (Cordell et al. 2004).

[4] The NVUM definition of wildlife viewing appears to be somewhat broader than that used by the national survey discussed above.

The Kaibab NF includes four designated wilderness areas and 35,000 acres of inventoried roadless areas (USFS 2001c). Users of designated wilderness areas in the KNF are predominantly male (83%), white (86.9%), and from the Flagstaff and Phoenix areas. A relatively large proportion of wilderness visitors (over 10%) identify themselves as American Indians or Alaska Natives. Likewise, while nearly all wilderness visitors are between the ages of 31 and 60, over a third are between 51-60 years old. NVUM data suggest that roughly 6,545 wilderness visits were made during fiscal year 2000 although the error rate on this data is very high (+/- 41.49%) because of the relatively low number of visitors interviewed (Kocis et al. 2001a).

Special use permits

While research is rarely considered by the public to be a major use of federal lands, the Kaibab forest, like most forests, issues special use permits for research purposes. Research on flora, fauna, water quality, seismic activity, weather, and wildland fire effects is conducted on the national forests by universities, private institutions, and other federal, state, and local agencies. A variety of special use permits are issued for different forest uses by the public.

6.5 Key issues for forest planning and management

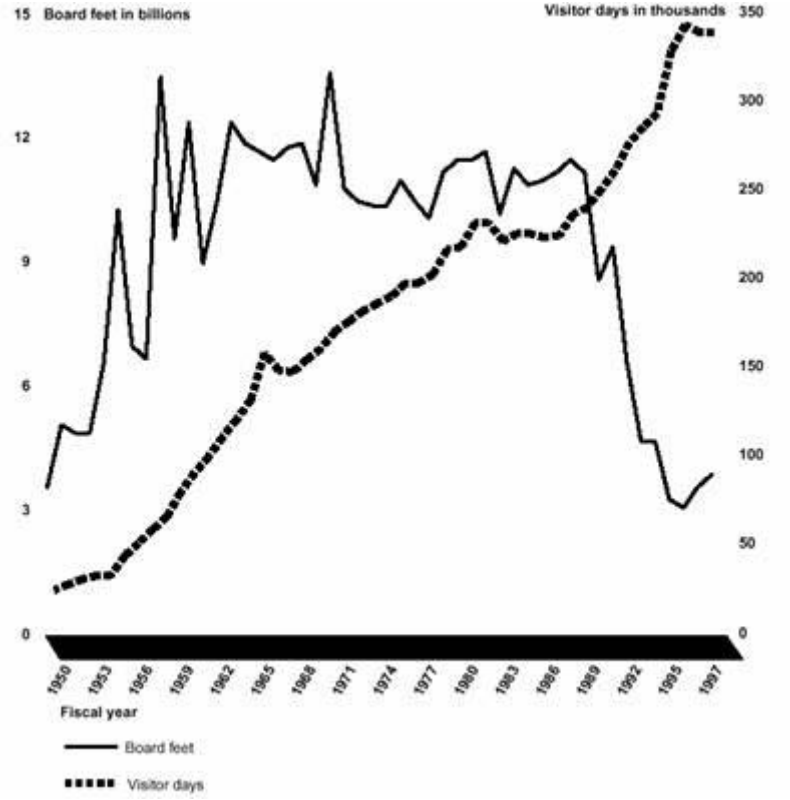
Extractive and non-extractive uses of national forests are often seen as competing with one another, and balancing the uses of different user groups can be challenging. Livestock grazing is no exception. Overgrazing, especially on arid lands, can seriously damage ecosystems. Soil erosion, watershed destruction, and the loss of native plants are commonly cited as potential impacts. In the late 1980s, the most recent reports issued by the USDA and Department of Interior on the condition of grazing allotments showed that more than half of the public rangelands were in either poor or fair condition, and a GAO survey of range managers' professional opinions showed that the BLM and FS authorized grazing levels higher than the land could support on 19% of allotments (GAO 1988). Disagreements among citizen groups over the appropriate fee system for public-lands grazing, the refusal of some operators to pay grazing fees, the retirement of allotments, and calls for government buy-outs of permits are all key issues for both ranchers and other user groups (c.f. Section 9.2) (Vincent 2004).

Timber harvesting in the national forests has declined since the late 1980s (GAO 1999b). Meanwhile, a new emphasis is being placed on the utilization of small-diameter fuels, which are increasingly being removed from western forests to manage fire frequency and behavior. As public concern over wildland fire grows, the FS and other federal agencies have emphasized the development of a market for these fuels to help mitigate the costs of removal. For example, the 2004 Healthy Forests Restoration Act provides direct subsidies for the development of industries that use previously unmarketable biomass from mechanical thinning projects (16 USC 6531).

The policies that govern mineral extraction in the national forests have also come under increasing scrutiny over the past two decades. Public concern over the Mining Law of 1872, under which about 3.2 million acres of public land had been sold by the late 1980s, was sparked in 1986 when the federal government, under the law's patent provision, sold 17,000 acres for $42,500 to patent holders who then almost immediately resold the land to oil companies for $37 million (GAO 1989). A GAO report called for substantial changes to the law. Many of these controversial aspects of mining law remain unchanged today, and calls for reform continue (Humphries and Vincent 2004).

Meanwhile, as the western United States becomes increasingly urbanized, national forests are experiencing an increasing demand for recreational uses and, in many cases, decreasing support and demand for extractive uses. While these trends generally have not caused a clear rise in environmental or pro-conservation politics and policy, the forces of supply and demand are changing the face of the

national forests (Davis 2001). The following figure, provided by the USDA Forest Service to the General Accounting Office, clearly illustrates these changes (GAO 1999a).



Source: General Accounting Office (GAO) 1999a

Figure 19. Visitor Recreation Days as Compared to Timber Extraction, 1950-1997

Several important management issues have arisen from demographic and use changes. As discussed above, recreation users represent a wide variety of uses, and their management priorities also differ significantly and sometimes come into conflict. NRSE surveys identify trends in characteristics of outdoor recreation trips, wildlife as a component of recreation trips, service and accessibility issues for persons with disabilities, and user attitudes and opinions concerning site attributes, funding, and management policy. These data show that, nationally, large proportions of recreation users visit both more developed areas, such as developed campgrounds and restaurants, and less developed areas, such as primitive camping areas, trails away from roads, and wilderness areas. At the same time, significant proportions of users prioritize such potentially contradictory values as accessibility and wilderness preservation or service provision and low use fees (Cordell, Teasley, and Super 1997). Striking an acceptable balance among these values will continue to be a major challenge for forest managers.

Under conditions of increasing recreation demand, simply maintaining services and facilities has become a challenge for many forests. Between 1989 and 1991, the GAO issued several reports on the condition of the FS's recreational sites and areas and found that funding levels were hundreds of millions short of what would be needed to complete backlogged maintenance and reconstruction for trails, developed recreation sites, and wilderness areas. Funding shortages and a lack of consistent, uniform monitoring data were sited as the primary roadblocks to recreation management (GAO 1991). However, the practice of

increasing recreation fees to fill funding gaps has been contentious. In 1996, Congress authorized a recreation fee demonstration program, allowing land management agencies to test new or increased fees to help address unmet needs for visitor services, repairs and maintenance, and resource management. Evaluations of fee demo programs have cited concerns about equity, administration, interagency coordination, and the use of fee monies but concluded that increasing fees have not negatively impacted overall visitor numbers (GAO 1998, 2001b). Conversely, the fees charged for recreational special use permits, especially for large-scale commercial operations such as ski lodges, resorts, and marinas, have been criticized for remaining well below fair market value (GAO 1996). For additional discussion regarding fees, see section 9.1

Changes over time in forest uses and user groups can and should help guide forest managers in land use planning. The need to balance the priorities and values of a wide variety of extractive and non-extractive users aptly demonstrates both the challenges and the benefits of multiple use doctrine.

7. Designated Areas and Special Places

This section describes those places in and around the Kaibab National Forest (KNF) which have been designated for public uses such as camping and picnicking, wilderness, undeveloped and interpretive sites, fishing areas, scenic drives and vistas, or recognized as important to the public as so-called undesignated special places. An attempt has been made in this section to identify all designated areas and special places on the KNF. However, the nature of these resources makes this task difficult. As will be discussed in later subsections, some of these areas are held in secrecy by the parties who regard them as special (indeed that is why they are "special") and, thus, there is reluctance by these people to disclose these places and their locations.

A review of available information on designated areas and special places suggests that the KNF contains considerable recreational, interpretive, and cultural resources. Forest GIS Staff provided designation types and specific site names for nearly 150 designated areas within the KNF, including wilderness areas, trailheads, campgrounds and picnic areas. Additionally, the mountain ranges, plateaus, and water sources in an around the Grand Canyon area are home to a number of cultural sites and special places for the various Native American tribes in the region.

7.1 Historical context and methods of designation

This section describes the places in and around the KNF which have been either designated for public uses such as camping and picnicking, biking, hiking, OHV use, rock climbing, fishing, scenic drives and vistas, and so forth or recognized as important to the public as so-called undesignated special places.

The methods used to identify these places were as follows. For the first category (i.e., designated areas) the Forest Lansdcape Architect was asked to query INFRA and other data bases in order to identify the designated areas. Furthermore, many of these areas are also identified on the KNF website at http://www.fs.fed.us/r3/kai/recreation/index.shtml. Maps, geographic coordinates and brochures for these designated places can be found at http://www.fs.fed.us/r3/kai/maps/index.shtml.

The method used to identify the more elusive second category (i.e., undesignated special places) was to contact the Forest Archeologist. This individual was asked to name and describe, to the best her ability, the key special places in the forest. Also, she was asked to identify the key user publics and, finally, specify the main management issues associated with these special places.

The following subsections of this chapter are Designated Areas, Special Places, Key Issues for Forest Planning and Management, and, lastly, Literature Cited.

7.2 Designated areas

Table 32 contains the designated areas from various data bases for the KNF.

Table 32. Designated Areas on the Kaibab National Forest

Designated Area Type	Name	Source
Wilderness	Kanab Creek Wilderness Area	GIS
Wilderness	Saddle Mountain Wilderness Area	GIS
Geologic-Botanical Area	Frank's Lake	GIS
Wilderness	Kendrick Wilderness Area	GIS
Special Use Permit	Elephant Rocks Golf Course	GIS
Dept. of Defense (Arizona National Guard)	Camp Navajo	GIS
Research Natural Area	Garland Prairie	GIS
Botanical Area	Arizona Bugbane	GIS
Special Use Permit	Bill Williams Ski Area	GIS
Wilderness	Sycamore Canyon Wilderness Area	GIS
Campground	White Horse Lake	Infra
Campground	Kaibab Lake	Infra
Campground	Cataract Lake	Infra
Campground	Dogtown Lake	Infra
Campground	DeMotte	Infra
Campground	Jacob Lake	Infra
Campground	Indian Hollow	Infra
Campground	Ten-X	Infra
Fishing Site	Kaibab Lake Fishing Site	Infra
Fishing Site	Cataract Lake Fishing Site	Infra
Fishing Site	White Horse Lake Fishing Site	Infra
Fishing Site	JD Dam Lake	Infra
Fishing Site	Perkins Tank	Infra
Fishing Site	Elk Tank	Infra
Fishing Site	Little Hell's Canyon Lake	Infra
Fishing Site	Dogtown Lake Fishing Site	Infra
Fishing Site	Russel Tank Fishing Site	Infra
Group Campground	Kaibab Lake Group Site	Infra
Group Campground	Dogtown Lake Group Site	Infra
Group Campground	Jacob Lake Group Site	Infra
Group Campground	Ten-X Group Site	Infra
Historic Cabin	Old Vaughn Place (Snake Gulch)	Infra
Historic Cabin	Three Lakes Cabin	Infra
Historic Cabin	Jump Up Point	Infra
Historic Cabin	Spring Valley Cabin	Infra
Historic Marker	Ryan Site	Infra
Historic Marker	Brow Monument	Infra
Hotel/Lodge/Resort Privately Owned	Kaibab Lodge	Infra
Hotel/Lodge/Resort Privately Owned	Jacob Lake Inn	Infra
Hotel/Lodge/Resort Privately Owned	North Rim Country Store	Infra
Interpretive Site	Williams Visitor Information Center	Infra

Table 32 (cont.). Designated Areas on the Kaibab National Forest

Designated Area Type	Name	Source
Interpretive Site	Kaibab Lake Amphitheatre	Infra
Interpretive Site	Kaibab Plateau Visitor Info. Center	Infra
Interpretive Site	Ponderosa Trail	Infra
Interpretive Site	Parks Rest Area Nature Trail	Infra
Interpretive Site	Laws Spring Interpretive Site	Infra
Interpretive Site	Key Hole Sink Interpretive Site	Infra
Interpretive Site	Parks Route 66 Interpretive Site	Infra
Interpretive Site	Brannigan Pk. Rte. 66 Interp. Site	Infra
Interpretive Site	Pitman Valley Rte. 66 Interp. Site	Infra
Interpretive Site	Dogtown Lake Amphitheatre	Infra
Interpretive Site	Jacob Lake Ranger Station	Infra
Interpretive Site	Jacob Lake Amphitheatre	Infra
Interpretive Site	DeMotte Amphitheatre	Infra
Interpretive Site	Hull Cabin	Infra
Interpretive Site	Granview Lookout Tower	Infra
Interpretive Site	Ten-X Amphitheatre	Infra
Undeveloped Observation Site	Bill Williams Mtn. Lookout Tower	Infra
Undeveloped Observation Site	Big Springs Lookout Tower	Infra
Undeveloped Observation Site	Sycamore Point	Infra
Undeveloped Observation Site	Locust Point	Infra
Undeveloped Observation Site	LeFevre Overlook	Infra
Undeveloped Observation Site	North Timp Point	Infra
Undeveloped Observation Site	Fence Point	Infra
Undeveloped Observation Site	Timp Point	Infra
Undeveloped Observation Site	Parissawampitts Point	Infra
Picnic Site	Kaibab Lake Picnic Ground	Infra
Picnic Site	Garland Priarie Vista	Infra
Picnic Site	Dogtown Lake Picnic Ground	Infra
Picnic Site	Jacob Lake Picnic Ground	Infra
Playground Park Specialized Sport Site	Elephant Rocks Golf Course	Infra
Playground Park Specialized Sport Site	Williams Shooting Range	Infra
Playground Park Specialized Sport Site	Apache Stables	Infra
Playground Park Specialized Sport Site	Allen's Trail Rides	Infra
Ski Area Alpine	Bill Williams Ski Area	Infra
Ski Area Nordic	Spring Valley Ski Trailhead	Infra
Snow Play	Oak Hill Snowplay Area	Infra
Trailhead	Tusayan Bike	Infra
Trailhead	Red Butte	Infra
Undeveloped Interpretive Site	Moqui Stage Station	Infra
Undeveloped Interpretive Site	Lower Wright Place	Infra
Undeveloped Interpretive Site	Upper Wright Place	Infra
Undeveloped Observation Site	Crazy Jug Point	Infra
Undeveloped Observation Site	Jump Up Point	Infra
Undeveloped Observation Site	Marble View	Infra
Undeveloped Observation Site	Sowat's Point	Infra
Undeveloped Observation Site	House Rock Wildlife Area	Infra
Undeveloped Observation Site	Mingus Mountain Vista	Infra

Table 32 (cont.). Designated Areas on the Kaibab National Forest

Designated Area Type	Name	Source
Undeveloped Observation Site	House Rock Valley View	Infra
Undeveloped Trailhead	Bixler Saddle	Infra
Undeveloped Trailhead	City of Williams Link	Infra
Undeveloped Trailhead	White Horse Lake Trailhead	Infra
Undeveloped Trailhead	Sunflower Flat Mountain Bike	Infra
Undeveloped Trailhead	Sycamore Point Mountain Bike	Infra
Undeveloped Trailhead	Coxcomb Mountain Bike	Infra
Undeveloped Trailhead	Grandview Ski	Infra
Undeveloped Trailhead	NPS-Tusayan Ski	Infra
Undeveloped Trailhead	Ten-X Nature Trail	Infra
Wildlife Viewing Site	Coleman Lake	Infra
Trailhead	Benham	Infra
Trailhead	Ashfork Hill	Infra
Trailhead	Bandit	Infra
Trailhead	Bill Williams Mountain	Infra
Trailhead	Davenport	Infra
Trailhead	Devil Dog	Infra
Trailhead	Stage Station Loop	Infra
Trailhead	CCC Camp Interpretive	Infra
Trailhead	Buckskinner Park	Infra
Trailhead	KA Hill	Infra
Trailhead	Sycamore Vista	Infra
Trailhead	Summit Mountain	Infra
Trailhead	Scholz Lake	Infra
Trailhead	Kendrick Mountain	Infra
Trailhead	Pomeroy Tank	Infra
Trailhead	Sycamore Falls	Infra
Trailhead	Bull Basin	Infra
Trailhead	Dow Spring	Infra
Trailhead	Garland Prairie	Infra
Trailhead	Pumpkin	Infra
Trailhead	Deadhorse	Infra
Trailhead	Arizona Trail (205/89A)	Infra
Trailhead	Arizona Trail (205/67)	Infra
Trailhead	Arizona Trail (610/GCNP)	Infra
Trailhead	East Rim View Point	Infra
Trailhead	Snake Gulch-Kanab Creek	Infra
Trailhead	Lookout #120	Infra
Trailhead	Lookout #121	Infra
Trailhead	Lookout #122	Infra
National Scenic Byway	Kaibab Plateau-North Rim	Plan
Undeveloped Area	White Horse Lake Area	NAU
Undeveloped Area	Seiver Tank	NAU
Undeveloped Area	Bill Williams Mountain	NAU
Undeveloped Area	Sitgreaves Mountain	NAU
Undeveloped Area	Sycamore Rim	NAU
Undeveloped Area	Three Sisters Mountains	NAU

Table 32 (cont.). Designated Areas on the Kaibab National Forest

Designated Area Type	Name	Source
Undeveloped Area	Lonesome Pocket	NAU
County Road	Perkinsville Road	NAU
Undeveloped Area	Ruin Mountain	NAU
Forest Service Road	Twin Springs Road	NAU
Undeveloped Area	Barney Flats	NAU
Trail	Beale Road-Government Prairie	NAU
Undeveloped Area	Behind Hat Ranch	NAU
Undeveloped Area	Dogtown Wash	NAU
Undeveloped Area	Hearst Mountain	NAU
Undeveloped Area	Near Grand Canyon	NAU
Undeveloped Area	North Kaibab	NAU
Undeveloped Area	Northwest of Parks	NAU
Undeveloped Area	Pine Flat	NAU

Source: C. Minor. Landscape Architect. Kaibab NF.

7.3 Special places

The following information on Special Places was provided by John Hanson, Forest Archaeologist at KNF (and has been edited for clarity):

> I have asked the Kaibab National Forest (KNF) tribal partners about the issue of Special Places and can give the following information, which is general in nature and scope. The KNF staff is not at liberty to discuss this information in greater detail at this time. Most of the KNF's known special places are major landscape features. They are held and considered special by one or more of the consulting tribes, including the Hopi, Navajo Western Agency, Havasupai, Kaibab Paiutes, Hualapai, and Yavapai-Prescott. These special places include: Bill Williams Mountain, just south of Williams (Hopi, Navajo and many others); Bear Springs, east of Bill Williams Mountain (Hopi); Buck Mountain (Hopi); Kendrick Mountain (Hopi); Red Butte (Havasupai and Hopi); Kanab Creek drainage and tributaries (Kaibab Paiutes); all Grand Canyon Springs, associated with the Redwall-Muav aquifer (Havasupai); Snake Gulch (Kaibab Paiute and Hopi); Rain Tank Wash and environs (Havasupai); and the Kaibab Plateau (Kaibab Paiutes).

The KNF remains in constant and close contact with tribal neighbors and has consultation Memoranda of Understanding with the Hopi, Kaibab Paiute, and Havasupai. In the management practices, Hanson notes that the KNF staff is particularly sensitive to those special places of which they are aware and makes it a practice not to undertake project actions without extensive tribal consultations. These often, according to Hanson, include face-to-face meetings in the field. One can imagine that this is highly sensitive information. More specific information must come from tribal contacts.

7.4 Scenery management

Landscape Aesthetics: A Handbook for Scenery Management prepared by the USDA Forest Service (1995) provides a system for the management of forested landscapes such as those associated with designated areas and special places. This handbook deals with the character and nature of landscapes, the

integrity of natural scenes, how to obtain information from constituent publics regarding scenic preferences, determination of landscape visibility, and application of the Scenery Management System. The appendices contain information about the history of the scenery management issue in the U.S. Forest Service. The scenery management issue, according *Landscape Aesthetics*, arose during the 1960s as a result of public concern over the visibility of forest management activities, particularly timber cutting. This handbook provides a guide to practical methods for minimizing the impact of those activities on the user public, particularly on recreationists.

7.5 Key issues for forest planning and management

Special places can be described as spaces that have been given meaning by the humans who have experienced them in a way that inspired an emotional response (Cheng, Kruger, and Daniels 2003). Although often unrecognized in any official way, special places are significantly important to visitors of our national forests. However, it is special areas that the Forest Service recognizes for their "unique or special characteristics" (USFS 2005o) and for the contributions the areas make to our public lands. These areas are noted for generally agreed-upon attributes such as scenic qualities, habitat significance, and other virtues and are delineated on Forest Service maps. But as will be shown, the distinction between those designated areas and special places, which is the subject of this study, involves more than semantics and, thus, is worthy of discussion.

The key difference between the two terms is that areas are considered special for their own attributes, whereas the value of places derives from the people who experience them. A pristine riparian area, for example, is not necessarily a special place until a person or group forms an emotional attachment to it. More detailed explanations emphasize place as the intersection and integration of "ecological, economic, and spiritual values" (Williams and Patterson 1996) or of "biophysical attributes and processes; social and behavioral processes; and social and cultural meanings" (Cheng, Kruger, and Daniels 2003). All of these definitions make clear that special places are complex, subjective, and often exceedingly difficult to define in a concise manner.

Special places exist because humans form emotion-laden attachments to places based on sensory connections. Sometimes people are aware of this experience and the feelings they develop, but often this is an unconscious process. The ability and opportunity to form these connections fulfills peoples' needs to feel a part of something greater than themselves, which is "an essential aspect of human existence" (Brandenburg and Carroll 1995). Researchers advise that the recognition of unique and special places is of growing importance because people today, in this age of the homogenization of culture, seek unique and special qualities in their public lands (Williams and Stewart 1998). This, in turn, places higher demands on public lands, particularly in a rapidly growing state like Arizona.

With the complexities of special places in mind, researchers Williams and Stewart (1998) caution that it is unwise to reduce special places to "single attributes" as they are clearly a collection of values, contexts, and experiences. Consequently, it is not always possible to identify special places as if they are discrete points on a map. The challenge of mapping special places is thus ideally accomplished in cooperation with the individuals that value the place marking the general boundaries of the area (rather than a point) on the map (Richard and Burns 1998). Using a Geographic Information System (GIS) as a tool to combine special place maps of different groups or individuals can be very helpful to forest planners seeking to identify overlapping areas that might indicate future sources of conflict (Brandenburg, Carroll, and Blatner 1995). Disputes can arise over the diverse place definitions people give the same physical space, and given the subjective emotional nature of special places, these disagreements can be quite contentious. Forest professionals are advised that "various sentiments—whether local or non-local in origin, new or long established—are all legitimate, real, and strongly felt" (Williams and Stewart 1998).

Given that these places require sensory experiences, distant landmarks and conditions can affect one's experience of a particular special place and thus are a part of the place if only to that person. The following are some hypothetical examples in which the stimuli affecting the sensory experience at the place considered special are actually located miles away:

- An artist's sunny picnic and sketching spot includes a view of a particular mountain but is, in fact, quite a distance from that mountain. Although the setting alone might seem to be the special place, some of its value is inexorably tied to the vantage point and the desired view of the mountain. Thus the whole view-shed becomes part of the special place.

- A couple considers a forest meadow camping spot to be a special place not only for its beauty but also for the peace and quiet it affords. Because of its location, the breeze rustles the trees just enough to create a tranquil sound. Gas drilling is then permitted several miles from this place. The gentle breeze now carries the constant dull pulsing of the pumps. The special aspects of this place are not confined to the point where the meadow is noted on their map but also include the auditory qualities of the location. Consequently this special place is greatly impacted by a larger area of noise-generating activities and land management decision.

Thus, management of forests for the traditional extractive resources and motorized vehicle use of some may impact forest places that are considered special to others. These potential impacts can generate conflict and therefore a better awareness of the significance of special places can potentially enhance forest planning and management.

Researchers have recognized that the relationships people form with special places often cut across traditional categories of liberal/conservative, extractive/environmentalist, urban/rural, and so on (Brandenburg and Carroll 1995). Wondolleck and Yaffee (2000) advise that "places can be powerful symbols that encourage people…to interact with [others] that historically have been viewed as outside their geographic, interest-based, or perceptual boundaries." As a result, it can be difficult to pin down special places in public townhall meetings—people who strongly identify with a particular lifestyle group are often reluctant to speak out in a way not supported by that group, and yet may feel strongly about a very personal place relationship. Therefore it becomes important to consider a combination of styles of data collection in order to represent all of the interests. Some findings have suggested that the traditional public meeting may serve to exclude some interested groups or individuals and to encourage a 'majority (or loudest) rules' mentality (Brandenburg and Carroll 1995; Brandenburg, Carroll, and Blatner 1995). The potential loss of social capital within the community when voicing a dissenting opinion in a public meeting may outweigh one's strong special place connection: "an individual may not share his or her emotive personal values regarding the place in a public or group setting because of the pressures of the primary social groups' common values" (Brandenburg and Carroll 1995). Thus a mixture of town hall meetings, surveys, and open-ended individual interviews and conversations may provide a more balanced and clearer picture of special places in the forest (Brandenburg and Carroll 1995; Brandenburg, Carroll, and Blatner 1995).

Although the concept of special places has existed in social science literature for decades, the idea of incorporating it into forest management plans is a relatively new one. Cheng, Kruger, and Daniels (2003) emphasize the importance of understanding human-place relationships in planning for, anticipating, and mitigating potential conflicts in multiple-use public land (e.g. forests). These researchers propose that "a key goal of place-based inquiry is to foster more equitable, democratic participation in natural resource politics by including a broader range of voices and values centering around places rather than policy positions" (Cheng, Kruger, and Daniels 2003). Another study suggested that attention to stakeholders'

place value concerns could help avoid “continued acrimonious debate” (Brandenburg, Carroll, and Blatner 1995).

Traditionally, forest professionals focused on science-based management policies rather than on the subjective, difficult-to-quantify issues of public values (McCool 2001, Mitchell et al. 1993). Often, decision makers are lacking the tools and training necessary to achieve a deeper understanding of social issues (McCool 2003). Nonetheless, studies have shown that by becoming more aware of community values, the Forest Service shows good will toward the public and is better equipped to make management decisions that consider all of the potentially affected people (Mitchell et al. 1993, Richard and Burns 1998). In a recent social assessment prepared for two Idaho forests, the researchers advised that “[s]entiments about attachment to place…result in a configuration of social life, individual life, and geographic space that is likely to influence how forest management issues will be evaluated [by the public]” (Adams-Russell 2004). Thus, it benefits the forest managers to know the local communities and consider their individual interests when planning. Increased and continued interactions between forest managers and the visitor public are interpreted as a sign of respect for the local knowledge and culture (Mitchell et al. 1993, Williams and Stewart 1998).

Unfortunately, it is not safe to assume that visitors to public lands will recognize and share the values for that landscape that are in its best interest (McCool 2003). By encouraging special place relationships, the Forest Service stands to gain caring partners in the stewardship of the forest resource. This occurs because when people develop a bond with a location they become emotionally invested in the continued health and balance of the ecosystem (Mitchell et al. 1993, Wondolleck and Yaffee 2000).

Arizona is one of the fastest growing states in the country, and like many states in the Interior West, the majority of its population is concentrated in a few urban areas. The Forest Service should expect significant impacts on public lands near or adjacent to urban areas in Arizona. These stresses may come from increased day use, conflicts over traditional versus new uses, the desire of developers to build directly to forest edges, and more. For example, Kaibab forest planner, Bruce Higgins, mentioned that many of the in-holdings in the Williams district are being developed, and this is the type of trend that researchers believe will exacerbate the ecological issue of edge effects between developed and natural areas (McCool 2003).

8. Community Relationships

The purpose of this chapter is to describe the relationship between the Kaibab National Forest (KNF) and its neighboring communities. Knowledge of local communities is of interest to the Kaibab due to the importance of the reciprocal relationship that exists between the forest and these communities. Also, in some instances, there are legal authorities that require interaction with external communities. The subsections of this chapter are as follows: historical context and methods of designation, community profiles and involvement with natural resources, communities of interest and forest partnerships, historically underserved communities and environmental justice, community/forest interaction, and key issues for forest planning and management.

Information gathered on the nature of the relationships between the KNF and surrounding communities reveals a complex network of interests involved in a variety of issues that affect forest management and planning. In addition to wider public concern for issues such as water provision, wildlife protection, and fire prevention, a growing number of local government organizations and special advocacy groups are seeking to participate directly with the KNF in the formation of policy. Although a comprehensive analysis of the social network surrounding the forest is beyond the scope of this assessment, this section provides insight into the roles and purposes of key stakeholders and establishes a framework for the development of a comprehensive community-relations strategy.

8.1 Historical context and methods of designation

The concept of community relations in a culturally diverse society is about working together as one, both respecting and valuing individual differences (McMillan 1999). It encourages a greater degree of acceptance and respect for, as well as communication between, people of different ethnic, national, religious, cultural, and linguistic backgrounds. Furthermore, it promotes notions of inclusiveness, cohesion, and commitment to the way we shape our future. Above all, a good community relations system ensures that people from all backgrounds have full access to programs and services offered by government service providers, recognizing and overcoming barriers faced by some groups to enjoy full participation in the social, cultural, and economic life of the community.

The act of understanding and maintaining good community relationships is one of the most central responsibilities of the National Forest System. Nonetheless, the importance placed on documenting and enhancing community relationships as part of the overall process of forest planning must be regarded as a relatively recent development. At the time of the creation of the National Forest System through the Forest Reserve Act of 1891 and the Transfer Act of 1905, the principal community of concern to the agency was limited, consisting for the most part of a select group of forestry professionals, scientific and professional societies, special interests, and politicians. As such, the forest "community" of the late 19th and early 20th century was considerably less complex than the collection of interested stakeholders today.

However, following World War II, the general public began to show a greater interest in the activities of the national forests. By the late 1960s, with the advent of modern environmental concern, the forest community had expanded to include an extremely broad spectrum of the general public. Statutes such as the National Environmental Policy Act of 1969, the National Forest Management Act of 1976, and more recently, laws such as the Native American Sacred Lands Act of 2002 have officially recognized an array of publics and mandated that the USFS actively involve them in their management decisions. In addition to these and other statute laws, there are other written authorities which require and provide direction for external contacts: these include 36 CFR 219.9 (Public participation, collaboration, and notification), the Forest Service Manual chapters 1500 (External relations) and 1600 (Information services), and the Forest Service Handbook chapters 1509 and 1609. Effective public involvement requires knowledge, thus the purpose of this section is to assist in improving that knowledge base.

In this report, the term and concept "communities" received a broad interpretation and, hence, designation. In one sense, "communities" refers to the towns and cities located in the counties

surrounding the KNF. In a broader sense, however, "communities" refers also to tribes, governments, the media, educational entities, partners, and special advocacy groups. Both of these types of "communities" are examined in this section.

8.2 Community profiles and involvement with natural resources

This section presents links to community profiles of the towns and cities which are found in the counties surrounding the Kaibab. It also provides information on local news sources as a gauge of community involvement with natural resources, including Arizona's national forests. Weblinks to community profiles for each of the counties and selected municipalities within the area of assessment are listed below in Table 33. These profiles generally contain the following information for each community: historical information, geographic/location information, population data, labor force data, weather data, community facilities (e.g., schools, airports), industrial properties, utilities, tax rates, and tourism information. They were developed by the Arizona Department of Commerce, which also provides data for many other communities than those listed in Table 33. Table 34 categorizes national forest acreage in Arizona according to current congressional districts.

Table 33. Weblinks to Community Profiles for Counties and Municipalities in the Area of Assessment

Coconino County	**http://www.azcommerce.com/doclib/COMMUNE/Coconino%20County.pdf**
Flagstaff	http://www.azcommerce.com/doclib/COMMUNE/flagstaff.pdf
Sedona	http://www.azcommerce.com/doclib/COMMUNE/sedona-oak%20creek%20canyon.pdf
Page	http://www.azcommerce.com/doclib/commune/page.pdf
Williams	http://www.azcommerce.com/doclib/commune/williams.pdf
Fredonia	http://www.azcommerce.com/doclib/COMMUNE/fredonia.pdf
Mohave County	**http://www.azcommerce.com/doclib/COMMUNE/Mohave%20County.pdf**
Lake Havasu City	http://www.azcommerce.com/doclib/COMMUNE/lake%20havasu%20city.pdf
Bullhead City	http://www.azcommerce.com/doclib/COMMUNE/bullhead%20city.pdf
Kingman	http://www.azcommerce.com/doclib/commune/kingman.pdf
New Kingman	http://www.city-data.com/city/New-Kingman-Butler-Arizona.html
Colorado City	http://www.azcommerce.com/doclib/COMMUNE/colorado%20city.pdf
Yavapai County	**http://www.azcommerce.com/doclib/COMMUNE/Yavapai%20County.pdf**
Prescott	http://www.azcommerce.com/doclib/commune/prescott.pdf
Prescott Valley	http://www.azcommerce.com/doclib/COMMUNE/prescott%20valley.pdf
Cottonwood - Verde Village	http://www.azcommerce.com/doclib/COMMUNE/verde%20village.pdf
Sedona	http://www.azcommerce.com/doclib/COMMUNE/sedona-oak%20creek%20canyon.pdf
Camp Verde	http://www.azcommerce.com/doclib/COMMUNE/camp%20verde.pdf
Cottonwood	http://www.azcommerce.com/doclib/COMMUNE/cottonwood.pdf
Chino Valley	http://www.azcommerce.com/doclib/COMMUNE/chino%20valley.pdf
Kane County, UT	**http://www.kaneutah.com/**
Kanab	http://www.kaneutah.com/kanab.htm
Washington County, UT	**http://www.washco.state.ut.us/**
St. George	http://www.washco.state.ut.us/index.php?page=cities

Source: Arizona Department of Commerce
http://www.kaneutah.com/
http://www.washco.state.ut.us/

Table 34. Acreage of Arizona National Forests in Federal Congressional Districts

Congressional District	County	National Forest	Total Forest Service Acres
2nd			
	Pima	Coronado NF	42,961
	Santa Cruz	Coronado NF	418,879
			461,840
3rd			
	Coconino	Coconino NF	848,725
		Kaibab NF	1,528,594
		Prescott NF	43,695
	Mohave	**Kaibab NF**	5,487
	Yavapai	Coconino NF	431,119
		Kaibab NF	25,119
	Yavapai	Prescott NF	1,195,551
		Tonto NF	317,051
			4,395,341
5th			
	Cochise	Coronado NF	489,396
	Graham	Coronado NF	396,174
	Pima	Coronado NF	346,910
			1,232,480
6th			
	Apache	Apache NF	447,223
		Sitgreaves NF	45,591
	Coconino	Coconino NF	569,772
		Sitgreaves NF	285,693
	Gila	Coconino NF	6,063
		Tonto NF	1,698,631
	Greenlee	Apache NF	751,151
	Maricopa	Tonto NF	657,695
	Navajo	Sitgreaves NF	488,158
	Pinal	Coronado NF	23,331
		Tonto NF	199,558
			5,172,866
		State Total	**11,262,527**

Source: USFS Lands and Realty Management
http://www.fs.fed.us/land/staff/lar/LAR04/table6.htm

The communities surrounding the Kaibab NF have a history of involvement with the national forests and with natural resource issues in general. Southern Arizona, like the rest of the state, has long been dependent upon natural resources for commodity production, tourism, and aesthetic enjoyment. As a result, the public has frequently expressed intense interest in the use and management of these resources.

The best and most generally available record of community involvement and interest in the KNF and in natural resources is to be found in the state's newspapers. Journalists publish hundreds of articles each year dealing with almost every aspect of community involvement surrounding natural resources and the forest. Links to Arizona's major newspapers can be found at http://www.50states.com/news/arizona.htm.

A search of natural resource keywords was conducted for six state newspapers: *The Arizona Daily Star* (Tucson), *The Arizona Daily Sun* (Flagstaff), *The Arizona Republic* (Phoenix), *The High Country Sentinel* (Heber-Overgaard), *The Prescott Valley Tribune* (Prescott), and *The Grand Canyon News* (Williams). These newspapers were chosen because they represent the principal newspapers for cities located near each of the six national forests. In addition to the names of the six Arizona national forests, the keyword search included terms such as "forest," "conservation," "wildlife," and "endangered" species. The results of this keyword search are presented in Table 35. *The Grand Canyon News* (Williams) is the newspaper most proximate to the KNF and thus will be of greatest interest to this assessment. However, the other five newspaper searches are also presented because journalism today has broad statewide and even national coverage which might reveal stories related to the KNF in many of the state's newspapers.

The keyword search (Table 35) indicated that the six newspapers have collectively published more than 100,000 articles potentially related to natural resources since 1999. This would indicate a tremendous public interest and opportunity for involvement with the state's natural resources. Also, the data indicate that the KNF's nearest paper, *The Grand Canyon News*, is one of Arizona's important papers in terms of natural resource news coverage. Furthermore, the search indicated that the KNF itself was the subject of 722 news articles during the period examined (approximately 1999-2005 although the exact period varied by newspaper).

Table 35. Natural-Resources Related Keyword Search of Six Arizona Newspapers

City:	Flagstaff	Phoenix	**Williams**	Heber-Overgaard	Prescott	Tucson		
Newspaper:	Arizona Daily Sun	Arizona Republic	**Grand Canyon News**	High Country Sentinel	Prescott Valley Tribune	Arizona Daily Star	Total	Percent of
Nearest National Forest:	Coconino	Tonto	**Kaibab**	Apache-Sitgreaves	Prescott	Coronado	Articles	Total Articles
Issues Searched:	1999-April 2005	1999-April 2005	**2000-April 2005**	2000-April 2005	2003-April 2005	1999-April 2005	Found	Found
Key Word Searched:								
Forest	8,066	319	**732**	399	367	3,414	13,297	13.2%
Natural Resources	690	79	**29**	23	16	688	1,525	1.5%
Conservation	732	133	**109**	7	62	732	1,775	1.8%
Water	0	1,382	**741**	244	728	10,960	14,055	14.0%
Lake	7,313	788	**294**	294	178	2,708	11,575	11.5%
River	5,033	625	**370**	131	279	n/a	6,438	6.4%
Stream	1,602	169	**24**	36	67	n/a	1,898	1.9%
Recreation	3,224	2,334	**483**	314	211	1,969	8,535	8.5%
Fish	4,708	5,028	**131**	248	285	2,646	13,046	13.0%
Native fish	98	2	**15**	15	3	135	268	0.3%
Sportfish	22	0	**0**	0	2	1	25	0.0%
Fishing	480	502	**55**	434	147	1,035	2,653	2.6%
Forest Fire	247	15	**28**	3	16	2,491	2,800	2.8%
Mining	165	282	**25**	9	43	1,504	2,028	2.0%
Endangered species	544	18	**23**	2	14	638	1,239	1.2%
Wildlife	2,747	167	**185**	135	120	2,824	6,178	6.1%
Native Wildlife	22	4	**5**	0	0	24	55	0.1%
Bird Watching	17	26	**1**	30	1	153	228	0.2%
Hunting	3,231	514	**56**	253	63	1,114	5,231	5.2%
Range	0	1,194	**56**	67	146	1,062	2,525	2.5%
Grazing	865	41	**40**	11	19	402	1,378	1.4%
The National Forests:								
Coconino National Forest	1,046	15	**15**	3	0	22	1,101	1.1%
Coronado National Forest	120	9	**2**	20	0	755	906	0.9%
Apache-Sitgreaves Nat. For.	109	12	**2**	87	0	68	278	0.3%
Kaibab National Forest	**441**	**16**	**245**	**0**	**0**	**20**	**722**	0.7%
Tonto National Forest	135	37	**3**	14	7	176	372	0.4%
Prescott National Forest	141	11	**7**	73	78	27	337	0.3%
Total articles found	41,798	13,722	**3,676**	2,852	2,852	35,568	100,468	100.0%

Past issues of *The Grand Canyon News* were also examined to determine the types of natural resource topics that were of interest to the public in the region surrounding the KNF. Selected topics and their dates of publication in *The Grand Canyon News* are provided in Table 36 below:

Table 36. Selected Public Issues for the Kaibab National Forest

Topic	Date
1. USFS Centennial celebration scheduled on North Kaibab Ranger District	June 2005
2. Residents meet with agencies to discuss law enforcement issues	June 2005
3. Topeka prescribed fire is scheduled to take place on the South Rim	June 2005
4. Condors thrive at the Canyon	May 2005
5. Grand Canyon most popular tourist spot	May 2005
6. Snow delays opening on the north rim	May 2005

Source: The Grand Canyon News

8.3 Communities of interest and forest partnerships

The KNF has many communities of interest: that is, entities that share an interest along with the Forest Service in the management of the forest. For the purposes of this assessment, a distinction should be made between communities of interest and forest partners. Communities of interest may include residents of physical communities or members of an interest group, agency, or private organization that are influenced by, and in turn, stand to influence forest planning and management. Consideration of their stake in forest management is important, but not specifically directed through formal partnership agreements. Following, in Table 37, is a listing of some of those communities of interest. These are grouped according to government agencies, special advocacy groups, educational, business, and media organizations. Specific contact information and the names of principal individuals are available from the KNF. An especially noteworthy community of interest to the KNF is the Native American tribes. The tribal contact list for the KNF is found in Table 38. There are nine tribes for which the KNF has consultation responsibilities.

Table 37. Communities of Interest for the Kaibab National Forest

Governmental	Special Advocacy Groups	Business
Mayor's Office – City of Williams	Grand Canyon Historical Society	Williams Chamber of Commerce
Williams Police Department	Grand Canyon Rotary	Grand Canyon Chamber of Commerce
Coconino County Board of Supervisors	Grand Canyon Trust	Grand Canyon Railway
Coconino County Parks and Recreation	Arizona Wilderness Coalition	
Arizona State Land Department	Wildlife Society – Arizona chapter	**Media**
Arizona Department of Transportation	Arizona Wildlife Federation	Williams News
Arizona State Parks	Forest Guardians	
Grand Canyon National Park	Center for Biological Diversity	**Educational**
U.S. Congressional delegation	Northern Arizona Audubon Society	N.A.U. – Ecological Restoration Institute
Arizona Governor's office	Sierra Club, Grand Canyon Chapter	
Arizona Congressional delegation	Southwest Forest Alliance	
	Arboretum of Flagstaff	
	The Nature Conservancy	
	Northern Arizona Flycasters	
	Public Lands Interpretive Association	
	Arizona Antelope Foundation	
	Rocky Mountain Elk Foundation	
	Wildlife Society – Arizona Chapter	

Source: B. Higgins, Planner, Kaibab NF

Table 38. Tribal Consultation Responsibilities for the Kaibab National Forest

Arizona Indian Tribe
Havasupai Tribe
Hopi Tribe
Hualapai Tribe
Kaibab Paiute Tribe
Navajo Nation
San Juan Southern Paiute Tribe
Yavapai-Apache Nation
Yavapai-Prescott Indian Tribe
Pueblo of Zuni

Source: D. Firecloud, Regional Tribal Program Manager, Southwestern Region, USDA Forest Service

National Forest Partnerships

Although the USFS claims responsibility for approximately 193 million acres of forests and grasslands throughout the United States, it acknowledges that effective management and protection of the vast resources within forest boundaries would be virtually impossible without the effective involvement of individuals and organizations from neighboring communities. Due to the agency's constraints on personnel, funding, and other resources as well as the direct links between forest management and community well being, the FS places a high priority on the development of partnerships. In addition to the obvious financial benefits that accrue from partnerships, the agency views them as part of its continuing cultural shift from "lone rangers" and "rugged individualists" to facilitators and conveners. As such, partnerships have become a central strategy for strengthening relationships between the Forest Service and surrounding communities (USFS 2005c).

In an effort to promote partnerships and guide individual forest managers through the process of establishing and maintaining cooperative relationships with surrounding communities, the USFS has recently updated its Partnership Guide. Intended as a reference tool for employees and partners of the FS, the guide offers insight into the structure and management of non-profit organizations, issues surrounding forest cooperation with volunteers, and use of grants and other agreements as well as information on the common challenges and ethical issues involved in sustaining effective partnerships. The guide also includes an array of resources and tools based on previous partnership efforts of the Forest Service (NFF and USFS 2005).

Like other forests throughout the country and the region, the KNF is involved in multiple partnerships that contribute to forest health and fire management, the construction of community infrastructure, and economic involvement with natural resources. Previous planning processes such as the National Forest Management Act (NFMA) have attempted to implement policies aimed at enhancing participation of a growing number of interested stakeholders in forest planning and management.

Meanwhile, the Region 3 (Southwest) of the FS has also outlined several priorities which directly affect the development of partnerships. They include the restoration of ecological functionality to forests and rangelands, the protection of communities adjacent to national forests, and the contribution to the economic vitality of communities. In addition to these priorities, the Southwestern Region of the FS has established five objectives regarding the formation and maintenance of partnerships. They are to continue to increase the visibility and understanding of successful partnerships and collaboration, encourage and promote cultural change that supports and expands partnerships and collaboration, develop and maintain an accessible and user-friendly partnership process, identify the opportunities and needs for forest and regional coordination, and educate and train for a common understanding of partnerships.

Although the term "partnership" may be defined differently by individual stakeholders with distinct agendas, the FS has identified nine broad categories of forest partnerships: volunteers, cost-share contributions, donations and gifts, memoranda of understanding, cooperating associations, grants, "payments to states," stewardship contracting, and interagency collaboration.

Obviously, the number and quality of forest partnerships varies over time according to the level of interaction between individual forests and their communities. The Southwest Region, however, has established a list of partner organizations according to the nature of their involvement. This list, obtained from the regional partnership website, is included as Table 39 below. Additional information on partnerships in the Southwest Region is available at http://www.fs.fed.us/r3/partnerships/. Table 40 presents a list of the partnerships between the KNF and external groups.

Table 39. United States Forest Service, Southwest Region Partners

Conservation Organizations	
Ducks Unlimited	http://www.ducks.org/
Environmental Systems Research Institute (ESRI)	http://www.conservationgis.org/
Federation of Flyfishers	http://www.fedflyfishers.org/
Mule Deer Foundation	http://www.muledeer.org/
National Wild Turkey Federation (NWTF)	http://www.nwtf.org/
Quail Unlimited	http://www.qu.org/
Rocky Mountain Elk Foundation	http://www.rmef.org/
Trout Unlimited	http://www.tu.org
Wildlife Management Institute	http://www.wildlifemanagementinstitute.org/
Arizona Conservation Partners	
Arizona Department of Game and Fish	http://www.gf.state.az.us/
Arizona Wildlife Foundation	http://www.azwildlife.org/
Sonoran Institute	http://www.sonoran.org/
New Mexico Conservation Partners	
New Mexico Department of Game and Fish	http://www.wildlife.state.nm.us/
New Mexico Wildlife Federation	http://leopold.nmsu.edu/nmwf/
Audubon Society – New Mexico State Office	http://www.audubon.org/chapter/nm/nm/rdac/index.html
New Mexico Museum of Natural History	http://museums.state.nm.us/nmmnh/nmmnh.html
Youth Conservation Organizations	
AmeriCorps – New Mexico	http://www.nationalservice.gov/state_profiles/overview.asp?ID=38
National Association of Conservation and Service Corps	http://www.nascc.org/
Student Conservation Association	http://www.thesca.org/
Rocky Mountain Youth Corps	http://youthcorps.org/
National Ecosystem Health Organizations	
National Arbor Day Foundation	http://www.arborday.org/
Arizona Ecosystem Health Organizations	
The Nature Conservancy – Arizona	http://www.nature.org/wherework/northamerica/states/arizona/
Sky Island Alliance	http://www.skyislandalliance.org/
Grand Canyon Trust	http://www.grandcanyontrust.org/
Greater Flagstaff Forest Partnership	http://www.gffp.org/
Northern Arizona University	http://www.for.nau.edu/cms/
New Mexico Ecosystem Health Organizations	
New Mexico Forestry Division	http://www.emnrd.state.nm.us/forestry/index.cfm
New Mexico Highlands University	http://www.nmhu.edu/forestry/
The Nature Conservancy – New Mexico	http://www.nature.org/wherework/northamerica/states/newmexico/

Table 39 (cont). United States Forest Service, Southwest Region Partners

National Interpretive Recreation	
Public Lands Information Center	http://www.publiclands.org/home.php?SID=
Association of Partners for Public Lands	http://www.appl.org/
Tread Lightly	http://www.treadlightly.org/
National Outdoor Leadership School	http://www.nols.edu/
Leave No Trace	http://www.lnt.org/
Arizona Interpretive Recreation	
Arizona Trail Association	http://www.aztrail.org/
Arizona State Association of 4-Wheel Drive Clubs	http://asa4wdc.org/
New Mexico Interpretive Recreation	
New Mexico Environmental Education Association	http://www.eeanm.org/
Back Country Horsemen – New Mexico	http://www.bchnm.org/
New Mexico Council of Guides and Outfitters	http://nmoutfitters.org/
New Mexico Volunteers for the Outdoors	http://www.nmvfo.org/
Arizona Environmental Organizations	
Sierra Club – Arizona Chapter	http://www.sierraclub.org/az/
New Mexico Environmental Organizations	
New Mexico Wilderness Alliance	http://www.nmwild.org/
Sierra Club – New Mexico Chapter	http://www.sierraclub.org/nm/

Source: USDA Forest Service, Southwest Region – Partnerships
http://www.fs.fed.us/r3/partnerships/

Table 40. Partnerships for the Kaibab National Forest

Cooperator Name	Project Title
Arizona Department of Public Safety	N/A
Arizona Game and Fish Department	Dogtown Lake Recreational Area
Arizona Game and Fish Department	Fence Modifications
Arizona Game and Fish Department	Water Catchment Improvements
Arizona Game and Fish Department	Grassland Maintenance Project
Arizona Game and Fish Department	Three Lakes Habitat Protection
Arizona Game and Fish Department	Grassland Restoration Projects
Arizona Game and Fish Department	Grassland Restoration Planning
Arizona Game and Fish Department	Deer Tag Sales
Arizona Public Service Company	NEPA Analysis
Arizona Strip Field Office – BLM	Colorado Plateau Fire Management
Black Mesa Pipeline, Inc.	NEPA Analysis
Bryce Canyon National Park	Colorado Plateau Fire Management
Bureau of Indian Affairs	Western Region Office
Cedar City Field Office – BLM	Colorado Plateau Fire Management
City of Williams	Dog Town Boating Facility

Table 40 (cont.). Partnerships for the Kaibab National Forest

Cooperator Name	Project Title
City of Williams	City of Williams Visitor Center
Coconino County	Youth Conservation Corps
Coconino County	Navajo Trail Rehabilitation
Coconino County Sheriff's Department	Cooperative Law Enforcement
Coconino County Sheriff's Department	Search and Rescue Operations
Dine Power Authority	NEPA
Dixie National Forest	Colorado Plateau Fire Management
Glen Canyon National Recreation Area	Colorado Plateau Fire Management
Havasupai Tribe	Havasupai Tribe
Hopi Cultural Preservation Office	Hopi Tribe
Merritt Lumber Company	N/A
Public Lands Interpretive Association	N/A
Rocky Mountain Elk Foundation	Water Tank Improvements
Rocky Mountain Elk Foundation	Archaeological Survey
Rocky Mountain Elk Foundation	Grassland Maintenance Project
Rocky Mountain Elk Foundation	Water Catchment Projects
Rocky Mountain Elk Foundation	NEPA – Tusayan Pipeline Project
Southern Paiute BIA	Colorado Plateau Fire Management
University of Arizona	U of A Cooperative Extension
USDI, National Park Service	Kaibab Fire Station Position
USDI, National Park Service	Fire Planning and Management Activities
USDI, National Park Service	Grand Canyon National Park
Williams – Grand Canyon CC	Chamber of Commerce
Williams Police Department	Cooperative Law Enforcement
Zion National Park	Colorado Plateau Fire Management

Source: Kaibab NF, Grants and Agreements

8.4 Historically underserved communities and environmental justice

This section deals with special communities located near the KNF which may have been historically underserved in terms of public services received and their participation in business. This information will be of particular interest to KNF managers as they consider ways to improve delivery of services to minority groups which may have been underserved in the past.

Arizona's rapid population growth has affected the availability of affordable housing and fundamental social services, segregated social groups, created urban sprawl, stressed the state's infrastructure, and caused financial burdens and conflicts for local and state governments (Arizona Town Hall 1999). These factors can have an especially negative influence on Arizona's ethnic and racial minorities and their employment opportunities.

Data on individual racial and ethnic groups as a percentage of total county population were presented in Chapter 2 of this report (Table 7). Native Americans are a significant minority population in the area of assessment; however, individuals of multiple race and/or Hispanic origin grew at a much faster rate between 1990 and 2000. Note that individuals claiming Hispanic heritage may also claim identification

with other ethnic and racial groups and be counted in those categories as well. The percentage of Native Americans is particularly noteworthy in Coconino County at 28.51% of the total population as of 2000.

The Census Bureau has estimated that, by 2025, Whites will comprise 57.5% of Arizona's population. The number of people of Hispanic origin is expected to increase from its 1995 level of 20.6% of the population to 32.2% in 2025. The African American population is projected to grow by 65.7% and the Native American population by 34.9% (U.S. Census Bureau 2005, Partnership for Community Development 2000). Thus, in the future, the national forests must prepare to serve even larger minority populations than at present.

Possible assistance in the formation of minority- and woman-owned businesses is another issue for the KNF to consider. Table 41 presents data on minority- and woman-owned businesses for surrounding Arizona counties. As the data indicate, minorities currently own a smaller number of businesses than the size of their populations might suggest.

Table 41. Minority- and Women-owned Businesses by County, 2002

County	All Businesses	Total Minorities	African American	Native American	Asian or Pacific Islander	Hispanic or Latino Origin	Women
Coconino	17,940	2,456	-	1,046	341	927	5,339
Mohave	19,378	1,363	-	254	216	951	5,499
Yavapai	31,225	2,030	-	218	-	1,579	8,439

Sources: Arizona Dept. of Commerce, 2002

Finally, the long term goals of the USFS have led to the development of specific outreach activities designed to enhance the participation of underserved populations in forest planning and management. They include the provision that each FS unit will perform the following tasks in the following general areas (USFS 2000b):

Ecosystem Health

- plan for underserved communities and develop an outreach analysis
- ensure the representation of underserved communities in team membership, participation, and implementation of decisions
- develop a nationally coordinated effort to establish dialogue with underserved communities about FS programs and land management
- expand financial and technical support for underserved communities' participation in land management activities

Multiple Benefits to People

- develop relationships by establishing a FS presence within networks of urban and rural community-based organizations that represent underserved people and conduct community assessments with underserved populations by working closely with existing leadership and resources
- partner with a broad range of non-governmental organizations to increase benefits and other FS resources to underserved communities to help them organize and develop national and localized programs of work which reflect their priorities
- collaborate with underserved populations to create customized delivery systems

Scientific and Technical Assistance

- conduct a research and development review with the direct involvement of underserved people to identify their concerns
- share and conduct collaborative social science research through a Federal Center of Excellence to share information across organizations, foster effective use of federal research resources, and include the needs of underserved communities in setting social science research priorities
- improve access to and distribution of information, including research findings and technical assistance, through partnerships with existing public and private networks involving cities and counties (such as the Joint Center for Sustainable Communities), federal agencies (such as the Sustainable Development Network), culturally sensitive employees (such as employee resource groups), and professional marketing specialists with expertise that benefits underserved communities

Effective Public Service

- develop training programs that strengthen the capabilities of employees and partners to engage underserved communities
- increase scholarship, education, and work experience opportunities to train employees and partners in how to engage underserved groups
- implement grants and training agreements for employees along with representatives of underserved communities

In addition to these general guidelines, the FS currently interacts with its neighboring communities in the following ways:

Rural Community Assistance

The FS implements the national initiative on rural development in coordination with the USDA Rural Business and Cooperative Development Service and state rural development councils. The goal is to strengthen rural communities by helping them diversify and expand their economies through the wise use of natural resources. Through economic action programs, the FS provides technical and financial assistance to more than 850 rural communities that are adversely affected by changes in the availability of natural resources or in natural resource policy.

Urban and Community Forestry

The FS provides technical and financial assistance to more than 7,740 cities and communities in all U.S. states, the District of Columbia, and Puerto Rico for the purpose of building local capacity to manage their natural resources.

Human Resource Programs

Human Resource Programs provide job opportunities, training, and education for the unemployed, underemployed, elderly, young, and others with special needs, simultaneously benefiting high-priority conservation work. These programs are a major part of the FS work force.

Southwestern Strategy

In November of 1997, the Secretaries of Agriculture and the Interior issued a directive to their agency leaderships to develop a collaborative approach to resolving the quality of life, natural resource, and cultural resource issues in Arizona and New Mexico. The result was the Southwest Strategy, which

addresses community development and natural resources conservation and management within the jurisdictions of the involved federal agencies.

Environmental justice is the fair treatment and involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, or tribal programs and policies. Inequities can result from a number of factors, including distribution of wealth, housing and real estate practices, and land use planning that may place African Americans, Latinos, and Native Americans at greater health and environmental risk than the rest of society (Bullard 1993).

The White House, with Executive Order 12898, elevated environmental justice issues to the federal agency policy agenda. EO 12898 instructs each federal agency to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations" (Clinton 1994).

The USDA's goals in implementing EO 12898 are as follows (from USDA 1997):

- To incorporate environmental justice considerations into the USDA's programs and activities and to address environmental justice across mission areas;

- To identify, prevent, and/or mitigate disproportionately high or adverse human health and environmental effects of USDA programs and activities on minority and low-income populations;

- To provide the opportunity for minority and low-income populations to participate in planning, analysis, and decision making that affects their health or environment, including the identification of program needs and designs;

- To review and revise programs in order to ensure incorporation and full consideration of the effects that agency decisions have on minority and low-income populations;

- To develop criteria consistent with the USDA's environmental justice implementation strategy which determine whether the agency's programs and activities have, or will have, a disproportionately adverse effect on the health or the environment of minority or low-income populations;

- To collect and analyze data to determine whether agency programs and activities have disproportionately adverse human health or environmental effects;

- To collect, maintain, and analyze information on the consumption patterns of populations that principally rely on fishing, hunting, or trapping for subsistence;

- To develop, as part of ensuring the integration of the USDA's environmental justice strategy, outreach activities that include underserved populations in rural and urban America, including women, minorities, persons with disabilities, and low-income people, as well as tribal governments, in natural resource management activities;

Native Americans pose a special environmental justice case since few reservations possess environmental regulations or waste management infrastructures equivalent to those of the state and federal governments. In the past, these areas have been targeted for landfills and incinerators. However, these ecological inequities have met with an increasingly resistant environmental justice movement.

8.5 Community-forest interaction

As the national forests and other federal agencies focus on stakeholder and community-based management, the social linkages, or social networks, formed by different groups and individuals are becoming increasingly important. Social networks provide a framework for balancing needs and priorities in the forest, and they often provide a cadre of willing and eager participants in the forest planning process. Nonetheless, they can also represent a significant challenge to managers trying to accommodate multiple conflicting uses.

The FS has identified three processes resulting from greater agency attention to the social value of forests, the need for greater public involvement, and the ecosystem approach to management. Frentz and others (1999) describe them as follows:

- An increasing demand by the general public, interest groups, and local communities to become more involved in resource management planning and decision-making;
- An awareness that stewardship of natural resource systems by knowledgeable and committed community members is more effective than top down governmental mandates and regulatory procedures; and
- Growing support for an ecosystem management approach that is community based and incorporates both ecosystem and community sustainability into an overarching theory of holistic ecosystem health.

As awareness and commitment to these processes grow, so does the need for forest managers and planners to understand the social linkages within and surrounding the national forests. The FS emphasizes these ideas in many of its policies and publications. For example, it lists among its guiding principles,

- Striving to meet the needs of our customers in fair, friendly, and open ways;
- Forming partnerships to achieve shared goals; and
- Promoting grassroots participation in our decisions and activities. (USFS 2005n)

Recent changes to the NFMA planning process similarly underscore the role of social linkages in forest management, stating, “Public participation and collaboration needs to be welcomed and encouraged as a part of planning. To the extent possible, Responsible Officials need to work collaboratively with the public to help balance conflicting needs, to evaluate management under the plans, and to consider the need to adjust plans” (USFS 2005o). A careful examination of existing and potential social networks can help guide these planning processes.

A social network analysis visualizes social relationships as a set of “nodes” (individual actors within the network) and “ties” (the relationships between the actors) (Hanneman 1999). Formal network analyses generally diagram social networks of interest and often attempt to quantify the personal relationships involved. Computer software is available to conduct formal network analyses by calculating aggregate measures of centrality, density, or inclusiveness and aiding in the visualization of social networks (Garson 2005). A variety of methods exist for graphically displaying these networks (Brandes et al. 1999).

In addition to displaying and/or quantifying the relationships among individuals, sociologists and other social scientists often use social network theory to study relationships among organizations (Stevenson and Greenberg 2000). The distinguishing feature of social network analysis is that it focuses on the relationships among individuals or organizations instead of analyzing individual behaviors, attitudes, or beliefs. The social interactions are seen as a structure that can be analyzed, and formal network analysis aims to describe social networks as compactly and systematically as possible (Galaskiewicz and Wasserman 1994, Hanneman 1999).

While social network analysis offers a significant alternative to analyzing individuals and organizations as if they were isolated from one another, it also contains some problematic simplifications. First, in viewing social networks as analyzable structures, this method inevitably treats networks as static and overlooks the dynamic nature of interpersonal and inter-organizational relationships (Sztompka 1993). It is assumed that the position of the actor in the network is static (Stevenson and Greenberg 2000); however, most managers that work with the public would agree that the relations among network members are not only changeable but are, in many cases, in almost constant flux.

In addition, the focus on quantitative features of social linkages overlooks a wide variety of important qualitative factors, including the kinds of ties involved and the power relationships among the actors (Bodemann 1988). For example, the ties in a social network can represent relationships as different as kinship, patronage, reciprocity, avoidance, or assistance (Breiger 1988). Managers attempting to explain community relationships through social network analysis would no doubt consider ties between network members involved in cooperative management and those between opponents in litigation to be very different; however, in the mere visual representation of a network it would be difficult, if not impossible, to represent this difference.

Finally, network analysis often assumes that social networks operate as constraints on action (or, at the very least, as constraints on peripheral actors) and fail to recognize the agency of individuals acting within the network (Stevenson and Greenberg 2000). This is not a necessary function of network analysis, but this common assumption can easily hamper attempts at cooperative management.

As such, a reliance on formal network analysis for understanding stakeholder linkages can be somewhat misleading. Unfortunately, the graphic representations and statistical conclusions of social networks offered by formal network analyses often convey an impression of objectivity and inclusiveness. It is important to note that research on networks has thus far generally failed to draw reliable conclusions on the actions of individuals based on the characteristics of their networks (Stevenson and Greenberg 2000). Many social researchers suggest that the qualities of relationships and the strategies used by actors should be of more concern than a visual or mathematical representation of networks.

In place of a formal network analysis, which is both time consuming and based in an incomplete conception of social interactions, a view of the KNF's social linkages that communicates the importance of relationships and the uncertain, active, and dynamic nature of the actors is produced below.

Provan and Milward (2001) outline three broad groups of "network constituents," or stakeholders: principals, agents, and clients. Principals are individuals or groups which "monitor and fund the network and its activities." Agents "work in the network both as administrators and service-level professionals," and clients "actually receive the services provided by the network." However, as Provan and Milward also note, actors can and often do fulfill multiple roles, acting, for example, as a client at one geographical or political level and as an administrator at a different level. Figure 20 illustrates the interactions of these groups in the context of natural resource management. Different stakeholders interact with one another and with the resource being managed.

According to this view, a national forest is managed, not simply by a USDA chain of command, but by a network that includes a wide variety of stakeholders. The resource itself forms the "center" of the network, and these stakeholders both affect the management of the resource and are in turn affected by its management direction. In a very real sense, non-USDA actors such as county officials, the U.S. Border Patrol, and even media and citizen groups participate in forest management. Figure 21 provides examples of principals, agents, and clients involved in the management of KNF (see Table 37 for a more complete list).

While this network is by no means exhaustive, Figure 21 shows how different actors interact in the social network involved in managing the Kaibab. However, this typology is neither unambiguous nor static. For example, forest-level administrators can function as principals, agents, or clients, depending on the

situation and geographic scale. They monitor and administrate the network, but they also receive services provided by other stakeholders, such as recreation users and those with special permits. Local residents are generally seen as clients of the forest, but some residents also actively participate in network monitoring to ensure that they receive the services they expect. Environmental groups, while perhaps most often seen as clients, can also play an important role in monitoring management and even directly helping manage the forests. While none of these designations is set in stone, this framework provides a unique perspective on the linkages among and the roles of different stakeholders (or network members) in managing the forest.

The framework and diagrams presented here are intended to facilitate a discussion of social networks and the roles of stakeholders that effectively describes the actors and relationships in the Kaibab social network. Future research might address the different needs, priorities, skills, and challenges of different kinds of stakeholders. For example, how does policy or practice differentiate among principles, agents, and clients? Does the Forest Service's vision of visitors and users (i.e., clients) as customers in any way influence the latter's ability to participate in forest planning processes? What management practices help Forest Service personnel treat different kinds of stakeholders in a fair and equitable manner? And, perhaps most importantly, how can managers and planners use existing networks to bring maximum benefit to the forest itself?

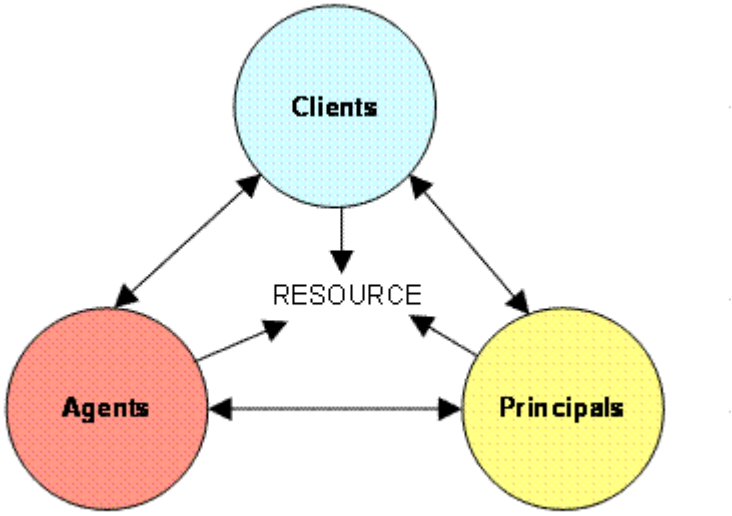


Figure 20. Social Networks in Natural Resource Management

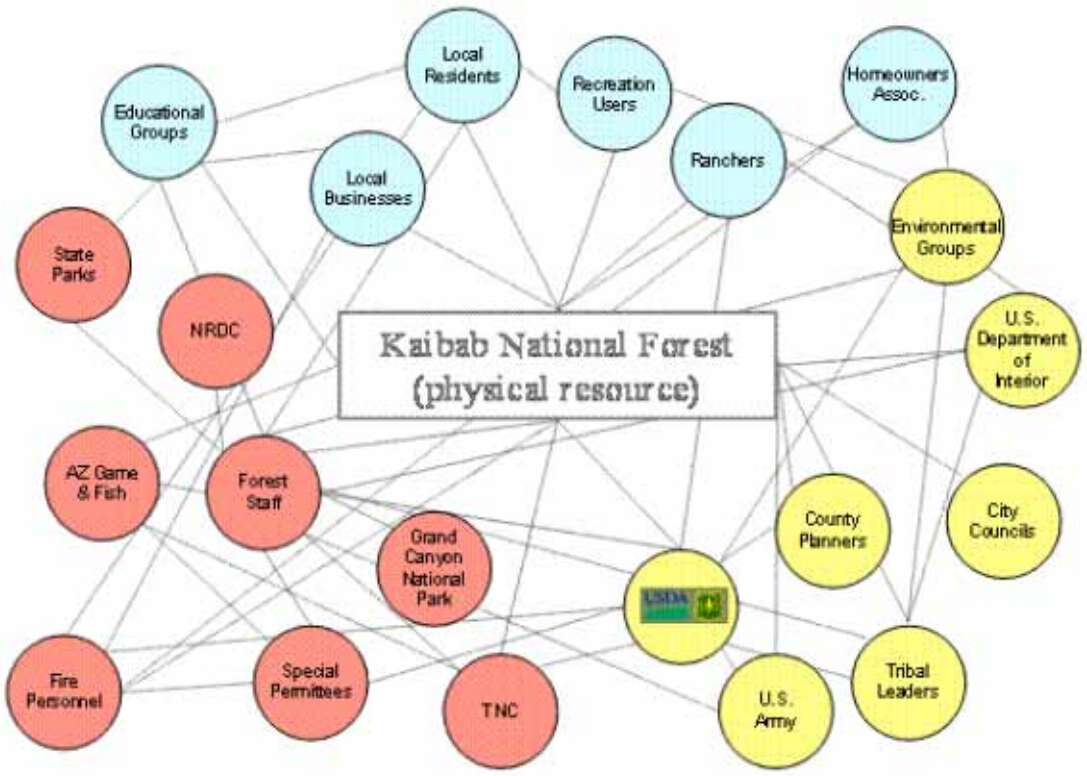


Figure 21. Partial Social Network for the Kaibab National Forest

8.6 Key issues for forest planning and management

Arizona communities are experiencing rapid economic and demographic transformation, resulting in considerable changes in racial and economic diversity, multiculturalism, and social values. These trends have been well documented in other parts of this assessment through analysis of both quantitative and qualitative data which point to the challenges the national forests face as they try to accommodate diversity while delivering forest-based goods and services to the public.

Such an identification and analysis of social and economic trends, however, does not provide sufficient information on community stability, satisfaction, or capacity needed to fully analyze interactions between individual communities and national forests. Therefore, increasing attention has been paid to assessing community interaction with natural resource managers. Methods such as social impact assessments and community surveys have gained prominence as communities evolve from rural to urban patterns of development while striving to incorporate more diverse interests in participatory decision making. An added benefit of these community-based approaches is that they can provide opportunities for community members to verify, comment on, and learn from collected secondary economic and social data. Perhaps most importantly, previous studies have shown that participants in these types of social assessments are better able to identify common concerns and links to structural conditions in a manner that contributes to resource and community development planning (Kruger 1996, USFS 2003f).

Although the size and organization of communities have traditionally been considered important influences in the fields of natural resource and forest management, there remains a lack of appreciation

for the various roles and modes of interaction between communities and resource managers. The failure to recognize these different roles and purposes contributes to increasingly polarized debates over the appropriateness of forest management practices. A case in point is the common conflict between communities clinging to historic dependence on commodity use and those expanding communities seeking to capitalize on natural amenities to support retirement and recreation-based activity. Such disputes often make management objectives for stewardship and sustainability difficult, if not impossible, to achieve. Alternatively, a better understanding of the nature of relationships between forests and neighboring communities can provide important insight into divergent and sometimes competing interests and concerns. Ultimately, this process could provide for an enhanced analysis of forest management alternatives and their potential affect on communities (USFS 2003f).

The task of planning for multiple resource use is further complicated by the number and nature of interest groups and stakeholders that interact with the forest in a given community. In fact, as one Forest Service technical report asserts, "There are as many potential measures of organization and interaction in social communities as there are ecological interactions in biophysical systems" (USFS 2003f). Evidence of the dynamic nature of relationships between the KNF and various groups, individuals, and organizations is found in ongoing debates over the preservation of open space, the administration of recreation and grazing fees, the protection of water resources and wildlife, and the security of forest lands and communities along the international border.

Despite a growing consensus as to the importance of analyzing community relationships for forest planning and management, there remain relatively few applicable guidelines for developing an effective community-forest relations strategy. Whereas the Forest Service Manual and the Forest Service Handbook provide some guidance for the conduct of external relations, there is an opportunity for a more comprehensive plan to guide the management of local community relations. A good starting point for the development of such a plan is offered by research conducted by the Queensland Government in Australia on strengthening relationships between communities and government agencies (McMillan 1999).

The study focuses on five principal recommendations for enhancing the effectiveness and sustainability of community relations that may also prove useful to Arizona's national forests. They include 1) development of a concept and definition of community relations relevant to the national forest, 2) development of an understanding of the possible benefits of a positive community relations program, 3) development of a common agency image of what a positive community relations program might resemble, 4) development of some essential principles of an effective community relations program, and 5) development of a list of potential community relations questions and issues to be dealt with by the community relations plan (McMillan 1999).

Although identification of the essential principles in an effective community relations program will require community input and therefore vary in individual cases, the Queensland study offers the following examples:

- *Leadership*—improvements in community relations require leadership at the forest level.
- *Local Ownership*—community relations strategies work best when they are owned and designed by the local community, the groups in that community, and the institutions that serve that community.
- *Administrative Support*—community relations needs to be supported by appropriate forest administrators.
- *Planning*—in seeking to ensure positive conditions for community relations, planning is the key.
- *Positive Framework*—community relationships seek to provide a positive framework and infrastructure for dealing with community-related problems.

- *Integration*—community relationships work better when they are integrated into existing forest processes and procedures rather than regarded as add-ons that can be addressed outside the framework of those processes and procedures.
- *Holistic Approach*—effective community relations strategies frequently need to be multi-pronged and very frequently require the collaboration of a number of organizations, groups, and agencies in order to work effectively.
- *Informed Decision Making*—information from the community is vital in informing community relations, as is information from other sources (including research literature), from other organizations who have tried community relations projects, and from people with knowledge and expertise in the field.
- *Inclusion of Diversity*—community relations values and respects diversity and works to include all cultural and linguistic backgrounds into the social, cultural, and economic life of the community as well as into the decision-making mechanisms of the community.
- *Ongoing Effort*—recognize that improved community relations is an ongoing effort and requires a long-term commitment by the agency. (McMillan 1999)

Finally, a list of issues and potential questions for inclusion in a comprehensive community-forest relationships plan should address the following:

- *Access to services*—how will the forest improve its delivery of goods and services and what will those goods and services be?
- *Employment opportunities*—does the forest have a role in providing improved employment opportunities for the community?
- *Information*—how might the forest improve its flow of information to the community?
- *Racial sensitivity*—how might the forest be more sensitive in accommodating the needs of different racial and ethic groups who use the forest?
- *Youth*—is there a special role for the forest in helping the community's youth?
- *Media*—how might the forest develop a positive working relationship with the community's media services?
- *Change*—finally, how will the forest cope with the future in terms of changes in the community and in the delivery of forest-based goods and services to that community? (McMillan 1999)

Although these lists represent a fraction of the elements that may be addressed in any single plan for community-forest relations, they reflect the diversity and urgency of the issues the Kaibab National Forest faces as it takes positive steps to respond to a rapidly-changing demographic, political, and physical environment.