United States Department of Agriculture

Forest Service

Southwestern Region

Carson Forest Plan Monitoring and Evaluation Report

Fiscal Year 2010

Forest Supervisor Certification of Forest Plan Sufficiency

The Carson Forest Plan is sufficient to guide management of the Forest over the next year. This document summarizes the monitoring efforts completed on the Forest through Fiscal Year 2010.

Approved by: Kendall Clark 24 May 2011

Kendall Clark Date
Forest Supervisor

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Part 1- Monitoring Activities and Evaluation

Summary of Monitoring Conducted and Evaluation of Program Areas

Biological Environment

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Goals:

To manage for healthy ecosystems, provide goods and services in an environmentally sound fashion, use new knowledge, develop an integrated inventory, cooperate with other agencies, and promote awareness and appreciation of species.

- **Maintain habitat for viable populations** of all wildlife and fish species found on the Forest and improve habitat for selected species. This will be accomplished indirectly through intensive habitat management.
- **Support New Mexico Game and Fish Department** in meeting its objectives of the New Mexico Comprehensive Wildlife Plan and in the reintroduction of native wildlife and fish species. Favor native species over new exotic species in stocking and introductions whenever possible.
- **Maintain and/or improve habitat for presently listed threatened or endangered species** of animals and other species as they are classified as threatened or endangered. Work toward the eventual recovery and delisting of species.

Threatened and endangered species populations and habitat will be protected and improved as necessary to aid in the recovery of the species.

Monitoring:

THREATENED AND ENDANGERED SPECIES

Threatened and endangered (T&E) species are surveyed for project and program monitoring requirements (e.g., 1996 region-wide Amendment for Forest Plans), as well as to provide planning information during project analysis. Monitoring is ongoing for T&E species on the Forest for known nesting locations. The primary species monitored on the Carson are southwestern willow flycatcher and Mexican spotted owl. Project level inventory provides biologists information on the potential occurrence of T&E species, as well as, whether management activities (e.g., grazing, recreation, tree cutting, etc.) are a threat to a species' habitat or existence. Supporting documentation for project level inventory is located at each of the ranger districts. Threatened and endangered monitoring results do not indicate significant alterations in occupied or potential habitat that could result in a downward trend of habitat condition or populations.

In 2005, Critical Habitat was designated for the **southwestern willow flycatcher**. The Forest has one Critical Habitat Unit designated on the Camino Real Ranger District. The status of this population appears to be stable. Four breeding pairs with nesting sites have been regularly

detected since monitoring began. In 2010, around 200 acres were inventoried. The monitoring data is forwarded to the US Fish and Wildlife Service.

Mexican spotted owl (MSO) populations are very low with the last documented presence on the Jicarilla Ranger District in 1993. The District contains about 3,500 acres of highly fragmented habitat for the MSO, further degraded by severe drought in 2000 to 2002. It is likely that drought has made formerly occupied habitat unsuitable due to the lack of prey species. Critical habitat for the Mexican spotted owl was designed in 2004 with two Critical Habitat Units established on the Jicarilla Ranger District. There were no monitoring surveys done in 2008 for Mexican spotted owl populations on the Carson National Forest. Protocol MSO surverys were conducted in 2010 in the El Rito Ranger District which resulted in negative findings. Protocol MSO surveys are scheduled to be conducted in FY 2011 on the Tres Piedras, El Rito and Camino Real Ranger Districts.

REGION 3 SENSITIVE SPECIES

The primary Region 3 sensitive species inventoried and monitored on the Carson are northern goshawk, American peregrine falcon, and Rio Grande cutthroat trout. This type of inventory and monitoring provide the biologists information on the occurrence of TE&S species on the Forest, as well as, whether management activities (e.g., grazing, recreation, tree cutting, etc.) are a threat to a species' habitat or existence. Sensitive species monitoring results do not indicate significant alterations in occupied or potential habitat that could result in a downward trend of habitat condition or populations.

Inventory and monitoring of known **northern goshawk** nesting areas produced the following information:

Table 1 2006-2010 Northern Goshawk inventory and monitoring results

District		Acres of inventory	Results (sightings, nests)	Monitoring of Known Goshawk Nesting areas
Canjilon	2010	800	0	3 nest sites no goshawks located
	2009	1,200	3 PFAs established: 1) 2 fledgings 2) 1 fledging 3) 0 young	0
	2008	400	0	0
	2007	0	0	0
	2006	0	0	0
El Rito	2010	5,100	0	0
	2009	100	1 PFA established; 1 fledging	0
	2008	0	0	0

District		Acres of inventory	Results (sightings, nests)	Monitoring of Known Goshawk Nesting areas
	2007	0	0	1 nest site – no birds
	2006	0	0	1 nest site – no birds
Jicarilla	2010	0	0	2 nest sites, no nesting goshawk located.
	2009	2,929	0	2 nest sites, no nesting goshawk located.
	2008	3,550	0	2 nest sites, no nesting goshawk located. Individual goshawk seen at one site.
	2007	36,854	1 new pair, 2 add'l birds	1 nest site, no goshawks located
	2006	0	0	Single adult
Camino Real	2010	0	0	3 nest sites, no goshawks located.
	2009	229	0	0
	2008	0	0	0
	2007	645	0	5 nest sites – no goshawks located
	2006	0	0	5 nest sites – no goshawks located
Tres Piedras	2010	0	0	2nest sites – no goshawks located
	2009	0	0	5 nest sites – no goshawks located
	2008	0	0	
	2007	0	0	3 nest sites – no birds
	2006	1,500	0	2 nest sites – no birds
Questa	2010	0	0	0
	2009	2,376	0	0
	2008	0	0	0
	2007	0	0	0
	2006	4,000	1 single adult	0

Peregrine falcon surveys are conducted by the New Mexico Game and Fish. There are currently six known nest sites on the Carson National Forest. Survey information may be obtained from the

New Mexico Department of Game and Fish. There were no surveys done on the Carson National Forest in 2010.

Wild Trout Populations

Baseline inventory and monitoring of **Rio Grande cutthroat trout** (RGCT) populations are ongoing throughout the Carson NF. The surveys are performed using the three-pass regression method and population estimates are calculated from the regression. Samples from populations are also collected for genetic analysis. These surveys are ongoing and help determine the level of management appropriate for the population. Supporting documentation is located at the Forest Supervisor's office.

The Carson National Forest was a cooperating agency with the Fish and Wildlife Service and the New Mexico Department of Game and Fish on a native fish restoration within the Rio Costilla watershed in 2007. The Comanche drainage project area within the Rio Costilla watershed is approximately 40 stream miles. The area treated with rotenone in the Comanche drainage was approximately 20 stream miles. Monitoring subsequent to the treatment found approximately 6 juvenile Rio Grande cutthroat trout (RGct). A second treatment, which is typical in restoration projects, was implemented in 2008. At this time it is appropriate to consider the removal effort complete. Electrofishing was done in 2009 to insure that no fish have passed through or been moved above the fish barrier on Comanche creek. No fish were found above the barrier. Approximately 5000 Rio Grande cutthroat trout representing several age classes were stocked in the Comanche drainage. Additional stocking was done in 2010. Approximately 1300 one year old Rio Grande cutthroat trout and 23,000 fry were stocked.

The threat of whirling disease contaminating New Mexico's trout fisheries is a risk. The RGct is extremely susceptible to whirling disease. The disease has been detected in several hatcheries in the state and infected fish have been found in the San Juan River in the northwestern corner of the state. How the disease will affect the RGct and other trout is not yet known, but the consequences could be significant. The installation of fish barriers and restoration efforts for RGct, public education and the improved condition of water quality in many of the Carson's mountain streams may be factors in containing this disease.

Population surveys were conducted on seven streams for fisheries monitoring and baseline inventory in 2010. A multiple pass depletion survey technique was used on one site. A new protocol being tested for Rio Grande cutthroat streams by NMDG&F was used on six streams. The protocol uses a single pass removal on multiple sites (typically 3-4) throughout a stream. This is being used on small streams and is expected to provide a better population estimate based on representation throughout the stream.

The Rio San Antonio was surveyed using the multiple pass depletion technique. Two sites were surveyed. The upper site was an existing site and a new site was established below Stewart Meadows. Surveys using the new protocol were conducted on San Cristobal, La Cueva, Chuckwagon, Gold and Tanques Creeks. Reports will be completed in 2011.

No funds were appropriated to conduct macroinvertebrate surveys or stream habitat surveys.

MANAGEMENT INDICATOR SPECIES

A summary of status and habitat trends for 11 management indicator species (MIS) identified in the Carson Forest Plan was initiated in FY 1999. MIS species are elk, bighorn sheep, turkey, Abert's squirrel, red squirrel, hairy woodpecker, white-tailed ptarmigan, juniper (plain) titmouse, Brewer's sparrow, resident trout, and aquatic macroinvertebrates.

The summary of population and habitat trends for the MIS identified in the Carson Forest Plan provides biologists with a forest-wide evaluation of MIS habitat to use when analyzing a project's site-specific effects. The original assessment was completed in 2003, but it is a living document with updates as more information, published research, and habitat and population studies, became available. The document was last updated in 2007. The 2007 MIS assessment has been posted on the Carson National Forest website: (http://www.fs.fed.us/r3/carson/plans/mis%20assessment/2007_mis_assessment.shtml). Portions of the text in this wildlife section were taken directly from the MIS assessment, therefore when seeking references for the information, refer to the MIS document. This assessment is undergoing update in 2010 and into 2011.

In cooperation with the New Mexico Department of Game and Fish (NMGF), aerial surveys were conducted for **elk** in FY2008 and 2009 to determine reproductive and adaptive success. There were no aerial surveys done in FY 2010. The NMGF has changed methods to estimated populations. The NMGF is using harvest data and models to estimate populations. Surveys were done in various locations on the Carson National Forest. Supporting documentation for elk aerial monitoring is located at the New Mexico Department of Game and Fish State Office in Santa Fe, New Mexico.

Elk numbers had steadily increased over the past two decades; however, a decline in herds occurred a few years ago. This decline was believed to be due to drought and increased hunting permits to meet state herd population objectives. Monitoring in 2009 has indicated that the elk population on the on the Forest are stable. On the Jicarilla Ranger District, data shows a steady or increasing population from 1981-1993, and a slightly decreasing population since then. The trend for elk habitat from 1986 to 2005 is estimated to have increased from 1,362,760 to 1,424,074 acres or upward by almost four percent. However, the increased elk habitat was due to the fact that the forest plan did not originally include sagebrush as occupied elk habitat. It has been documented that elk currently are utilizing sagebrush habitat on the Carson National Forest, so sagebrush was added as a management area for elk, so in realty there was no net increase in habitat. Overall, the habitat condition and trend for Rocky Mountain elk on the Carson National Forest is considered fair and stable.

Annual counts of the reintroduced **Rocky Mountain bighorn sheep** population in the Wheeler Peak, Latir and Pecos Wilderness Areas (majority of the Pecos herd is on the Santa Fe National Forest, with some use on the Carson) are conducted by the New Mexico Department of Game and Fish (NMGF). This monitoring is performed to determine the herd's reproductive and adaptive success. There is an apparent decline in the population of bighorn sheep within the Wheeler Peak and Pecos herds based on data from the NMGF. The population decline in the Wheeler Peak herd is not as severe as the Pecos herd. NMGF also notes that the Wheeler Peak herd is the largest in the state. The Latir herd is experiencing an increase in ewes and lambs. NMGF is planning implementation of a ewe hunt in 2011 . The habitat for the all three populations of bighorn sheep

is considered stable and in good condition. The data is held by the New Mexico Game and Fish Department.

The Management Areas referenced are as indicated in the Carson National Forest Plan. The following table lists the management areas:

Table 2 Forest Plan Management Area Descriptions

Management Area (MA)	Description
1	Spruce under 40% slope
2	Spruce over 40% slope
3	Mixed Conifer under 40% slope
4	Ponderosa Pine under 40% slope
5	Mixed Conifer and Ponderosa Pine over 40% slope
6	Aspen
7	Unsuitable Timber
8	Piñon/Juniper
9	High Elevation Grassland
10	Low Elevation Grassland
11	Revegetation Areas
12	Sagebrush
13	Oak
14	Riparian
15	Potential Recreation Sites
16	Recreation Sites
17	Wilderness
18	Wild and Scenic River
19	Special Areas
20	Semi-primitive
21	Valle Vidal

Point count transects for breeding birds, which include **hairy woodpecker, juniper titmouse and Brewers sparrow** are conducted on the Carson National Forest. These transects were monitored from 2003 -2006, but were not done in 2009 or 2010 These counts provide trend data of NTMB migrations, as well as for MIS species trend information. Supporting documentation is located at the Forest Supervisor's office.

Hairy woodpecker is found in all forested habitats. Bark beetle outbreaks typically stimulate an increase in woodpecker populations. The bark beetle outbreaks in 2003 resulted in scattered pockets of dying trees (piñon pine and Douglas-fir, for example) forest-wide providing habitat for

woodpecker populations. The attached map shows the Index of abundance for the hairy woodpecker on the Forest and other study areas. In 2006, 53 birds were found in five habitats and densities for hairy woodpecker were done for Ponderosa pine and piñon juniper habitats. The population in Ponderosa pine was calculated at 0.15 birds per hectare and in piñon-juniper were 0.028 birds per hectare. There were no surveys conducted in FY 2010.

Rocky Mountain Bird Observatory (RMBO) has conducted surveys throughout the Southern Rocky Mountains and notes that populations of this species have shown dramatic increases after natural disasters, such as burns or major insect outbreaks. In 2004 they detected sufficient numbers of this species to provide a density estimate in the beetle infested piñon-juniper habitat. Overall, the RMBO has detected the hairy woodpecker on all the RMBO point-count transect monitoring projects.

The forested habitats correspond to Carson Forest Plan Management areas, MA 1, MA 2, MA 3, MA 4, MA 5, MA 6 and MA 7. There were no harvest treatments from 2002 to 2010 that would have eliminated any areas from habitat. From 1986 to 2005, the estimated habitat trend for hairy woodpecker on the Carson National Forest is from 106,880 acres to 112,444 acres of habitat, or upward trend of five percent.

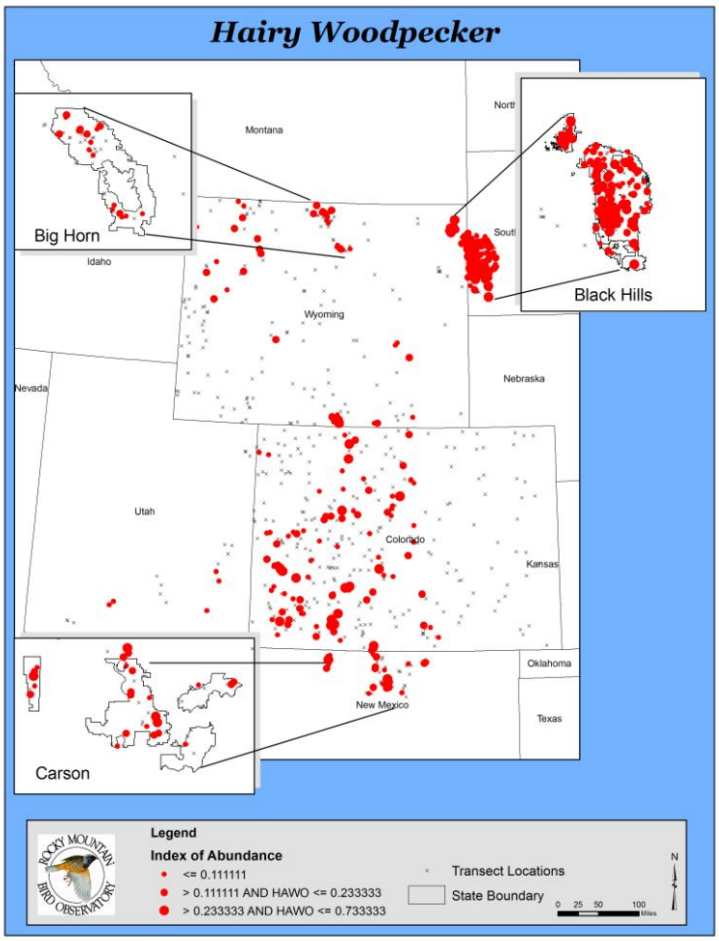

Figure 1 Hairy Woodpecker (Beason et al. 2005)

Juniper titmouse (plain titmouse) had a population density of 0.22 birds / hectare in 2006. The survey data seems to indicate the titmouse population on the forest at this time is on the low side, but holding at a stable level. Prior to 2005, there were over 33,000 acres of dead piñon mapped. Likely more acres of piñon were lost after that date, however, by 2008 the bark beetle were no longer invasive. It would be expected that juniper titmouse as is reflected in the low numbers, currently this is not definitely known at this time.

This species is dependent on large seeds such as those provided by juniper and piñon pine, and acorns rather than insects. The die off of many piñon pines may have increased the number of tree cavities available for breeding. The surviving piñon in the infestation areas and uninfested adjacent areas experienced a moderate to heavy seed crop in 2006. This indicates an increase of available soil moisture in the infested areas as trees died in addition to the increased moisture levels.

The juniper titmouse is found throughout the piñon-juniper forest type which is Carson Forest Plan Management Area, MA 8. Forest management activities have maintained the habitat for this bird; natural causal organisms caused a loss of habitat is some areas. The trend in habitat acres shows a decrease from 355,409 to 348,239. This is a downward trend of an estimated 7,170 acres, or about two percent of available juniper titmouse habitat on the Carson National Forest since 1986. Monitoring has shown that approximately 327,120 acres of piñon-juniper habitat has been affected by piñon bark beetle during its outbreak from 2000 to 2008. However, the data has is not detailed enough to determine how much of the area have been removed as juniper titmouse habitat.

Figure 2 from left to right: Hairy Woodpecker, Juniper Titmouse, and Brewer's Sparrow.

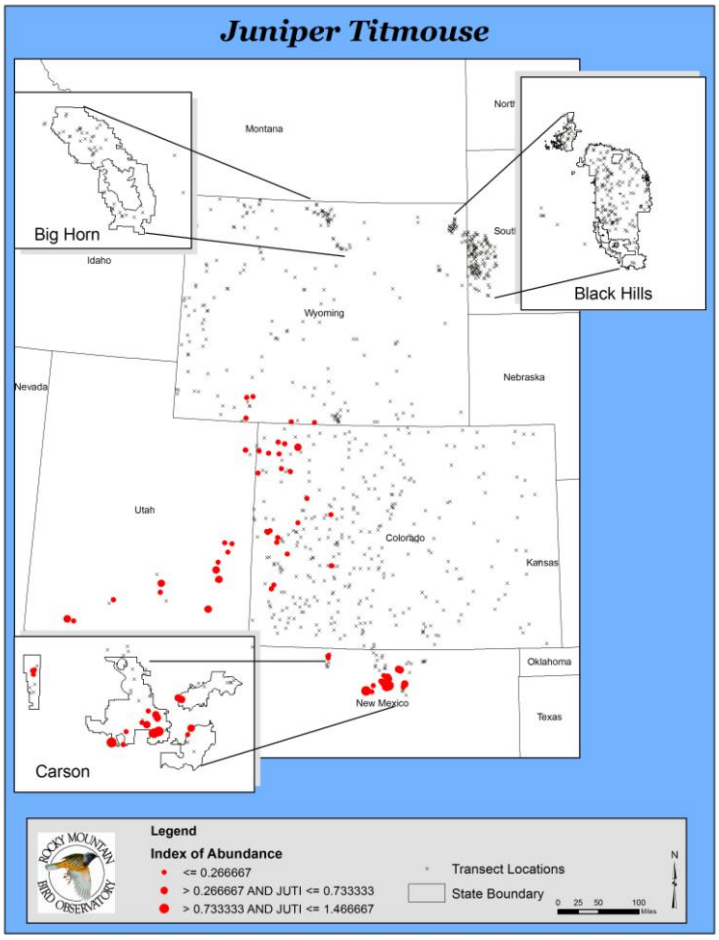

Figure 3 Juniper Titmouse (Beason et al. 2005)

Brewer's sparrow was estimated to have a density in 2005 of 0.376 breeding birds per hectare in the sagebrush type. The species was also detected in both the piñon-juniper and grassland habitats with a density of .049. In 2006 the density was found to be 0.266 birds / hectare in sagebrush and 0.02 birds / hectare in the piñon-juniper.

Rotenberry (1999) states that Brewer's sparrow population numbers are "highly variable, depending on habitat and year." For example, one site in Oregon sampled for seven years varied from 50 to 350 individuals/km2 (0.5 to 3.50 individuals/ha). A site may be unoccupied in one year, then attain densities of 1.50 individuals / ha the next year. Because of high annual variation, estimates from small-scale or short-term studies must be handled with caution. Although the numbers have fluctuated for the Forest, they appear to be within normal range for the species. There were no surveys for Brewer's sparrow in FY 2010.

Forest management activities have maintained the amount of sagebrush lands available for this species. Sagebrush lands correspond to Management Area, MA 12, of the Carson Forest Plan. Habitat trend for Brewer's sparrow on the Carson National Forest is up by about 55 percent or 29,152 acres. Existing habitat for the Brewer's sparrow on the Carson National Forest is in good condition with an upward trend.

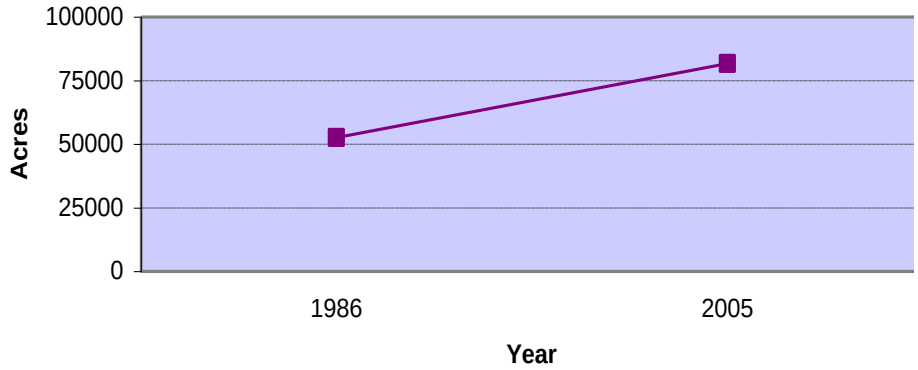

Figure 4 Changes in Brewer's Sparrow Habitat on the Carson National Forest, 1986-2005

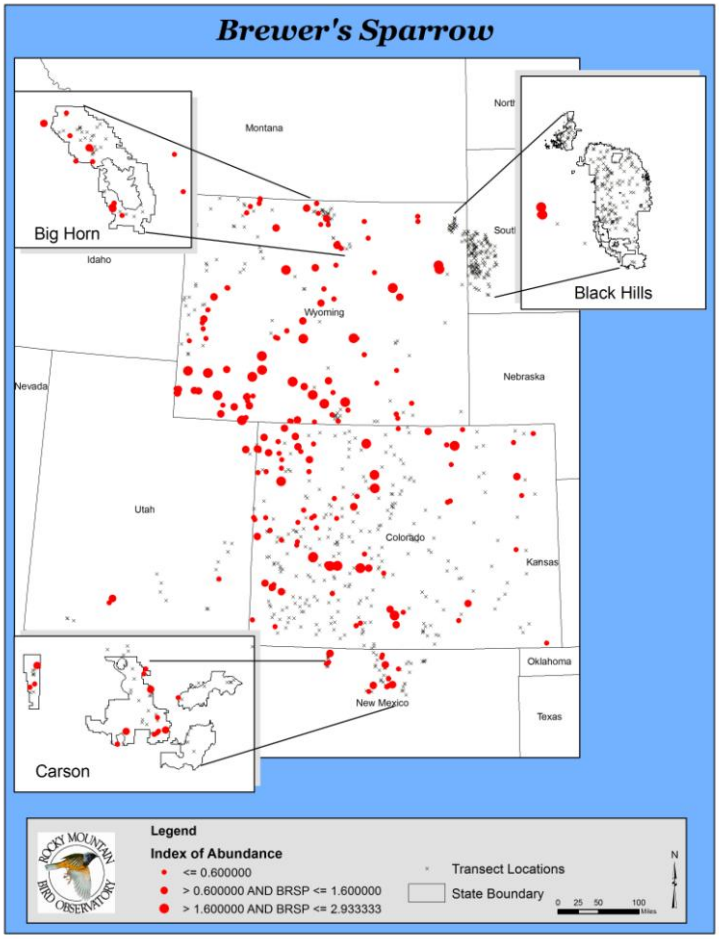

Figure 5 Brewer's Sparrow (Beason et al. 2005)

Abert's squirrel surveys showed the density of 0.01 squirrels / ha; 1 squirrel / 247 acres, in 2005 and 2006. Monitoring was conducted in 2008 and 2009. On the 31 plots monitored since 2003 the overall mean density of 0.017 squirrels / ha; 1 squirrel / 154 acres was recorded. Six addition plots established in 2006 in the Valle Vidal, and monitored in 2008 and 2009 is included, the

mean densitychanged to 0.021 squirrel / ha; 1 squirrel / 130 acres. While the numbers are still low in comparison to other studies, they are similar numbers found in Utah in 2003 and in the San Juan National Forest in 2004 (Frey 2005). While comparing monitoring results on the Carson with other recent studies conducted in Arizona and Utah, two patterns are apparent to Dr. Frey (2005). First, it appears the entire region experienced declines in Abert's squirrel densities from 2001 to 2004. Second, the regional declines are probably attributable to drought conditions. In north-central New Mexico, drought conditions began in 2000 and extended into the beginning of 2004. In contrast with previous years, moisture was high during 2006; therefore, the increased density of Abert's on the Carson in 2006 is most likely due to increased moisture.

Abert's squirrel habitat corresponds to Carson Forest Plan Management Areas MA 4, MA 5, and MA 7. Stand with a dense oak understory and the presence of piñon and juniper had lower squirrel densities. The habitat trend for Abert's squirrel from 1986 to 2005 is estimated to have increased from 53,220 to 63,794 acres of interlocking canopies or an upward trend of almost 20 percent.

Figure 6 Changes in Abert's Squirrel Habitat on the Carson National Forest, 1986 to 2005

Table 3 Mean Density/Acre for Aberts Squirrel (Frey 2003-06 and 2008-09)

	2003	2004	2005	2006	2008	2009
Excl. Valle Vidal	.005/ha	.005/ha	0.010/ha	.012/ha	.017/ha	.017/ha
Valle Vidal				.065/ha	.032/ha	.025/ha

Red Squirrel is a huntable species as indicated by the 2010-2011Hunting Proclamation distributed by the New Mexico Department of Game and Fish. In 2004 the overall mean density for the red squirrel was 1.04 / ac (2.58/ha). Table 2 shows the density estimates by habitat type and year. The surveys have shown that the population levels are consistent with the rest of the state and the population appears to be stable throughout its range (Frey 2004). There were no surveys in 2005-2008 for Red Squirrel where done on the Carson National Forest.

Table 4 Mean Density/ Acre for Red Squirrel (Frey 2003 and 2004)

YEAR	Mixed Conifer	White Fir	Blue Spruce	Engelmann spruce	Spruce-fir
2003	0.17/ac (.42/ha)	0.15/ac (0.36/ha)	0.97/ac (2.40/ha)	0.43/ac (1.07/ha)	0.81/ac (2.00/ha)
2004	0.36/ac (0.90/ha)	0.56/ac (1.38/ha)	1.32/ac (3.26/ha)	1.04/ac (2.58/ha)	1.97/ac (4.87/ha)
2009	0.44 (1.09/ha)	0.53 (1.30/ha)	0.76 (1.89/ha)	0.54 (1.33/ha)	0.65 (1.60/ha)

The red squirrel is an indicator for coniferous and mixed forests. These types of forests correspond to Carson Forest Plan management Areas MA 3, MA 5, MA 7. From 1986 to 2005, red squirrel habitat of interlocking canopies in mixed conifer and spruce-fir is estimated to have increased from 169,400 to 204,873 acres or an upward trend of about 20 percent. The following chart shows the habitat trend information since implementation of the Forest Plan in 1986.

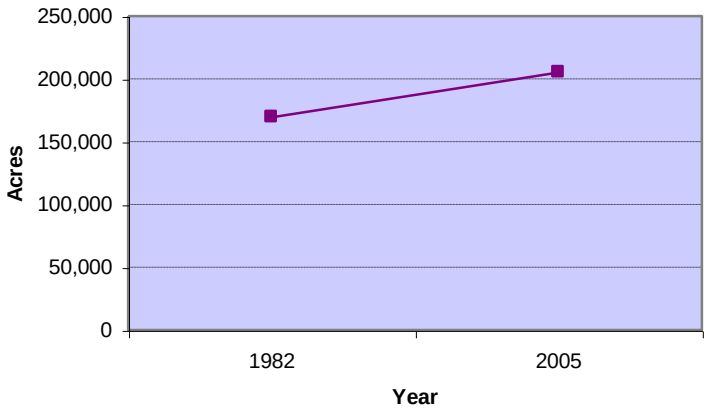

Figure 7 Changes in Red Squirrel Habitat on the Carson National Forest, 1986 to 2005

Wild turkey is an indicator species for the presence of old growth pine. With the increase of harvest (hunting) areas on the forest, it is reasonable to assume a population increase. Population trend can be determined based on increased areas where turkeys are found, increased hunting areas opened to the public, and by hunter success. Wild turkey populations, nation wide, are estimated to have increased by 3.7 to 4.2 million from 1990 to 1995 and from 1989 to 1995 there is an estimated 46% expansion of occupied range (Kennamer J.E. and M.C. Kennamer 1995).

Turkey habitats are located in the following Management Areas of the Carson Forest Plan, MA 3, MA 4, MA 5, MA 6, and MA 1. Turkey habitat from 1986 to 2005 is estimated to have increased from 117,300 to 118,816 acres or a slight upward trend of about one percent. There were no vegetation treatments done in FY 2010 that affect old growth pine stands.

The shift in management practices to increased thinning and prescribed burning should improve conditions favorable to increasing populations over time. The urban-interface fuels reduction projects planned for the near future on the Carson will continue to improve conditions for the bird, although at a fairly slow rate. Thinning to create clumpy conditions interspersed with openings can reduce competition and create larger tree diversity for roosting and openings for foraging. Prescribed fire would control dense tree reproduction and provide understory forage. Continued development of small, protected water sources and implementation of effective road closures in turkey habitat will also improve conditions. Subsequently, these forest activities will contribute to maintaining turkey populations.

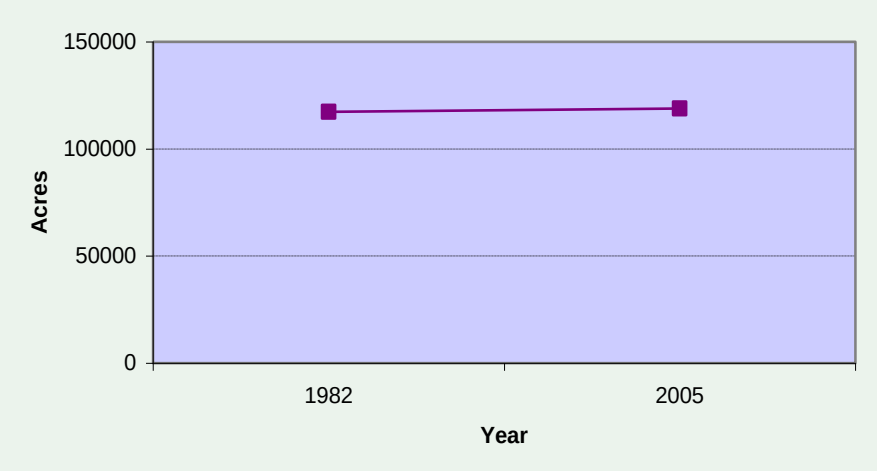

Figure 8 Changes in Suitable Habitat for Wild Turkey on the Carson National Forest, 1986 to 2005

White-tailed ptarmigan is an indicator species for the presence of alpine tundra and subalpine deciduous shrub. This corresponds to Management Area, MA 9, in the Carson National Forest Plan. The Carson Forest Plan EIS identifies 6,400 acres of occupied habitat (USDA 1986a). No management actions have changed since the time of the Forest Plan to cause a change in the number of acres of available habitat on the Carson National Forest.

The Terrestrial Ecosystem Survey data layer indicates there are 10,106 acres of alpine tundra on the Forest (USDA 1987). This does not mean there is any change in the trend of available habitat, but is a result of a variation in habitat mapping. Incidental observations show that portions of these habitats are still occupied. The overall habitat trend for the white-tailed ptarmigan is stable on the forest. Domestic sheep grazing has been eliminated in ptarmigan habitat that should eventually contribute to willow recovery, and subsequently an improved trend over time. Other potential habitat areas, such as Little Costilla Peak in the Valle Vidal, were visited in 2006. Little Costilla Peak should be considered a possible resting location, but it lacks habitat requirements. Big Costilla Peak on private lands west of the Valle Vidal has been reported to have adequate habitat, and sightings have been recorded. In 2007 and again in 2009, surveys were done on the Camino Real District, and the Forest can be contacted to obtain results. There were no additional surveys in 2010.

While the actual numbers of ptarmigan on the forest are uncertain but appear to be low, the species is still present and the population trend appears to be stable across the forest. This trend is based on the conclusion that the Pecos Wilderness population has been established and the fact

there has been sightings of ptarmigan in all three areas over the years supporting the fact that the ptarmigan are remaining established on the forest in low numbers. It has never been expected that the Carson will achieve large breeding populations due to limitations of suitable habitat in the area.

Resident trout species are used as indicator species for quality perennial streams and riparian vegetation. This corresponds to Management Area, MA 14. Resident populations reproduce and sustain themselves in the wild. Defined also as "resident trout" in the Carson Forest Plan, rainbow, brown and brook trout are non-native species that have been stocked extensively in northern New Mexico during the last 100 years. Rio Grande cutthroat trout is the only native of the resident trout management indicator species. Approximately 440 miles of perennial stream on the Carson National Forest are known habitat for resident trout. Rainbow, brown or brook trout occupy about 50 percent (~225 miles) of that habitat. Physical habitat conditions related to forest management activities and habitat trend for resident trout is stable.

Population surveys were conducted at 21 sites on nine streams for fisheries monitoring and baseline inventory in 2009. Multiple pass depletion survey techniques were used at all sites.

Angostura Creek was surveyed and compared to the survey conducted in 2003. In 2003 only Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*) were captured. In 2009 the fishery was dominated by brown trout (*Salmo trutta*). Only one adult cutthroat was captured which appeared to be hybridized. It is recommended to conduct population surveys higher in the drainage to investigate further encroachment of brown trout.

Surveys were conducted in three streams in Cruces Basin Wilderness for baseline inventory data. The creeks surveyed included Beaver Creek, Cruces Creek, and Diablo Creek. All three creeks had high densities of brook trout (*Salvelinus fontinalis*).

Three sites were surveyed in the Rio Grande del Rancho. The lower site had a large increase in adult brown trout abundance when compared to surveys conducted in 2005. There was a decrease in Rio Grande cutthroat trout abundance at the upper site while the abundance of brown trout at that site remained stable. A middle site was added in 2009 and had a high density of adult brown trout.

Three sites were surveyed in the Rio de los Pinos, the NMDG&F property site and upper and lower FS sites. When compared to surveys conducted in 2006 all three sites demonstrated a slight increase in adult brown trout abundance. The largest increase was in the USFS lower site. The NMDG&F property site had a slight increase, but still remains at a very low density. This section of river is limited by habitat via high temperature and wide width to depth ratios. The supplemental stocking of rainbow trout throughout this section of river sustains the recreational fishery. Habitat manipulations are needed to improve the quality of the wild trout fishery.

Three sites were surveyed in Rito de la Olla. Brown trout were the only species captured at all sites. All three sites demonstrated a high density of adult brown trout and the middle site had the highest density of all stream survey sites conducted in the NMDG&F Northeast Area in 2009. When compared to surveys conducted in 2002, the upper and lower sites demonstrated a decrease in adult brown trout abundance and the middle site an increase.

Surveys were conducted at five sites in the Red River. The Questa Ranger Station and La Bobita sites demonstrated a slight increase in adult brown trout abundance. Normally these two sites are complete void of any fish, but in 2009 both brown and rainbow trout were captured. Although trout were captured, brown trout densities are still extremely low in these sections of the Red River. The Hatchery Diversion site had a stable adult brown trout population with no change from 2007. The Upper Special Trout Waters (STW) site demonstrated an increase in adult brown trout abundance in 2009. Other trout species (brook and cutthroat trout) were present in the Upper STW site, and they remained stable with little change. The Lower STW site demonstrated a significant decrease in adult brown trout abundance but the site demonstrated an increase in adult rainbow trout abundance in 2009. This follows a trend of increasing rainbow trout ratios within this survey site since 2002.
Surveys were conducted at three sites in the Rio Chiquito. Brown trout were the only fish species found in all three sites. The lower site population remained stable compared to 2002 surveys with little change, while the middle and upper sites demonstrated a decrease in adult brown trout abundance. The upper site was the most significant decrease. Even with the decrease in the middle and upper sites, there is still a high density brown trout population in Rio Chiquito.

Population surveys were conducted on five streams identified in the fisheries monitoring program for 2008. A multiple pass depletion survey conducted in La Junta creek indicated a doubling of adult brown trout abundance compared to 2003 survey data. The trout population continues to be represented by a high density of small individuals. The Rio Hondo was surveyed at two sites, upper and lower. When compared to streams of similar size the Rio Hondo has a below average adult brown trout abundance. The overall brown trout abundance including small fish was about average but most of the population was comprised of juvenile fish. Three surveys were conducted in Columbine creek. A population of Rio Grande cutthroat trout (RGCT) is present and being maintained by removals of non-native brown trout by New Mexico Department of Game and Fish and Forest Service personnel. The density of RGCT has declined since 2006 likely due to the presence of brown trout in the stream. Three surveys were conducted on El Rito creek, two at existing survey sites and one at a new site. The density of RGCT at the lower existing site increased substantially from 1995 and 2004. Density at the upper site was comparable to previous estimates. A single survey was conducted in Rito de la Presa with RGCT comprising about 49% of the overall trout density.

Population surveys were conducted on seven streams for fisheries monitoring and baseline inventory in 2010. A multiple pass depletion survey technique was used on one site. A new protocol being tested for Rio Grande cutthroat streams by NMDG&F was used on six streams. The protocol uses a single pass removal on multiple sites (typically 3-4) throughout a stream. This is being used on small streams and is expected to provide a better population estimate based on representation throughout the stream.

The Rio San Antonio was surveyed using the multiple pass depletion technique. Two sites were surveyed. The upper site was an existing site and a new site was established below Stewart Meadows. Surveys using the new protocol were conducted on San Cristobal, La Cueva, Chuckwagon, Gold and Tanques Creeks. Reports will be completed in 2011.

Aquatic macroinvertebrates or aquatic insects are found in lakes, streams, ponds, marshes and puddles and help maintain the health of the water ecosystem by eating bacteria and dead,

decaying plants and animals. Local populations of certain aquatic macroinvertebrates are indicator species of high quality water. They are an indicator of overall aquatic conditions, quality of fisheries and associated riparian habitat. This habitat corresponds to Management Area, MA 14 of the Carson National Forest Plan. For the purpose of analyzing the effects of forest management activities, the primary habitat requirement for aquatic macroinvertebrates is perennial water. Habitat conditions on the Carson National Forest vary by stream and by location within the stream. Overall, most habitats appear able to support diverse communities of aquatic macroinvertebrates. Stream habitat surveys, which are ongoing, will better qualify conditions in specific streams over time. Since the implementation of the Carson Forest Plan in most areas of the forest, physical condition of aquatic habitat appears to be stable or improved. Population trends for aquatic macroinvertebrates on the Carson National Forest appear to be stable.

Macroinvertebrate surveys were completed at 27 sites in 2009. Surveys and analysis are conducted in accordance with Invertebrate Sampling Field Protocols and Laboratory Methods identified at the National Aquatic Monitoring Center.

Streams surveyed include San Cristobal, Alamitos, Beaver, Comanche, McCrystal, Cabresto, Middle Ponil, Placer and Vidal Creeks, Red River and the east, west, middle forks and mainstem of Santa Barbara Creek. An analysis report will be available in the spring, 2010.

Thermographs were located at 12 sites to collect temperature data each hour spring through fall, 2009. The streams include McCrystal, north Ponil, Vidal and Comanche Creeks. Data will be available in spring, 2010.

Stream habitat inventories were conducted on Beaver, Alamitos and San Cristobal Creeks using the Region 3 survey protocol adapted from Hankin and Reeves survey methodology. Stream inventory reports will be available in spring, 2010.

No funds were appropriated to conduct macroinvertebrate surveys or stream habitat surveys in 2010.

Riparian

Goals:

To improve the condition of riparian areas through direct treatment and improved resource management, indirectly benefiting fish and wildlife habitat diversity, water quality, and water oriented dispersed recreation.

Monitoring:

(1) Determine the response in riparian condition resulting from the implementation of the standards and guidelines and; (2) Monitor the activities and uses to insure they are within the Standards and Guidelines.

Results:

Riparian health is a key to a sustainable, healthy forest ecosystem. Settlement activities (such as intensive grazing, and conversion to haying operations) in riparian areas significantly altered these systems in the late 1800’s and early 1900's prior to presidential declarations making the

public lands Forest Reserves. Although most of these systems have remarkably recovered, many still need improvement to regain their full natural function.

One area of recovery is east of the Talpa, New Mexico community on the Rito de la Olla (Pot Creek). Until the late 1960's the riparian area was grazed and used for haying operations. The shifting of grazing to other pastures within the allotment, reductions in permitted livestock, cessation of the haying operations all contributed to recovery of the riparian area. This particular riparian area is now home to the occupied habitat for the southwestern willow flycatcher. This particular area is within the Miranda allotment, however, it is excluded from grazing.

Riparian condition surveys are being completed as a component of the fisheries surveys. These surveys also permit collection of information pertinent to the identification, location, and the condition of existing riparian areas. Properly functioning conditions are also being assessed. For key projects, baseline watershed quality information is being collected. Water quality information is being obtained and provided by the State of New Mexico.

Special Areas (Management Area 19)

Goals:

The proposed Arellano Canyon Research Natural Area, the Tres Piedras Haplopappus microcephalus Botanical Area, the Middle Fork Lake/Sangre de Cristo Pea Clam Zoological Area and other potential research natural areas will be maintained and protected.

Monitoring:

NEPA analysis of site-specific proposed actions include the evaluation of effects on special areas, to insure that they are not adversely impacted. An interdisciplinary team evaluates a proposal through the NEPA process and recommends restrictions or corrective actions if inspections reveal adverse impacts on the potential RNA or endangered plants or animals.

Results:

No uses or management activities on the Carson National Forest are causing adverse impacts to special areas. The continuing drought could possibly reduce the size of Middle Fork Lake which could cause a change in suitable habitat in the Pea Clam Zoological Area. The increased moisture levels in 2007 contributed to Middle Fork Lake maintaining near normal size. A range analysis done in 2007, on the Questa Ranger District, resulted in the identification of the need to increase residual forage guidelines to better protect the Pea Clam Zoological Area.

Protection 3- Insect and Disease

Goals:

To meet Federal regulation, ensure destructive insect and disease organisms do not increase to potentially damaging levels following management activities.

Monitoring:

Determine growth reduction and mortality caused by insect and disease infestations.

Diseases such as dwarf mistletoes and root disease causing organisms are found scattered about the forest. These diseases can cause the death of individual trees and at times small pockets of trees. Foliage diseases such as Ponderosa Pine Needle Cast are scattered over the Carson National Forest. New Mexico 518 between Taos and Questa has pockets of needle cast. These locations are expected to increase in size due to drought stress in trees and the increasing amount of inoculum present. The scattered nature of these dead trees prevents an accurate estimate of the total acreage of killed trees.

Bark beetles are the primary cause of tree mortality in the region and tend to be host specific. They are monitored and detected aerially by the browning discoloration of needles in affected trees called "faders". Generally the smallest clump of "faders" that can be detected is 3 to 5 trees. Most conifers (excluding Ponderosa pine) are normally attacked and killed by a single species of bark beetle. A group of Douglas-fir "faders," for example, is most often the result of an attack by the Douglas-fir bark beetle, *Dentroctonus pseudotsugae*. Piñon pine mortality is primarily caused by the bark beetle, *Ips confusus*. In contrast, Ponderosa pine are attacked and killed by several different bark beetles.

Results:

Table 5 Insect and disease conditions 2005 to 2010 by year by acres.

Insect/Disease	2005	2006	2007	2008	2009	2010
Western Spruce Budworm	80,265	54,077	156,450	162,340	214,510	98,750
Aspen Defoliation	8,525	1,524	10,430	8,450	21,760	11,890
Piñon Bark Beetle	None mapped	None Mapped	None Mapped	None Mapped	None Mapped	None Mapped
Mountain Pine Beetle (investigation shows this to be Western Pine Beetle)	None mapped	271	None Mapped	50	None Mapped	None Mapped
Douglas-fir Beetle	11,885	4,826	340	390	400	100
Spruce Beetle (includes corkbark fire mortality)	6,605	2,223	None Mapped	None Mapped	None Mapped	30
Fir engraver Beetle	4,100	1,727	6,800	5	120	Less than 5 acres

Insect/Disease	2005	2006	2007	2008	2009	2010
Ips beetle in Ponderosa pine	Not detected or recorded	Not detected or recorded	3,310	5	Not Detected or recorded	Not Detected or recorded
Western balsam Bark Beetle	3,540	6,590	11,180	17,850	12,380	11,620
Ponderosa Pine Bark Beetles (Western Pine Beetle and Ips combined)	n/a	250	3,760	50	120	10

Western Pine Beetle, *Dendroctonus brevicomis*, primarily affects Ponderosa pine. This insect rarely infests trees less than 9 inches in diameter. One beneficial effect of this insect is to create dead or dying trees suitable for cavity nesting wildlife species.

It was expected the infestation incidence would be slightly reduced in 2005 due the reduced infested acreage in 2004. In actuality, there was little to no detection of this insect in 2005 – 2007 and an increase in affected acres in 2008-2009 with a decrease in 2010. The indications are creation of at least 2,900 Ponderosa pine snags 9 inches or greater in diameter in the last six years by this insect. The maps prepared after the aerial observation show the scattered nature of the insect infestations. It is highly likely existing snags in interior forest locations generally preclude removal, authorized or unauthorized, for firewood purposes. Issued permits prohibit removal of Ponderosa pine snags. Secondary cavity nesting birds preferred to nest in trees that had recently died. A significant number of nests are found in snags which had been dead less than 20 years with the most heavily used in the 5 to 20 year age since death range. (Balda, 1975)

Table 6 Western Pine Beetle conditions and snags created 2005 – 2010

Western Pine Beetle	2005	2006	2007	2008	2009	2010
Acres affected	None mapped	None mapped	None Mapped	50	120	None Mapped
Estimated Snags created	0	0	0	100	480	0

Douglas-fir beetle, *Dendroctonus pseudotsugae*, affects Douglas-fir. The larger trees, greater than 9 inches in diameter, are attacked and killed. A beneficial effect of this insect is to increase snag densities in infested stands. The indications are a creation of at least 66,828 Douglas-fir snags 9 inches or greater in diameter in the last six years. The maps prepared after the aerial observation shows the scattered nature of the insect infestations. It is highly likely existing snags

in interior forest locations generally preclude removal, authorized or unauthorized, for firewood purposes. Secondary cavity nesting birds preferred to nest in trees that had recently died. A significant number of nests are found in snags which had been dead less than 20 years with the most heavily used in the 5 to 20 year age since death range. (Balda, 1975)

Douglas-fir beetle has increased its presence from 6,235 acres in 2003 to 15,815 in 2004. In 2005 a decline began with 11,885 acres, 4,826 acres in 2006, 340 acres in 2007, 390 acres in 2008 , 400 acres in 2009 and 100 acres in 2010 affected. The number of infested acres appears to be declining. The precipitation increases over previous years may account for some of this reduction. An additional explanation is that the number of parasitic insects increased during 2005. This parasitism in 2005 and following years has helped reduce the population available for infestation of new trees. These populations, like many other insects, are somewhat cyclic around an endemic population.

Table 7 Douglas-fir beetle conditions and snags created 2005 - 2010

Douglas-fir Beetle	2005	2006	2007	2008	2009	2010
Acres affected	11,885	4,826	340	390	400	100
Estimated Snags created	47,540	14,478	1,360	1,450	1,600	400

Fir Engraver beetle, *Scolytus ventralis*, affects true fir trees. The larger trees, greater than 9 inches in diameter, are attacked and killed. A beneficial effect of this insect is to increase snag densities in infested stands. The indications are a creation of at least 49,341 white fir and corkbark fir snags 9 inches or greater in diameter in the last six years. The maps prepared after the aerial observation shows the scattered nature of the insect infestations. It is highly likely existing snags in interior forest locations generally preclude removal, authorized or unauthorized, for firewood purposes. Secondary cavity nesting birds preferred to nest in trees that had recently died. A significant number of nests are found in snags which had been dead less than 20 years with the most heavily used in the 5 to 20 year age since death range. (Balda 1975)

Fir engraver beetle has increased its presence from 85 acres in 2003 to 4,100 acres in 2005, a decline in 2006 to 1,727 acres, and another increase to 6,800 acres in 2007. In 2008 the population has significantly decreased to 5 acres.; then increase to 120 acres in 20009 and a decrease to less than 5 acres in 2010.The number of infested acres appears to be fluctuating. Available moisture may account for some of these changes. An additional explanation is the number of parasitic insects increased during 2004 but the conditions in 2005 were not conducive for increased parasitism. These conditions were again seen in 2008 to 2009 with increased number of parasitic insects. These populations like many other insects are somewhat cyclic around an endemic population.

Table 8 Fir Engraver Beetle conditions and snags created 2005- 2010

Fir engraver Beetle	2005	2006	2007	2008	2009	2010
Acres affected	4,100	1,727	6,800	5	120	Less than 5 acres
Estimated Snags created	16,400	5,181	27,200	60	480	20

Spruce beetle, *Dendroctonus rufipennis*, affects spruce trees and corkbark/subalpine fir. The larger trees, greater than 9 inches in diameter, are attacked and killed. A beneficial effect of this insect is to increase snag densities in infested stands. This insect can build to high populations very quickly causing large areas of mortality in the higher elevations. The indications are a creation of at least 35,432 spruce and fir snags 9 inches or greater in diameter in the last six years. The maps prepared after the aerial observation shows the scattered nature of the insect infestations. It is highly likely existing snags in interior forest locations generally preclude removal, authorized or unauthorized, for firewood purposes. Secondary cavity nesting birds preferred to nest in trees that had recently died. A significant number of nests are found in snags which had been dead less than 20 years with the most heavily used in the 5 to 20 year age since death range. (Balda 1975)

Spruce beetle presence decreased from 5,840 acres in 2003 to 3,905 acres in 2004, and then increased to 6,605 acres in 2005, with a subsequent decline in 2006 to 2,223 acres. In 2007 to 2009 there were no populations detected. The number of infested acres is fluctuating. The spruce beetle populations like many other insects are somewhat cyclic around a smaller endemic population.

Table 9 Spruce Beetle conditions and snags created 2005 - 2010

Spruce Beetle	2005	2006	2007	2008	2009	2010
Acres affected	6,605	2,223	None Mapped	None Mapped	None mapped	30
Estimated Snags created	26,420	8,892	0	0	0	120

Western balsam bark beetle, *Dryocoetes confusus*, attacks and kills trees in the true fir group, such as white fir and subalpine or corkbark fir. The larger trees, greater than 9 inches in diameter, are attacked and killed. A beneficial effect of this insect is to increase snag densities in infested stands. The indications are a creation of at least 321,240 fir snags 9 inches or greater in diameter

in the last six years. The maps prepared after the aerial observation shows the scattered nature of the insect infestations. It is highly likely existing snags in interior forest locations generally preclude removal, authorized or unauthorized, for firewood purposes. Secondary cavity nesting birds preferred to nest in trees that had recently died. A significant number of nests are found in snags which had been dead less than 20 years with the most heavily used in the 5 to 20 year age since death range. (Balda, 1975)

Western balsam bark beetle was undetected from 2003 to 2004. Populations appeared in 2005 in 3,540 acres, increased to 17,850 acres in 2008 and have declined to approximately 12,000 acres for the last two years, 2009 and 2010. The number of infested acres appears to be decreasing or holding stable. The populations of both the host insect and parasitic insects like many other insects are somewhat cyclic around an endemic population.

Table 10 Western Balsam Bark Beetle conditions and snags created 2005 - 2010

Western Balsam Bark Beetle	2005	2006	2007	2008	2009	2010
Acres affected	3,540	6,590	11,180	17,850	12,380	11,620
Estimated Snags created	14,160	26,360	44,720	143,000	46,520	46,480

The following chart summarizes the acres infested by insect, and the estimated number of snags greater than 9 inches in diameter created by insect infestation. The insects noted are native to the Carson National Forest. An endemic population of these insects fluctuates depending on year, moisture and temperature regimes, timing of temperature changes, parasitic insects and organism, bird and small mammal populations, and plant densities. Epidemic populations occur when some factor such as the moisture regime changes, drought, or plant densities become high causing intense competition for soil moisture and nutrients. The population of natural control agents generally lags one to two years behind the insect population increase. These general trends give rise to the cyclic population changes of insects.

Table 11 Insect, acres affected, and estimated snags created by year 2005- 2010

Insect data	2005	2006	2007	2008	2009	2010
Western Pine Beetle						
Acres affected	None mapped	None mapped	None mapped	50	120	None mapped

Insect data	2005	2006	2007	2008	2009	2010
Estimated Snags created	0	0	0	100	480	0
Douglas-fir Beetle						
Acres affected	11,885	4,826	340	390	400	100
Estimated Snags created	47,540	14,478	1,360	1,450	1,600	400
Fir engraver						
Acres affected	4,100	1,727	6,800	5	120	Less than 5 acres
Estimated Snags created	16,400	5,181	27,200	60	480	20
Spruce Beetle						
Acres affected	6,605	2,223	None Mapped	None mapped	None mapped	30
Estimated Snags created	26,420	8,892	0	0	0	120
Western Balsam Bark Beetle						
Acres affected	3,540	6,590	11,180	17,850	12,380	11,620
Estimated Snags created	14,160	26,360	44,720	143,000	49,520	46,480
Total estimated snags created	**104,520**	**54,911**	**73,280**	**144,610**	**52,080**	**47,020**

In the past six years an estimated 523,441 snags 9 inches in diameter or larger, have been created by the above insects, in the spruce, mixed conifer, and Ponderosa pine cover types. These snags over time will fall to the forest floor providing large woody debris after their use by cavity nesting species.

The above table indicates an increasing amount of forested land affected by these insects. One insect population may be on a decline, while another may be increasing. The recent several years of drought are likely one of the causal factors increasing insect populations. Other natural causal factors are increased tree densities, reduced bird and small mammal populations due to drought, and reduced populations of parasitical insects.

Piñon Bark Beetle generally infests the entire stand, though an occasional piñon will be attacked. Other tree species within the stand are not infested. The insect is host specific. The effect of this insect is to remove nearly all the piñon pine in the infested stand. The number of acres infested decreased dramatically but still nearly 33,000 acres were attacked in 2004. In 2010 less than 1 acre of new piñon pine mortality was detected aerially. It appears that the population of this insect subsided and returned to an endemic level.

The immediate vegetative result of this beetle infestation is loss of tree cover. The longer-term result should be an increase in grass and forbs cover as the dead trees fall and break up, creating ground debris. This in turn provides microsites (shade and moisture) for grass and other plant establishment. Other plants likely to invade the areas of tree canopy loss include big sagebrush and four wing saltbush.

Protection 5- Fuels

Goals:

Fuel treatment will follow the various timber activities as a means of reducing fire hazard and insect and disease potential.

Monitoring:

Maintain a fuel treatment atlas and record areas treated. Data is generated from field personnel who monitor and/or direct fuel treatment by Forest Service crews, logging companies, contractors, etc.

Results:

There are 4 active timber sales currently active on the forest in 2010 that reduce fire fuels hazards. Approximately 569 acres were treated and monitored in 2010 for forest health and fuels reduction as a part of 3 CFRP grants (Collaborative Forest Restoration Program). Addition CFRP projects are anticipated.

The American Recovery and Reinvestment Act (ARRA) funded projects for fuels and thinning projects accomplishing approximately 1500 acres.

The majority of fuel treatments are occurring in the wildland urban interface adjacent to communities located in or adjacent to the National Forest. These projects are being prepared under the Healthy Forest Initiative or Healthy Forest Restoration Act or other authorities. The

National Fire Plan has focused attention on at risk communities. Supporting documentation is located at the Forest Supervisor's office and the individual Ranger District offices.

Forest-wide, the trend is toward increased fuel loadings, tree mortality, and increased tree density within stands of trees. Management options for dealing with these issues are somewhat limited. Tree mortality caused by insects or disease is difficult to address due to its widely scattered nature. Insect populations tend to by cyclic. Disease centers are difficult to treat if economically treatable. Fuel loadings increase as trees and other woody material die and fall to the forest floor. The trend has been toward more restrictions on use of active management, both through application of restrictive standards and guidelines related to threatened, endangered, and sensitive species and through limitations outlined in appeals and litigation.

Physical Environment

Soil and Water 1- Watershed Conditions

Goals:

To improve unsatisfactory watershed conditions on 25,000 acres by 2020. As a result of this change, productivity of the land is expected to improve.

Monitoring:

Improvement of watershed condition on the Forest is based on certain activities that will increase or enhance ground cover conditions. These activities include prescribed burning, converting sagebrush to native grasses and forbs, improving livestock distribution and utilization on grazing allotments, thinning densely stocked forested stands, installing sediment retention structures, and implementing proper grazing management through National Environmental Policy Act analysis for permit re-issuance.

The Forest Plan monitoring plan identifies sampling of percent ground cover every three years as specified in Terrestrial Ecosystem Survey Handbook, Chapter 8 as the method for monitoring watershed conditions. Vegetative ground cover was extensively monitored using various methodologies, principally associated with grazing management and compliance with the annual operating instructions and permit terms and conditions (utilization monitoring, RAM, and pre and post season pasture evaluations).

Results:

Activities that improved Forest watershed conditions were accomplished on over 4,500 acres in 2010 The trend in the types of projects proposed on the Forest is towards improving watershed conditions and completing treatments that are light on the land. The wildland/urban interface projects proposed in the coming year involve primarily thinning and prescribed burning. Supporting documentation is located at the respective ranger districts. A detailed summary of district activities is included in this report.

Table 12 Some Highlights of Watershed Improvement Work FY 2005 -2010

Fiscal Year	2005	2006	2007	2008	2009	2010
Road Maintenance (miles)[1]	286	260	373	479	768	580
Road Obliteration (miles)	2.8	0	2	0	8.5	0
Re-seeding (Acres)[2]	2,000	1,500	0	350	100	200
Sagebrush conversion (Acres)[3]	0	0	0	350	839	200
Thinning (acres)[4]	1,288	2,200	400	406	956	1,520
Prescribed burning[5]	2,063	2,957	3,855	5,927	5,596	4,098

SUMMARY FOR YEAR 2010

Camino Real Ranger District:

- Resurfaced ½ mile, standard road maintenance, and installation of ½ mile guard rail along Forest Road 439 to restrict OHV damage and reduce sediment flows adjacent stream. Protect and improve wetland function adjacent important recreation area used by the public
- Monitoring and Maintenance of Taos Canyon Wildlife Exclosure
- Ponderosa, Juniper, and Pinyon Thinning (200 acres)
- Rio Santa Barbara - Acequia de Llano de San Juan Nepomuceno
    - Diversion and headgate replacement
    - Acequia Association, Interstate Stream Commission
- Rio de Las Trampas – Acequia de Las Trampas Sur
    - Replace rock and log diversion with steel plate structure and headgate
    - Acequia Association, Interstate Stream Commission

[1] Road Maintenance is done on a spot basis. These are miles of road where the maintenance was actually done. Many miles are driven over to arrive at the location where maintenance is needed. Miles not needing maintenance are not reflected in mileages in this table.

2 Re-seeding of brush hog/sage conversion acres at D2 (NPS Accomplishment report to NMED)
3 Sage Conversion acres at D2 (NPS Accomplishment report to NMED)
4 FY 2008 Final Accomplishment Justification – FOR-VEG-IMP
5 FY 2008 Final Accomplishment Justification - FP-FUEL-WUI and FP-FUELS-NON-WUI

- Rito Angostura
    - Repair flood damage to FR89 0.5 miles
- Santa Barbara Bridge Replacement:
    - Removed deteriorating 60 year-old bridge and replaced with new 30' bridge.
- FS Road 116 - resurfaced 2.9 miles (1/2 completed)
- FS Road 89 – resurfaced ½ mile
- East Fork Rio Santa Barbara USFS Trail #26: Completed 4.5 miles of trail maintenance. Restored tread (outslope or drainage structures) in numerous boggy segments. Logged/brushed out to keep all travel on existing trail.
- District-wide trail maintenance projects. Logged, brushed out and tread restoration on the following trails: Agua Piedra, Flechado, Policarpio, Romeros, Serpent, Osha, Comales, Middle Fork, West Fork, East Fork, Indian, San Leonardo, Trampas, Divide, Hidden, Ojitos, Angostura=84.4 MILES TOTAL
- District-wide trail maintenance projects. Logged, brushed out and tread restoration on the following trails:
    - Elliot Barker, Devisadero, Rio Chiquito, South Boundary, El Nogal=22 MILES TOTAL

Table 13 Stocking Level Reductions (percentages) for allotments on Camino Real Ranger District FY 2008 -2010

Camino Real Allotment	Stocking level reduction FY 2008	Stocking level reduction FY 2009	Stocking level reduction FY 2010
Angostura	6	0	0
Black Lake	50	55	44
Capulin	0	0	0
East Fernandez	31	0	42
Flechado	16	24	0
Knob	5	0	20
Luna-Chacon	0	1	0
Rio Chiquito	20	15	1
Rio Pueblo	90	50	0
Santa Barbara	18	14	0
Tienditas	30	0	8
Trampas	30	30	25

Canjilon Ranger District:

- 70 acres noxious weed removal
- Canjilon Ranger District Highway 115 Corridor Project (Canjilon)
    - 60 fuelwood
    - 37 acres (daylighting, hazard trees, piling,thinning/pruning, chipping)
- 100 acres hazard tree removal in Canjilon Lakes
- Reduced permitted stocking levels 11 percent district wide (reduced numbers or shortened grazing season).
- Monitored grazing levels on all allotments.

Table 14 Stocking Level Reductions (percentages) for allotments on Canjilon Ranger District FY 2008-2010

Canjilon Allotment	Stocking level reduction FY 2008	Stocking level reduction FY 2009	Stocking level reduction FY 2010
Bateman	0	0	0
Canjilon	0	0	8
Canjilon Creek	20	20	0
Cebolla	6	12	5
English	0	0	6
Frenchy-Juaquin	0	0	0
Jarosa	3	0	0
Mesa	0	0	0
Mogote	10	0	5
Mogotito	3	5	6
Nutrias	2	0	0
Oso	0	0	0

El Rito Ranger District:

- 70 acres noxious weed removal -
- FR 557 water bar and ditch out construction (1 mile)
- Brushhog and seed 200 acres in El Rito Lobato allotments
- Mechanical removal of sagebrush
- Hazardous fuel reduction on 940 acres Petaca/Las Tablas prescribed burn Rx
- Ensenada:
    - 100 acres thinning (Chacon CFRP Grant)
    - 315 acres precommercial thinning

- Agua/Caballos:
    - 625 ac TSI Contract
    - 100 ac fuelwood blocks
    - 60 acres Jacal Thinning

Table 15Stocking level reductions (percentages) for allotments on El Rito Ranger District FY 2008- 2010

El Rito Allotment	Stocking level reduction FY 2008	Stocking level reduction FY 2009	Stocking level reduction FY 2010
Alamosa	6	0	7
Comanche	24	0	100
Cano	0	0	0
El Rito Lobato East	45	0	*
El Rito Lobato West	33	11	*
Escondido	0	0	0
Jarita Mesa	4	0	7
Jarosita	0	0	0
Salvador Complex	60	0	77 (cattle) 44 (ewe/lamb)
San Gabriel	18	0	15
El Rito Lobato			24

* El Rito Lobato East and West allotments have merged

Jicarilla Ranger District:

- Inventoried all open roads and conducted culvert inventory for possible replacement or new culvert installation needed.
- Grazed about 56% of permitted livestock.
- Maintained 158 miles of Forest Roads (roads were bladed twice this year). Road Committee partnership
- Spot surfaced 1.5 miles of FSR 309 & 311 (Road committee partnership).
- Installed 9 culverts on FSR 309 & 311 (1.5 miles). Road committee partnership.
- Spot surfaced 0.75 miles of in Ruben Canyon (Game & Fish partnership)
- Constructed 4 sediment traps

- Box Tank Restoration Project. 89 acres of thinning, removed 5.5 acres of fuel wood (Game & Fish partnership).
- Devils Mesa Restoration Project, 38 acres of thinning & seeding
- Carracas Restoration Project. Piled 10 acres, (area was thinned in 2009), removed 10 acres of fuel wood (Game & Fish partnership).
- Bancos II Watershed Project. 32 acres of rock & brush dams (Game & Fish partnership)
- Gathered and removed 73 wild horses (BLM partnership)
- Installed a 6K storage tank and water trough, 640 acres of increased livestock distribution (Grazing Permittee Partnership)
- Constructed 2 stock tanks, 1,280 acres of increased livestock distribution (grazing Permittee partnership)

Table 16 Stocking level reductions (percentages) for allotments on Jicarilla Ranger District FY 2008-2010

Jicarilla Allotment	Stocking level reduction FY 2008	Stocking level reduction FY 2009	Stocking level reduction FY 2010
Bancos	100	100	100
Cabresto	52	100	54
Carracas	100	100	100
Laguna Seca	0	16	10
Valencia	0	13	13
Vaqueros	53	59	50

Tres Piedras Ranger District:

- Maintain 7 miles of riparian exclosure (top-rail) fence at Stewart Meadows. Replaced approximately 10 treated top rail posts. Replace fence wire where cut and stretch wire. This exclosure keeps livestock from the riparian area and wet meadows
- Alire earthen reservoir dam - sediment cleanout and dam reconstruction (0.3 mile).
- Wheatgrass earthen reservoir dam - sediment cleanout and ditch reconstruction (0.3 mile)
- Placer Creek Exclosure construction (10 acres)
- FR 557 water bar and ditch out construction (1 mile)
- Prescribed Burning
    - 83 acres Comanche Rx
    - 1,070 acres Dry Lakes

- FR 576 water bar and ditch out construction (1 mile)
- Red Mesa road (FR 578G) water bar and ditch out construction (4 miles)

Table 17 Stocking level reductions (percentages) for Tres Piedras Ranger District FY 2008-2010

Tres Piedras Allotment	Stocking level reduction FY 2008	Stocking level reduction FY 2009	Stocking level reduction FY 2010
Apache Complex	48	22	16
Carson Mojino	98	16	47
Cerro Azul	0	81	10
East Piñon	94	61	100
Jawbone	79	79	61
Lagunitas	0	10	7
San Antone	10	94	0
San Antonio Mountain	74	22	40
Santos	0	11	44 increase
Servilleta	76	46	87
Spring Creek	15	41	25
Sublette	4	6	6
TCLP	24	100	N/A
Tio Gordito	15	17	29
Tio Grande	10	22	6
Tres Orejas	100	82	100
Tusas	15	16	13

Questa Ranger District:

- Grade 48 miles of existing road in the Valle Vidal to restore road surface drainage.
- Replaced OHV bridge that crosses the Red River for the Goose Lake Road
- Storm Water Pollution Prevention Plan monitoring at Taos Ski Valley and Red River Ski Area – implementation of Summer Operation projects (50 acres)
- Under partnership with Albuquerque Wildlife Federation and Philmont Scout Ranch: expanded 1 exclosure, built one new exclosure, and maintained stream meander "one-rock" dams on Ring Drainage Maintained stream vanes, repaired 15 exclosures. Partnership with Quivira Coalition and NMED REERI Grant; constructed 1 stream re-route on Comanche Ck, and removed road fill on Gold Creek road crossing.

- Resurfacing of Forest Road 1950 (7 miles).
- Ponderosa thinning (180 acres) and 2,000 acre Prescribe Burn
- Maintained function of headgate Maintained function of headgate
- Re-established railroad tie reinforcements adjacent parking area above lake bank
- CERCLA hazardous mine waste removal and internment at a waste repository containment site.
- Replanted 300 acres of a previously wildfire burn with ponderosa pine seedlings
- 7 miles or road drainage improvement through replacement of culvert and maintenance of water bars.

Table 18 Stocking level reductions (percentages) for allotments on the Questa Ranger District FY 2008 - 2010

Questa Allotment	Stocking Level Reduction FY 2008	Stocking Level Reduction FY 2009	Stocking Level Reduction FY 2010
Arroyo Hondo	27	33	30
Black Copper/Red River	100	0	100
Bobcat	100	100	100
Columbine	100	100	100
Deer Creek	24	24	24
Goose Creek	100	100	100
La Cal	100	100	100
La Lama	75	75	75
Lake Fork Baldy	100	100	100
Midnight-Mallette	38	37	35
Rito Segundo	69	100	100
San Cristobal	35	35	35
Sawmill Park	100	100	100
Valle Vidal	0	0	0

Supervisor's Office:

- Supported efforts for Forest Land Management and Resource Plan amendment for the Valle Vidal, on hold.
- Supported the State of New Mexico Regional Water Planning efforts as a member of the Taos County Regional Water Planning Steering Committee in cooperation with Taos County and other stakeholders.

- Forest Staff supported the districts in watershed improvements across the forest and suggested alternatives to further improve watershed conditions on future projects.
- Maintained approximately 479 miles of forest roads

Soil and Water 2- Best Management Practices

Goals:

Production of water from forestlands will meet State water quality standards.

Monitoring:

Established designated qualified personnel to check Best Management Practices (BMP) (i.e., seeding disturbed areas, water barring roads, etc.) for implementation on the ground. Best management practices monitoring follows Regional evaluation guidelines and procedures.

Results:

The application of BMPs is standard procedure with any ground disturbing activity undergoing environmental analysis. Implementation of BMPs is the responsibility of each district ranger. Field trips are taken to validate on-site BMP implementation. It is recommended that more emphasis be put on BMP training and the development of a BMP monitoring program to track actual implementation and effectiveness. Several water quality projects have been implemented on the Forest:

- Baseline and existing condition information are being collected in cooperation with the New Mexico Environment Department (NMED) for several creeks within the Carson National Forest boundary. Collected information will help determine whether these reaches are in compliance with New Mexico water quality standards. Supporting documentation is located at the respective ranger station and the Supervisor's Office.
- Identification of existing and potential non-point source water pollution on the Carson is ongoing and helps determine where watershed work would provide the most significant results.

Soil and Water 3- Roads

Goals:

To assure that Best Management Practices (BMP) are implemented in all phases of road design, construction and maintenance. To minimize erosion and maintain on-site productivity and water quality, and to assure that road density for public use is not exceeded.

Monitoring:

Road design, construction, maintenance and density.

Results:

BMPs are standard mitigation measures when any road construction is proposed. Analysis of the proposal and alternatives are usually conducted with the assumption that BMPs are integrated into the activities. Much of the maintenance performed on Forest roads is structural measures (e.g., water bars, crowning, resurfacing, etc.) through inspection and maintenance activities in order to minimize erosion, maintain on-site productivity and water quality. Supporting documentation is located at the respective ranger districts.

Supervisor's Office:

- Maintained approximately 580 miles of forest roads forest wide (except for the Jicarilla Ranger District). This includes 192 miles of level 2 roads, 360 miles of level 3 roads, and 28 miles of level 4/5 roads.

Jicarilla Ranger District:

- Road maintenance was performed through our continued partnership with the oil and gas companies via the Carson Roads Committee. In addition, about 140 miles of open roads are maintained on a timely basis to access gas well locations and minimize resource impacts from road use.

Human Environment

Facilities 2

Goals:

Travel management objectives will be developed for all Forest Development Roads (FDR) and travelways. This will further determine and verify which roads are needed and should be included or remain on the FDR System, which are needed only periodically and should be closed, and which should be added to the obliteration list. New construction of Forest Development Roads is primarily for timber sales and oil & gas development. Approximately 70% of these roads should be local terminal functional classification and should be closed promptly after resource management activities have ended.

Monitoring:

A revised transportation plan for the Carson will be completed in the next two years under the Travel Management process. In 2002, an inventory was performed on level 3, 4 and 5 roads. The result was a Forest-wide Road Analysis (RAP) for these arterial and collector roads. The RAP was completed in April 2003. In addition over 3,777 miles of road, levels 1 and 2, have been inventoried, documenting conditions of road surface, drainage, sight distance, and proper signing since 2001. The inventory was halted at the end of 2006 pending Travel Management decisions. Facility, road, bridge and dam maintenance monitoring is ongoing, although minimal.

Results:

In fiscal year 2010there was no new road reconstruction.

Recreation 1

Goals:

Provide the opportunity for the public to obtain a variety of recreation experiences by managing the natural resource setting and the activities that occur within it. Provide a spectrum of opportunities on the Forest from Semi-primitive to Urban, with emphasis on the less developed end of the spectrum. To offer a balanced level of developed and dispersed recreation experiences. Demand for dispersed recreation will be within capacity. Quality of experience will increase due to more intensive management.

Monitoring:

Effects on dispersed recreation are evaluated in the majority of environmental analyses for project proposals – whether or not they are recreation related. Changes to the Recreation Opportunity Spectrum (ROS) class are assessed and avoided if possible.

Results:

No decisions on site-specific projects in 2010 have caused an analysis area's ROS class to change.

Recreation 2

Goals:

The Forest will offer a wide range of opportunities for developed sites in the public and private sector to support recreationists, to provide barrier-free access, and to implement recreational strategies.

Monitoring:

Assessment of goal achievement for the recreation program is based on professional judgment by recreation specialists, public comments and information from Regional, Forest and District recreation managers.

Customer satisfaction on how well we are managing the Forest is monitored through evaluation cards, newspaper articles and comments from recreation fee envelopes and walk-in visitors. Developed campgrounds and picnic areas are monitored at least on a weekly basis during the summer months by Forest Service law enforcement, district personnel, campground hosts and/or concessionaires, as well as through cooperative agreements with state and county law enforcement. These comments provide input on the conditions of developed recreation sites, the presence of user conflicts and public safety problems. Supporting documentation is located at each ranger station or in the Forest Supervisor's office.

Taos Ski Valley (TSV) and Red River Ski Area (RRSA) operations are monitored at least once a week during the winter by the Questa snow ranger. Sipapu Ski Area operations are monitored at least once a month. Site inspections by Forest Service lift engineers are made at least once a season at each ski area. Supporting documentation for monitoring operations at TSV and RRSA is located at the Questa Ranger Station and at each ski area. Supporting documentation for

monitoring operations at Sipapu is located at the Camino Real Ranger Station and at Sipapu Ski Area. Supporting documentation of lift inspections is located at the Southwestern Regional office in Albuquerque. The National Visitor Use Monitoring Project for the Carson National Forest was completed and placed in the public domain in 2004. It is available electronically at: http://www.fs.fed.us/recreation/programs/nvum/.

Results:

Recreation use and demand appears to be experiencing a small, steady growth. Use is concentrated at developed sites, streams, rivers, lakes, wilderness and backcountry areas. Several nearly barrier-free recreational facilities have been provided in recent years at Santa Barbara Campground, Echo Amphitheater Picnic Area and Hopewell Lake Campground. Monitoring ski area operations has not exposed any noncompliance or safety violations.

Table 19 Skier visits to respective downhill ski areas 2003-2010 ski seasons

Ski Season	Taos Sky Valley	Red River Ski Area	Sipapu Ski Area
2002-2003	249,682	101,816	15,874
2003-2004	224,565	104,406	18,137
2004-2005	237,441	84,133*	19,791
2005-2006	155,003	76,140	17,751
2006-2007	208,187	83,246	27,084
2007-2008	241,115	86,619	30,151
2008-2009	241,115	89,619	38,732
2009-2010	256,879	91,975	37,453

* Lower number due to change in method of obtaining visitor count.

The Enchanted Forest continues to provide quality cross-country skiing opportunities. The area served approximately 4,500 skier visits in the 2009-2010 season. Visitation per year is dependant on snow conditions. Snow conditions or lack of snow also influences the number of skiers. Red River Ski area and Sipapu Ski Area both permit snowboarding with the snowboarders reflected in the number of skiers. Overall, skiers are satisfied with the conditions of the three ski areas on the Carson. Interest in Taos Ski Valley increased with the decision to allow snowboarding that went into effect during the spring of 2009.

Recreation 3

Goals:

Help the public enjoy their Forest visit and instill an understanding of the resources and uses of their National Forests. Wildlife recreation use will increase by 183 percent by the end of the planning period. This is within capacity for this type of use.

Monitoring:

No specific monitoring of wildlife recreation use has taken place on the Forest. The NM Department of Game and Fish regulates hunting and fishing on the National Forest System lands.

Results:

Inquiries and comments received at the ranger stations and the Forest Supervisor's Office verify that many visitors come to see wildlife through active bird watching, camping, hiking and cross-country skiing.

Recreation 4

Goals:

All developments are high quality and well maintained. They fill the needs of the users.

Monitoring:

Assessment of goal achievement for the recreation program is based on professional judgment by recreation specialists, public comments and information from Regional, Forest and District recreation managers. Customer satisfaction on how well the forest is managed, is monitored through evaluation cards, newspaper articles and comments from recreation fee envelopes and walk-in visitors. Developed campgrounds and picnic areas are monitored at least on a weekly basis during the summer months by Forest Service law enforcement, district personnel, campground hosts and/or concessionaires, as well as through cooperative agreements with state and county law enforcement. These comments provide input on the conditions of developed recreation sites, the presence of user conflicts and public safety problems. Supporting documentation is located at each ranger station or in the Forest Supervisor's office.

Recreation facility construction projects include reviews to ensure contract work meets specifications, environmental assessment requirements, and to monitor how well the design meets user needs. Such reviews have been performed at the Santa Barbara Campground, Echo Amphitheater Picnic Area and Hopewell Lake Campground. Supporting documentation is located at the Forest Supervisor's office.

Results:

Customer satisfaction on the condition of developed sites varies depending on the location and the age of the facility. The newest campgrounds, such as Agua Piedra and Hopewell Lake, are experiencing positive comments. On the other hand, Taos Canyon facilities are heavily used and sites closest to Taos are frequently vandalized. The campgrounds near Red River are heavily used during the summer months. In response to visitor comments, the Red Rock Campground is being analyzed for upgrades. The National Visitor Use Monitoring Project for the Carson National Forest contains more information.

The National Visitor Use Monitoring Project for the Carson National Forest was completed and placed into the public domain in 2004. This information is available electronically at: http://www.fs.fed.us/recreation/programs/nvum.

Recreation 5

Goals:

Establish a full spectrum of trail opportunities, considering all modes of travel, ranging from challenging and adventurous to opportunities for people with disabilities, and give special emphasis to the protection, development and management of specially designated areas and trails.

Monitoring:

Assessment of goal achievement for the recreation program is based on professional judgment by recreation specialists, public comments and information from Regional, Forest and District recreation managers.

Results:

Hunters who do not rely on the use of ATV's continue to be concerned over the increasing use of ATVs on the forest during hunting season. The forest has been limited in its ability to enforce motorized use off of designated roads and trails. ATV use in unauthorized areas has becoming a significant problem on the forest for some districts where recreation use is moderate to high. However, the proactive travel management implementation plan, that uses tools such as effective signing and a collaborative approach to motorized vehicle use monitoring, should reverse this trend.

The development of a transportation plan that designates the type of use on roads and trails is in process and public involvement occurred throughout 2007 and into 2008. The December 9, 2005 regulation concerning Travel Management, 36 CFR 212 as amended, is being used to designate roads and trails that will be open (and closed) to motorized vehicles. The forest is on schedule and expects to issue a travel management decision by the end of FY 2011

Segments of the Continental Divide National Scenic Trail (CDNST) occur on the Canjilon, El Rito and Tres Piedras districts. In 2008, volunteer and partnership efforts resulted in 6 miles of construction. In addition, biological and archeological surveys were completed to support the out-year program objectives. Each year, significant progress continues to be made on the (CDNST). By 2014, the CDNST will be fully implemented on the forest.

In addition, the following trails-related projects were completed to provide a quality recreational experience on the Forest, while protecting natural resources. Supporting documentation is located at the Forest Supervisor's office.

Table 20 Forest Trail Activities 2003 - 2010

Activity	2003	2004	2005	2006	2007	2008	2009	2010
Trail Maintenance (miles)	28	11	105	106	42	31	71.5	140
Trail Condition Surveys (miles)	10	0	0	7.6	1	5	8.7	0

Activity	2003	2004	2005	2006	2007	2008	2009	2010
Trail Reconstruction (miles)	1	0.5	0	4	0	6	0	0

Recreation 6

Goals:

Potential wilderness characteristics will be maintained In Management Area 20, in order that the areas can be considered for multiple use or wilderness recommendation when a new plan is prepared in 10 -15 years.

Monitoring:

In 1999, the President of the United States initiated the Roadless Area Conservation analysis for all National Forest System (NFS) lands. The Carson National Forests Management Area 20 includes all inventoried roadless areas identified in the Roadless Area Review and Evaluation II (RARE II), with the exception of a portion allocated for potential expansion of Sipapu Ski Area. The nation-wide Roadless Area Conservation Proposed Rule would prohibit any road building or timber harvesting in most RARE II inventoried roadless areas on NFS lands. The Roadless Area conservation Rules were promulgated in 2000. These rules have been a source of litigation since. Currently the Rules are not being implemented due to litigation. The 2000 Roadless Conservation Rule was overturned in the litigation process. The 2004 Roadless Conservation Rule is currently in the litigation process. The 2004 Roadless Conservation rule was overturned in the litigation process. The Carson National Forest continues to maintain the integrity of the roadless areas on the forest pending the outcome of the rule making process, other methods of congressional intent concerning the roadless issue, or resolution of the litigation.

Results:

For the most part, the implementation of the Roadless Area Conservation proposal and/or its successor would duplicate protection for Management Area 20 already in place through Forest Plan standards and guidelines. Through the travel management process, corrections to the forest's corporate roads database is being made to eliminate any roads that are incorrectly shown as open on the forest's visitor map.

Recreation 7

Goals:

Trails will be reconstructed and maintained at a level that provides public safety, travel and resource protection.

Monitoring:

The assessment is based on professional judgment of recreation specialists, public comments, review of recent environmental analyses that included recreation assessments and information from Regional, Forest and District recreation managers

Results:

There are approximately 392 miles of forest system trails (2010 forest corporate trails database query). Forest trails are used by both recreationists and grazing permittees. Depending on season of use and time of week, use levels can be moderate to heavy depending on the location of the trail and trailhead. For example, trails that originate out of areas such as Taos Ski Valley and the town of Red River receive more use than more remote trails. Forest-wide, only a small portion of trailheads provide adequate recreation opportunity, Leave No Trace, and interpretive information. Many trails do not meet trail standards (clearing, logging out, tread maintenance, signing, nonexistent trail logs, etc.) due to budget/staff limitations. Management decisions regarding acceptable limits, zoning, and resource emphases are often made informally, frequently lacking the support of coordinated plans or professionally established analysis methods. At this time, the use of volunteer efforts provides the ability for the forest to maintain and/or improve trail conditions. Volunteer and force account efforts allowed the forest to maintain 140 miles of trail to standard in 2010.

On the Camino Real district, most trail work occurred in or near the Pecos Wilderness and the Taos Canyon area. Maintenance activities included tree clearing, trail drainage, and tread maintenance. Trail maintenance efforts reduced erosion and sedimentation into adjacent streams by re-directing use to established trails.

On the Questa district, there was continued law enforcement activities and signing to address recreational OHV use and the resource damage that can result resource from this activity. Approximately 90% of areas that have been identified as having OHV-related resource damage have been identified, barriers installed and/or signed.

Camino Real Ranger District

• Windfall trees were removed on wilderness trails.

• Improved trail damage and tread, reduced erosion and sedimentation by directing recreational use to established trails

• Conducted trail maintenance on approximately 140 miles of trails with volunteer and force account groups.

Table 20 Miles of trail maintenance by trail name for the Camino Real District in 2010

Trail Number	Trail Name	Mileage Maintained
1	Elliot Barker	2.6
6	Agua Piedra Handicap	.5
7	Flechado Canyon	2.7
13	Policarpio	5.5
13A	Valle de los Romeros	1.2
19	Serpent Lake	13.6
20	Osha Canyon	7
22	Comales Canyon	12
24	Middle Fork (SB)	11.7
25	West Fork (SB)	8.6
26	East Fork (SB)	4.5
27	Indian Creek	4.6
30	San Leonardo Lakes	5.2
31	Trampas Lakes	5.9
36	Divide	13
45	Hidden Lakes	.8
108	Devisadero Loop	5
121	Rio Chiquito (AKA Jaracita)	5.76
164	South Boundary	22
166	Ojitos	3.9
181	El Nogal Nature	1
493	Angostura	3

Canjilon Ranger District

Table 21 Miles of trail maintenance by trail name for the Canjilon District in 2010

Trail Maintained	Miles of maintenance
Hart Trail	5
Rim Vista (by Back Country Horsemen)	2.5
Salazar	3.5

El Rito and Tres Piedras Ranger Districts

- Completed a 3 mile re-route of the Continental Divide National Scenic Trail that included new construction & signing.

Questa Ranger District

- Continued law enforcement activities and signing to address recreational OHV use and resulting resource damage from this activity. Approximately 90% of OHV problem areas have now been identified, barriers installed and/or signed.
- Conducted trail maintenance on approximately 5 miles of trails with volunteer groups.

Table 22 Miles of trail maintenance by trail name for the Questa District in 2010

Trail Maintained	Miles of maintenance
Italianos	2
Williams Lake Trail	1.5
Yerba	2

Wilderness 1

Goals:

Maintain an enduring high quality wilderness and provide a quality recreational experience.

Monitoring:

The assessment is based on professional judgment of recreation specialists, public comments, and information from Regional, Forest and District recreation managers. Volunteers and/or recreation specialists perform wilderness patrols several times during a summer. Patrols include inspections of trail conditions, dispersed camping areas and outfitter/guide permit use. Supporting documentation is located at each ranger station.

Results:

Wilderness use is primarily day-use by recreationists and grazing permittees. Wilderness use is increasing slightly and is primarily concentrated along trails in the Wheeler Peak, Pecos wilderness areas, and Columbine-Hondo Wilderness Study Area. The use of the Latir Wilderness and the Cruces Basin Wilderness is also increasing slightly. Much of the use in these two wilderness areas is for fishing. Most trailheads provide information about recreational opportunities and wilderness resource conservation issues.

Regular patrols are becoming more infrequent as the number of district employees is reduced. Public complaints about the presence/impacts of cattle grazing on aesthetics and ecosystems have occurred. Many trails do not meet trail standards (clearing, logging out, tread maintenance, signing, nonexistent trail logs, etc.) due to budget/staff limitations. Management decisions regarding acceptable limits, zoning and resource emphases are often made informally, frequently lacking the support of coordinated plans or professionally established analysis methods.

Wilderness 2

Goals:

Maintain an enduring high quality wilderness trail system that is a source of minimal resource damage.

Monitoring:

The assessment is based on professional judgment of recreation specialists, public comments and information from Regional, Forest and District recreation managers.

Results:

Regular patrols are becoming more infrequent as the number of district employees is reduced each year. Wilderness use is primarily day-use by recreationists and grazing permittees, and is increasing slightly. Use is primarily concentrated along trails in the Wheeler Peak and Pecos wilderness areas and Columbine-Hondo Wilderness Study Area. The use of the Latir Wilderness and the Cruces Basin Wilderness is also increasing slightly. Much of the use in these two wilderness areas is for fishing.

Public complaints about the presence/impacts of cattle grazing on aesthetics and ecosystems have occurred. The Cruces Basin Wilderness was established with the permitted use of grazing. Most trailheads provide information about recreational opportunities and wilderness resource conservation issues.

Many trails do not meet trail standards (clearing, logging out, tread maintenance, signing, nonexistent trail logs, etc.) due to budget/staff limitations. Management decisions regarding acceptable limits, zoning and resource emphases are often made informally, frequently lacking the support of coordinated plans or professionally established analysis methods. Supporting documentation is located at each ranger station.

Wild and Scenic Rivers

Goals:

Conduct a Wild and Scenic River eligibility assessment on all river and stream segments on the Carson National Forest. Maintain and enhance the outstandingly remarkable values and free-flowing conditions of eligible and designated Wild and Scenic Rivers.

Monitoring:

Eligibility and classification assessments have been conducted on all ranger districts. These assessments involved an analysis team of field personnel – such as a biologist, hydrologist/soil scientist, recreation specialist, archeologist, and technicians – familiar with the district. A representative from the NM Department of Game and Fish also participated. Rivers were sectioned into logical segments for evaluation. Each member of the team reviewed each segment and determined whether it supported any outstandingly remarkable values. Discussions were generated when there were differences of opinion and final determinations were based on consensus. The Bureau of Land Management monitors the wild and scenic designated portions of Rio Grande and Rio Chama that are on National Forest System lands.

Results:

Sixty-five river segments have been identified as potentially eligible for Wild and Scenic designation. The outstandingly remarkable values, for which each segment deemed potentially eligible, will be protected until a suitability study has been completed or Congress designates it as a Wild and Scenic River. Supporting documentation is located at the Forest Supervisor's Office.

All surface waters of the Valle Vidal Administrative Unit were classified as "Outstanding National Resource Waters" (ONRW) by the New Mexico Water Quality Control Commission in September of 2005[6]. Surface waters designated as ONRW are recognized as waters that possess outstanding ecological or recreational values. This designation assigns the highest level of water quality protection in order to maintain the quality of these waters into the future for the benefit of both humans and wildlife. There were changes in the designation of stream segments identified as potentially eligible for Wild and Scenic designation. The outstandingly remarkable values of the Rio Grande and Rio Chama are being maintained.

Lands

Goals:

Successfully complete, process or administer planned land exchanges, title claims, purchases, donations, withdrawal reviews, property boundary locations, special uses, memorandums of understanding, and the acquisition of needed rights-of-ways, to meet other program output needs

6 NMAC 20.6.4.8.A. (3) (e), Antidegradation Policy and Implementation Plan. August 2007. "Preexisting land-use activities allowed by federal or state laws prior to designation as ONRW, and controlled by best management practices (BMPs), shall be allowed to continue so long as there are no new or increased discharges resulting from the activity after designation of the ONRW.

(timber sales, range projects, recreation operations etc.) and the needs of other agencies, private parties and corporations.

Monitoring:

Conditions to be monitored are dictated by individual projects, applications, annual programs, etc.

Results:

Approximately 604 Special Use Permits related to real estate are administered on the Carson National Forest. In 2010, 33 of those permits were requested and 28 permits (approximately 5%) were administered to standard. Supporting documentation is located at the Forest Supervisor's Office.

Protection 1- Drinking Water

Goals:

Comply with state health and sanitation codes to protect public health. AII public potable water supplies will be in compliance with the Safe Drinking Water Act and applicable state laws. Wastewater treatment will comply with state laws.

Monitoring:

Monitor all potable water systems open to public use.

Results:

Water samples are taken once a month from all campgrounds by the concessionaire's certified water operator (when open) and Forest Service administrative buildings (year-round) not on municipal water systems. New Mexico requires a quarterly water sample; the Forest Service requires monthly samples. In 2010 one water sample did not met the minimum state requirements for public use water systems. The offending water systems was shut down pending treatment and additional water samples passing minimum state requirements. Supporting documentation is located at the Forest Supervisor's office.

Protection 2- Fire Suppression

Goals:

Provide effective fire suppression to reduce or minimize fire risk as the projected increase in population is realized.

Monitoring:

Determine the effectiveness of fire suppression by -

1. Periodic inspections and reviews by specialists to determine if fire control organization is effective in controlling fire losses within acceptable limits.

2. Fire reviews of selected fires.

Results:

For the 2010 fire season, the Carson National Forest received consistent moisture. Winter snows transitioned into spring rain maintaining high fuel moisture, which moderated the potential for an active fire season. The Carson had a total of 79 fires, which all remained Class A fires. The largest fire was only 5 acres and all suppression was successful. Safety remained the highest priority on all fires and none were utilized for resource benefit. The ratio of human caused fires to naturally ignite was unusually high. The Carson averages approximately 2% human caused fires. Various treatments for fuels were utilized including prescribed fire and mechanical. In general, most treatments were achieved using force account prescribed fire.

Table 23 Wildfires on the Carson National Forest 2005 - 2010

	2005	2006	2007	2008	2009	2010
Total Acres	4,771	147	31	0.5	113.7	306.7
Average Size (acres)	63.6	1.2	0.68	0.1	2.0	3.3
Number of Fires	75	123	45	30	57	92
Largest fire (acres)	3,922 (Pine Canyon)	52 (Quernos)	5 (Mesa)	5 (Canada)	87 (Cabresto Mesa)	270 (Ojito)

Keeping the wildfires small permits better planning for later prescribed burning when weather and fuel conditions allow. The total number of fire starts in 2010, 79, is larger than the six year average of 68 fire starts per year. Years,2007. 2008 and 2009, have seen a slightly less number of fire starts than the average occurrence of six year cycle. Year 2010 returns to the to the first year of this six year cycle for fire occurrence. The Healthy Forest Initiative has been used during from 2008 to 2010 to reduce fuel loadings in the vicinity of several communities across the Forest. Prescribed burns and other fuel reduction efforts were continued in 2010. Efforts to reduce fuel loading are expected to continue into the future.

Protection 4- Law Enforcement

Goals:

Law enforcement efforts by the Forest Service, and aided by cooperative agreements with local sheriffs' departments, are adequate and commensurate with the goods and services produced on the Forest and Grasslands.

Monitoring:

Professionally evaluate trend in law enforcement effectiveness based on reviewing caseloads, solution rates and public compliance. The evaluation will be based specifically on a review of 1) protection of cultural resources; 2) changes in ORV damage; 3) changes in fuelwood theft; 4) changes in the dollar cost of vandalism; 5) trends in user protection; and 6) recurrent law enforcement problems at developed recreation sites.

Results:

- Maintained signing in areas north of Red River to address illegal ATV use. Law enforcement efforts were also increased to address this concern.
- Over one half of violation notices issued were for -- dumping private trash on national forest, cutting forest products without a permit and off road vehicle violations.
- A new area of concern is arson caused wildfire. At least 4 incidents of arson occur on the Carson National Forest annually.
- Recurring law enforcement problems at both developed and dispersed recreation sites include exceeding the 14 day limit, leaving fires unattended, destruction of government property, and dogs not on a leash.
- Carson National Forest Law Enforcement Officers monitor events such as the Red River Motorcycle Rally and the Rainbow Family Circle of Light gatherings on the Forest.

Air Quality- Visibility – Class I Areas

Goals:

Class I areas will retain good visibility to meet Class I standards. Visibility will be retained in form, line, texture and color of characteristic landscapes. Determine baseline condition of visibility and determine if any visibility degradation is occurring in the Class I areas.

Monitoring:

Determine baseline condition of visibility and determine if any visibility degradation is occurring in the Class I areas.

Results:

After nearly 20 years of photo documentation of the Wheeler Peak Wilderness to detect changes in air quality of a Class I airshed, it has been determined that photo comparisons are qualitative data that do not provide substantive results in determining whether quantitative standards for air quality have been exceeded. Late in 2000, a new air quality monitoring station was installed in the Taos Ski Valley to monitor air quality in the Wheeler Peak wilderness area using quantitative data, such as percent particulate matter. The photo monitoring has ceased. Data is collected using the installed monitoring station.

Timber 1

Goals:

Achieve a more balanced age class distribution, appropriate growing stock levels, appropriate rotations and provide wildlife habitat and other resource needs.

Ensure that:

1. Rotation age and CMAI assumptions are correct -- silvicultural prescriptions follow management areas standards;
2. Silvicultural prescriptions precede vegetative treatments;
3. Silvicultural prescriptions are practical and achieve desired results.

Monitoring:

Determine age class distribution, growing stock levels, rotations and wildlife/resource needs through stand database reports; Timber Management Information System; silvicultural prescriptions; Staff field reviews of 5% of treatment projects.

Results:

Forest Plan goals for forest health, especially treatment of mid-seral vegetation to improve diversity, have not been met, but the few small projects accomplished each year continue to move the Forest towards its desired condition. Mixed conifer and Ponderosa pine forests on the Carson still contain large areas of small, densely growing trees. These conditions pose a threat of catastrophic wildfire over extensive landscapes.

No stand exams were contracted or accomplished in 2010 Vegetation treatments on the Camino Real, Tres Piedras, Jicarilla, Canjilon, Questa, and El Rito Ranger districts received post-treatment monitoring by the Forest silviculturist to assess their effectiveness. Approximately 557 acres were treated and monitored in 2010 for forest health and fuels reduction as a part of the Collaborative Forest Restoration Program (CFRP). Supporting documentation is located at the respective ranger stations.

Periodic field visits to project areas by sale administrators, specialists and/or line officers usually result in informal monitoring and evaluation of the application of best management practices or actions needed. Documentation is captured through specialist notes, sale administration inspection reports and/or photo points located at the ranger stations.

Timber 2- Timber Assumptions

Goals:

Timber plans and projections support a sustained yield of forest products and achievement of multiple-resource objectives. Validate timber assumptions: volume, productivity, Management Area descriptions and acres harvested.

Monitoring:

Through sale review, EA's, cruise summaries, TMIS, compartment exams, stand database (use the same conversion ratios as used in Plan calculations), ensure that:

- board foot/cubic foot ratios are correct;
- volume/acre yield is correct;
- management area descriptions are correct;
- schedule of acres harvested is correct.

Results:

There are 4 active timber sales currently active on the forest in 2010 that reduce fire fuels hazards. Approximately 557 acres were treated and monitored in 2010 for forest health and fuels reduction as a part of 3 CFRP grants (Collaborative Forest Restoration Program).. The schedule of sales outlined in the Forest Plan is no longer used based on many external factors such as litigation, which alter the timelines.

The board foot/cubic foot ratio used is determined at the region level. The ratio is accurate at approximately 1 CCF (hundred cubic feet) the same as .5 MBF (thousand board feet) or stated differently 1 MBF equals 2 CCF. Other measures are not being used. Vigas and latillas were sold on a per foot basis. The amount sold of these two products is small.

The Carson National Forest large sale timber program involved 4 ongoing timber sales that are regularly monitored when actively harvesting.

Timber 3- Sawtimber and Products

Goals:

Annual sale offerings will be made on a sustained yield basis. Meet Federal regulation, measure output; assure allowable sale quantity is not exceeded.

Monitoring:

PAMARs or other annual reporting systems and programmed harvest reports.

Results:

The large sale timber program of the Carson was implemented in 2010 with 4 ongoing saw timber sales. Four small sales, fuelwood, ecosystem improvement, timber, and viga, did occur. The amount harvested was below the minimum ingrowth on the Carson ensuring sustained yield. The allowable sale quantity was not exceeded. The Carson National Forest sold and harvested less than 5 MMBF out of an allowable sale quantity of 42 MMBF.

Timber 4- Fuelwood

Goals:

Green wood sales will continue on a sustained yield basis. Dead/dry firewood will continue to be available through timber-sale residue and natural mortality.

Monitoring:

Review annual total of firewood sale reports, total firewood advertised but not sold, free use and administrative or other use.

Results:

The Carson continued to provide the necessary firewood, latillas, vigas and other small products to the local populace. The amount of woody material provided met the needs of the communities and local population. The number of permits for small products and fuelwood is shown in the following table.

Table 24 Fuelwood and Small Products 2005-2010

Fiscal Year	2005	2006	2007	2008	2009	2010
Latillas, and small products not convertible to volume						
Permits	2,042	2,960	2,392	2,012	2,223	560
Fuelwood						
Permits	4,964	5,384	3,500	6,304	5,305	5,231
Volume (cords)	20,536	24,345	13,533	22,067	27,386	23,044

Timber 5- Openings

Goals:

Improve wildlife habitat through timber harvest by manipulation of stand sizes, methods of cut and juxtaposition of stands.

Monitoring:

Insure stand size of other harvest areas is appropriate through environmental analysis, presale and administrative reviews, and post sale reviews/project area.

Results:

Harvest prescriptions are geared toward the manipulation of wildlife habitat improvement. Guidelines for the Northern Goshawk are used to insure adequate opening size and number, retention of overstory trees. These guidelines are melded with the requirements of Mexican spotted owl recovery plans. The end result is harvest areas meeting wildlife habitat needs with any timber harvest the tool used to provide for wildlife habitat improvement.

Timber 6- Practices and Assumptions

Goals:

All lands harvested for timber production as part of the allowable sale quantity are adequately restocked within 5 years after final harvest.

Monitoring:

Assure that regeneration is obtained within 5 years after -- final harvest cut, and scheduled planting is accomplished through Annual Reforestation/TSI needs report, plantation survival surveys, silvicultural prescriptions, post sale administrative review, Timber Management Information System (TMIS), Stand Data Base/Acres.

Results:

Emphasis is on wildlife habitat improvement, fuels reduction, and to supply local small businesses. Regeneration on harvests for other than timber production emphasis are not required to meet the 5 year time period. No lands were harvested for timber production reasons in 2010.

Table 25 Regeneration Surveys 2005 - 2010

Activity	Acres 2005	Acres 2006	Acres 2007	Acres 2008	Acres 2009	Acres 2010
TOTAL Acres Regeneration Survey	0	1,212	620	1,612	586	604
Total natural Regeneration Survey	0	0	0	0	0	0
Total natural Plantation Survival	0	1,212	620	1,612	388	604
Natural Regeneration without site preperation	0	0	0	0	0	0

Timber 7- Unsuitable Timberlands

Goals:

Meet Federal regulations to periodically re-examine lands identified as not suited for timber production to determine if they have become suited and could be returned to timber production.

Monitoring:

Evaluate the accuracy of suitable timberlands classification through:

1. Review new or updated soil survey data.
2. Review development of better technology for regeneration establishment.
3. Stand exams.
4. Timber Inventory and planning results.

The data monitored will be used as the basis for an evaluation to determine which lands are suited to timber production.

Results:

The soil information, stand examination data, timber inventory, and regeneration establishment technology has not changed since implementation of the Forest Plan. No stands identified as unsuitable were placed in timber production category.

Minerals

Goals:

To meet the requirements of the law, regulations, contract obligations, fiscal accountability, protection of surface resources and successful reclamation. The expected future conditions should be specified in the documentation of the approval of the activity, project, lease, sale, etc.

Monitoring:

The mineral program will be monitored through a combination of the MAR data reporting system, systems designed for project quality control, field examinations by Forest Staff and the activity review system. Management of the minerals activities: Environmental Assessments, bonds, bond justifications, response times for applications and plans of operations, quality of resource coordination, field checks for compliance of the terms of the operating plans, reasonableness of resource protection requirements, mineral sales program, pit plans, accountability, documentation, and reclamation.

Results:

The San Juan Basin (Jicarilla Ranger District) had experienced a downturn in Applications for Permit to Drill (APD). These APD’s are on lands leased prior to 1970. 65 categorical exclusions following the Energy Policy Act, were made for each APD or grouped APDs in 2008. The Final Environmental Impact Statement was completed on July 25, 2008 concerning unleased lands and surface occupancy on the unleased lands or lands having leases lapse on this ranger district. There were 830 field inspections in 2008 conducted for compliance of the terms of the operating plans, reasonableness of resource protection requirements and reclamation by Jicarilla Ranger District staff in 2010

Range 1- Unsatisfactory Range

Goals:

Bring unsatisfactory ranges to satisfactory condition through increasing management intensity levels, constructing structural range improvements, adding nonstructural range improvements.

Monitoring:

Use allotment analysis data to update Grazing Statistical Report.

Results:

The drought over the last several years continued in 2010 with abnormally dry conditions on much of the Carson NF. In general, drought brings many hardships to cattle producers. Herd adjustments (lower numbers) and entry and exit date adjustments continued to be used as intensive management options to reduce impacts to unsatisfactory ranges where necessary to aid in moving these ranges toward a satisfactory condition. See discussion under watershed improvement for details pertaining to range condition monitoring and actions to improve conditions.

Range 2 - Range Condition and Trend

Goals:

Range conditions will be improved at 2030 by decreasing unsatisfactory range to 68,883 acres; and increasing satisfactory range to 753,244 acres.

Monitoring:

Conduct range analysis per Regional standards by qualified Range Conservationists.

Results:

Improved range conditions have resulted from implementation of structural and nonstructural improvements, and more intensive management developed in allotment management plans. Continued NEPA analysis on all of the Forest's allotments will help sustain this type of improvement. Ongoing drought conditions have slowed the progress of improving range conditions. Non-native invasive plants are found in scattered locations across the Carson National Forest. These plants have the potential to impact the native plants through replacement by competition, root exudates, and aggressive growth behavior. An Environmental Impact Statement addressing treatment of these plants was approved in 2005. The EIS was appealed and remanded to the forest. A revised non-native invasive plant decision is anticipated in 2011.

Range 3- Management Plans

Goals:

Prepare or update grazing allotment or unit management plans on 75 percent of the National Forest allotments.

Monitoring:

Track allotment management plans through PAMARS.

Results:

The Forest completed 9 allotment management plans and signed 9 allotment management decisions in FY2009. The Forest strove to complete the analysis and documentation phase on additional numerous allotment environmental analyses. These allotment environmental analyses are expected to be completed in FY2010 and 2011.

Range 4- Range Development

Goals:

To move toward balancing range use with capacity, the structural and nonstructural improvements will be added or reconstructed based on the allotment management plans and funding levels.

Monitoring:

Track data on completed range improvements (fences, waters, revegetation, etc.) through the existing RAMIS system and the annual grazing statistical report.

Results:

The needed data was reviewed, verified and entered in the Infra database by District personnel. The Range Infra Deferred Maintenance database has replaced the RAMIS database.

Range 5- Permitted Use

Goals:

Through increased management and additional structural and nonstructural range improvements, range capacity is expected to increase from the present 119,000 AUM's to 136,000 AUM's in the fifth decade.

Monitoring:

Track through data generated from grazing permits and displayed in Grazing Statistical Report.

Results:

All permitted Use data for stocked allotments was verified / updated in the Range Infra database by Forest Personnel in 2010.

Range 6- Grazing Capacity

Goals:

Grazing capacity is expected to exceed permitted use through the fifth decade.

Monitoring:

New analysis data updates Annual Grazing Statistical Report.

Results:

The grazing capacity was verified for 9 allotments on the Carson National Forest through the NEPA process.

Visual Quality 1

Goals:

Prevent acres with visual quality objectives of Retention or Partial Retention from being reduced more than 20%.

Monitoring:

The Visual Resource Management System will be used as a basis of the monitoring activity.

Results:

On July 25, 2008, the Acting Carson Forest Supervisor signed a decision that amended the forest plan. The amendment included a change in the visual quality objective for Vaqueros Canyon on the Jicarilla Ranger District. The new forest plan direction states:

> Manage Vaqueros Canyon for a visual quality objective (VQO) or scenic integrity level of partial retention. This objective may be reduced by one level to meet other resource goals on a case-by-case basis.
>
> Employ design criteria for visual elements that adhere to the natural characteristics dominating the landscape to the extent possible.

Currently, the portion of Vaqueros Canyon within the Jicarilla Ranger District is entirely leased. Existing gas development occurs both in the foreground and background. The forest plan's visual quality objective was Retention and could be reduced by one level to meet resource goals. By changing the VQO in Vaqueros Canyon, visual resource management is consistent with the Forest Service's responsibility related to gas leasing laws and regulations. Efforts will be made to

maintain natural characteristics of the landscape by using low-profile equipment, paint the color of the surroundings, and tree screens.

No site-specific NEPA decisions made in FY 2008 reduced visual quality objectives of Retention or Partial Retention. Mitigation measures to maintain visual quality objectives were applied to gas well facilities in Vaqueros Canyon. No other activities on the Carson National Forest required mitigation.

Visual Quality 2

Goals:

Visual Quality levels will be maintained or enhanced.

Monitoring:

Projects involving vegetative treatment or manipulation, road or trail construction and major development will be evaluated through the NEPA process to enhance or maintain visual quality levels.

Results:

Two powerline project analyses have been completed. Visual resource management is an integral part of both projects. Neither project will reduce the visual quality levels below current levels or not follow the standards and guidelines in the Forest Plan.

Forest Plan Implementation

Goals:

Assure compliance with and implementation of the Carson Forest Plan in accordance with its stated mission, goals, objectives and standards and guidelines.

Monitoring:

This will be done in light of funding or any other constraints.

Results:

In FY 2010 34 NEPA site-specific decisions were made on the Carson National Forest. Each project implemented in 2010 was evaluated to insure compliance with the Forest Plan. Another 14 site specific decision documents were in process with anticipated completion in 2011.

A forest plan amendment to include standards and guidelines for Valle Vidal (Management Area 21) was scheduled to be completed in FY2008. Due to other obligations, the Valle Vidal amendment will likely not be completed until FY2011The Forest Plan amendment will use the updated Visual Quality Objectives (VQO) system known as the Scenery Management System (SMS). A cross walk between VQO and SMS will permit the use of the newer designation.

Baseline Inventory Monitoring

- Contracts for annual wildlife population monitoring have been ongoing since 2003. These annual monitoring contracts are expected to continue into the future.
- Vegetation data are being collected on each ranger district. This information is being used to determine existing conditions for wildland urban interface and forest health projects, salvage sales, Mexican spotted owl thresholds and old growth at the landscape level, and Forest Plan Revision preparation. Vegetation conditions are recorded on maps and tracked in the RMRIS database and GIS. Photo history is also used to document changes in vegetation composition, structure and health. Much of this data determines where management activities are needed on the Forest to help reach a desired condition. Supporting documentation is located at the ranger stations and the Forest Supervisor's office.
- The Forest archeologist provides program oversight and quality control by reviewing all heritage resource clearances. The purpose of this type of monitoring is to gain overall knowledge of new sites found on the Forest and the course of action taken to protect them. Supporting documentation is located at either the ranger stations or the Forest Supervisor's office.
- The National Visitor Use Monitoring Project for the Carson National Forest was completed and placed into the public domain in June 2004. This information is available electronically at http://www.fs.fed.us/recreation/programs/nvum.

Implementation Monitoring

- Fuelwood monitoring includes field checking for "leave" trees and assessing how the public is harvesting. Monitoring information is considered when determining cleanup efforts needed for fuelwood areas. Cleanup efforts are also monitored. Recommendations and actions are normally documented and are located at the ranger stations.
- Precommercial thinning and salvage sale activities include post-sale inspections. Areas are examined to ensure contract requirements are met and results are documented in the RMRIS/NRIS database. Supporting documentation is located at each of the ranger stations.
- Forage utilization is monitored periodically in grazing allotment pastures to determine whether over utilization is occurring. Supporting documentation is located at each of the ranger stations.
- Range readiness is monitored on an annual basis to determine the time livestock can be released onto an allotment pasture. Current drought conditions have resulted in later than normal turnouts. Supporting documentation is located at each of the ranger stations.
- Archeological and heritage surveys are completed prior to the implementation of ground disturbing proposals to assure protection or mitigation of cultural and/or historic sites. Supporting documentation is located at the Forest Supervisor's office. 11,145 acres were surveyed in 2010 with 40 new heritage sites located. In addition, 40 additional sites were monitored for disturbance and current condition.

Effectiveness Monitoring

- Prescribed fire treatments are monitored through on-site visits. Usually "before and after" photos are taken for burn projects to determine whether the anticipated objectives have been attained (i.e., has the palatability of the oak browse noticeably improved?). Recommendations and follow-up actions are determined. Supporting documentation is located at each of the ranger stations.
- Numerous public field trips are taken each year on the Carson to areas where projects have been implemented. These trips result in informal monitoring of the effectiveness of actions taken and provide excellent opportunities for the public to express their opinions about a type of project. Line officers are also involved in these trips. Supporting documentation is located in the NEPA project documentation at each of the ranger stations.
- Damage, erosion and changed conditions of prerecorded heritage resource sites are documented. Project areas are inspected upon project completion to verify that flagged archaeological sites have been avoided. Site monitoring forms are kept on file in the Forest Supervisor's office. Three damage assessments were completed in 2010. A Site Steward Program continued to monitor sites throughout the forest by private volunteers.

Certain assumptions made in the Carson Forest Plan are continually being validated by many of the monitoring activities listed above. Amendments, such as the 1996 region-wide amendment for the Mexican spotted owl, northern goshawk and old growth, can significantly change how we meet our goals and objectives, but not necessarily the assumptions or desired conditions made in the Forest Plan. Since the Forest Plan primarily focuses on desired condition, we can be flexible in finding and determining better ways of moving toward our desired condition. Upon reviewing Chapter 5 (Monitoring Plan) of the Carson Forest Plan, much of the Carson's monitoring activities are closely linked to the items listed in Chapter 5. Formal evaluation and documentation of these monitoring activities is limited, given the emphasis and budget constraints put on the specialists. The information generated from these monitoring efforts achieves the intent of the majority of monitoring items found in Chapter 5 of the Forest Plan.

Part 2- Monitoring Results

Introduction

Specifically this year, what has happened on the forest/grassland or externally that has affected the forest/grassland such as natural changes, social and economic changes, and management actions?

Drought

Historical evidence and tree ring evidence indicate droughts in the southwest often last for 50 or more years. Within the long term drought short periods of near normal or normal precipitation do occur. The drought began about 1996 and has continued with periods of near normal moisture such as occurred in 2005. The grasslands have been affected with little growth. The mature plants were often times less than 6 inches in height. Grazing was curtailed with some permittees not allowed to graze cattle. The act of not permitting cattle to graze many allotments aided in maintaining grasslands at their current levels.

Forested lands were also affected by the lack of moisture. The moisture stress is beginning to show with increased bark beetle and other insect populations. Small spots of dead, dying, or damaged trees are evident across the forest and are well scattered. These population centers could be a forbearer of increased insect attack and mortality across the forest.

Fire season

For the 2010 fire season, the Carson National Forest received sporadic moisture. Winter snows transitioned into spring rain maintaining moderate fuel moisture, which reduced the potential for an active fire season. The Carson had a total of 92 fires, which 91 remained Class A fires with one class B fire. The largest fire was less 270 acres and all suppression efforts were successful. Safety remained the highest priority on all fires and none were utilized for resource benefit. The ratio of human caused fires to naturally ignite was unusually high.

Social and Economic Changes

The communities adjacent and within the forest boundaries are experiencing a continued influx of people. Many visitors return becoming residents. The attitudes brought by the newer residents conflict with many traditional land uses and at times the cultures of current residents. There were continuing comments concerning cessation of grazing activities to protect the land. Yet many long-term residents have used or have family members who use the forestlands to supplement or provide incomes to sustain their families. The newer residents may conflict with the long-term residents causing tension with the Forest Service in the middle. The economic changes have been in the seasonal business sector, and lodging and food establishments. Many of these jobs are on the lower end of the income level. Businesses capable of using forest products and paying higher wages have not moved into the area.

Ecosystem Health

Insect populations in combination with periods of continued drought are a potential change agent. Insects have increased their population causing mortality in all the forest cover types on the Carson National Forest. This natural phenomenon provides many wildlife benefits such as snags and insect larva for food. An estimated 476,421 snags greater than 9 inches in diameter have been created by insects in the last 6 calendar years. Insect populations are expected to continue in their cyclic pattern with epidemics not expected. However, an epidemic population can build up in less than one year's time if climatic conditions coincide with other natural factors.

Multiple Benefits to People

In 2010, fuelwood was provided to approximately 7,500 households in Northern New Mexico which has a high proportion of residents who use fuelwood for heating and cooking. The Carson provided fuelwood supplies to local communities as is typified by the Camino Real Ranger District's stewardship blocks. Communities are both obtaining fuelwood and creating thinned areas to aid in providing increased fire protection to their homes. The Carson National Forest has a long-standing tradition and desire to provide for the local communities while providing for national needs. The fuelwood program provides for both of these needs.

Scientific and Technical Assistance

Management activities were designed to improve the productivity of the natural resources while providing for the needs of people. The range program continued to monitor the conditions of the allotments with the intent of providing permittees an opportunity to graze the land. Regular contact with permitted livestock owners allows for timely adjustments in management, as monitoring deems necessary for resource conditions.

The Forest completed 9 allotment management plans and signed 9 allotment management decisions in FY2009. The environmental analyses on an additional 18 allotments are expected to be completed in FY2010 and 2011.

The Carson National Forest Fire Prevention Program participated in numerous community events to share forest service, fire prevention and defensible space information. Our fire prevention school program focuses on children in all the school systems surrounding the forest. Our emphasis is teaching the importance of wildfire prevention, the principles of fire behavior, healthy forests and the concept of interdependence in forest ecosystems. These visits included over 2,000 children, parents and teachers.

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Other events included participation in local community festivals, parades fishing derbies and health fairs. Many of these events included participation from our interagency cooperators.

Many community events and meetings included the sharing of information on creating defensible space around homes in our Wildland Urban Interface areas.