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Agriculture

Forest Service

Rocky  
Mountain  
Region



# Pike and San Isabel National Forests and Cimarron and Comanche National Grasslands

## Annual Monitoring Report for Fiscal Year 2007

September 26, 2008



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## **1. Introduction**

The Pike and San Isabel National Forests (Forests) and the Cimarron and Comanche National Grasslands (Grasslands) (collectively referred to as the PSICC) include 2.8 million acres of public lands. These four units are located in central and southeastern Colorado and in southwestern Kansas. Management of the PSICC is very complex because it spans a variety of ecosystems, social, and economic settings, and must be integrated with the needs of two state governments and 17 counties.

The 1984 land and resource management plan (1984 Plan) for the PSICC focuses on resource needs and the desires of the diverse publics being served. Predicted rates of accomplishment corresponded with the needs identified in the 1984 Plan. As is apparent in many of the following sections, implementation has not kept pace with predicted rates.

## **2. Physical Components**

### **2.1. Soil and Water Resources**

The soils and water resources program provides the technical information necessary to ensure these resources are sustainable as identified in the National Forest Management Act (NFMA). Management decisions made to implement actions under the 1984 Plan are done so by considering soils and water resources data and other technical information. Program monitoring is divided into three major functions:

1. Soils inventory
2. Soil and watershed improvement
3. Soil and water quality

### **2.1.1. Soils inventory**

Conducting soils inventories is a prerequisite to land management planning and implementation. Collecting baseline data is a fundamental requirement supporting resource management mandates identified in the NFMA. Modern soils inventories use an integrated approach to describe and map biotic and abiotic features: geology, landforms, climate, vegetation, and soils. Soil surveys in eight major areas<sup>1</sup> on the PSICC have been conducted in cooperation with other Federal and State agencies. Each survey area differs in the quality of mapping, available interpretations, and status. Two areas (the eastern portion of the Pike National Forest and Morton County) have current published surveys. The mapping, draft manuscripts, and interpretations have been completed for the remaining survey areas.

### **2.1.2. Soil and watershed improvement program**

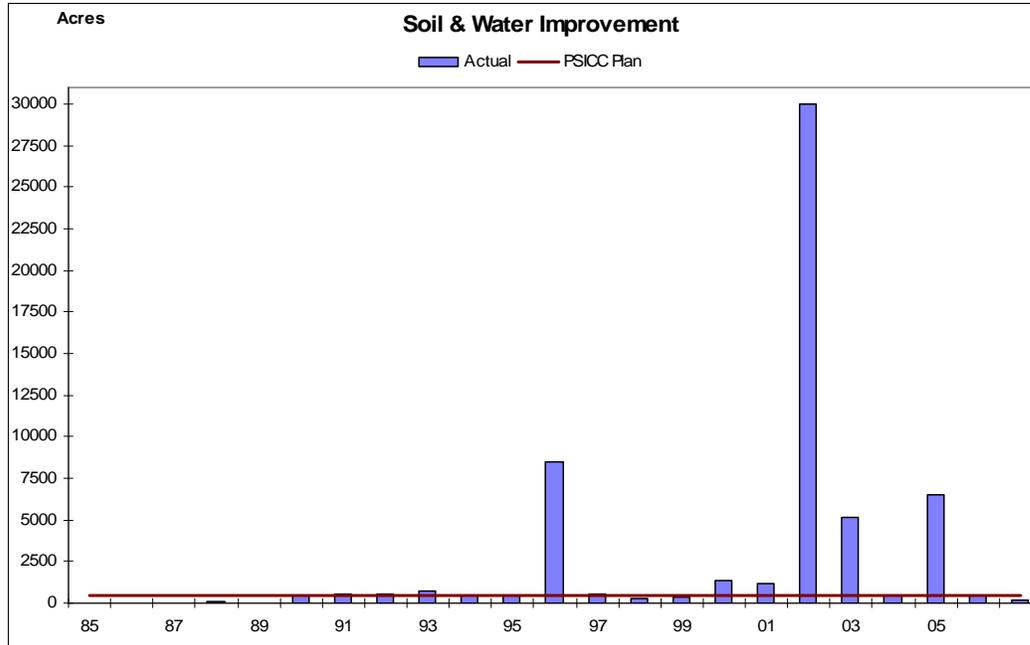
The future use of Federal lands depends on the protection and maintenance of soils and water resources. Improving watershed conditions is important for maintaining long-term ecosystem health at local and landscape levels. The program goals are to prescribe and implement land treatments, and in some cases to modify management to:

1. Protect life and property.
2. Protect and improve water quality consistent with the Clean Water Act.
3. Reduce or minimize erosion and sediment damage.
4. Improve species habitat.
5. Increase long-term soil productivity.
6. Ensure long-term health and sustainability of watersheds given the variety of demands on the land.

Direction in the 1984 Plan includes improving 440 treated or 1,200 affected acres per year. Figure 1 shows the number of treated acres from 1985 to the present. The PSICC has implemented over 400 soil and water improvement projects since implementation of the 1984 Plan, totaling more than 35,000 acres of treated or improved lands, excluding areas rehabilitated following wildfire (see Burned Area Rehabilitation, below). In 2007, 140 acres of soil and watershed improvement projects were reported.

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<sup>1</sup> Pike National Forest, eastern part; Wet Mountains and Spanish Peaks; northern San Isabel National Forest and western Pike National Forest; Sangre de Cristo Range; Morton County, Baca County, Otero County and Las Animas County.



**Figure 1. Soil and water improvement**

Over the past 24 years, soil and watershed improvement projects have focused on watersheds and stream systems that exceed Federal and State water quality thresholds and standards for sedimentation. Although the PSICC is making progress in restoring degraded watersheds, much work remains to be done.

### **2.1.3. Watershed assessments**

Watershed assessments are developed so that we can be more responsive to watershed improvement needs and landscape health issues across the PSICC. Watershed assessments allow identification of status, trend and interrelationships of and between resource conditions. This work sets the stage for determining and prioritizing watershed improvement projects and other management opportunities giving consideration to desired future conditions and cumulative effects.

On the Pike National Forest, the South Platte watershed assessment, covering approximately 645,000 acres, was completed in 1999. This assessment has been influential in identifying the need to address and implement various projects, including the Upper South Platte watershed protection and restoration project, the Trout West project, and the Harris Park vegetation treatment project. On the San Isabel National Forest, the Wet Mountain assessment on the San Carlos District and the Tennessee-Arkansas assessment on the Leadville District have been completed. No watershed assessments were completed in 2007.

#### **2.1.4. Burned area rehabilitation**

Since 1996, eight wildfires have been approved for Burned Area Emergency Rehabilitation (BAER) funding (Buffalo Creek, Big Turkey, Hi Meadow, Snaking, Schoonover, Hayman, Steeler, and Mason Gulch). This has been in addition to the 1984 Plan projected level of watershed improvement projects. More than 34,000 acres have been rehabilitated using techniques that include scarification, revegetation and seeding, overland flow reduction, and sediment transport reduction treatments using straw wattles, log erosion barriers, and directional felling. The Hayman fire (approximately 138,000 acres) and the Mason Gulch Fire (approximately 11,400 acres) were the two largest burns in recent years. Major flood events accelerating erosion have occurred within the perimeters of these fires. Runoff from these flood events caused increased sediment levels to drainages within and downstream of the burn areas, contributing to watershed degradation. Road improvements and BAER monitoring took place in the Hayman fire and Mason Gulch fire burn areas in 2007. Weed treatments took place in the Mason Gulch burn area in 2007. Photo points, water quality, gully cross sections, erosion bridges, vegetation transects, and sediment weirs were used to monitor watershed recovery in the Hayman fire burn area. Ongoing BAER effectiveness monitoring and water chemistry monitoring are being analyzed at the Rocky Mountain Research Station (RMRS).

#### **2.1.5. Soil and water quality monitoring**

Monitoring soils and water quality provides information about the effects of management decisions and subsequent actions involving soils and water. State and Federal regulations, 1984 Plan standards and guidelines, and the watershed condition analysis for seriously degraded and high value stream segments on the PSICC<sup>2</sup> give long-term objectives and monitoring guidelines used to measure changes in soils and watersheds.

Work is ongoing on the 1998 303d-listed streams on the PSICC. A total maximum daily load (TMDL) for the Upper South Platte River was prepared in fiscal year (FY) 2002. The Forest Service, in conjunction with the Colorado Department of Public Health, is working on the TMDL for Trout Creek (scheduled for completion during FY 2008). Instream work in Elevenmile Canyon has addressed the instream component of the South Platte River TMDL for that reach of the river. Cross sections have been established to monitor geomorphology changes. Cross sections near Deckers on the South Platte River were monitored in conjunction with the Colorado Division of Wildlife (CDOW) to monitor sediment aggradation and erosion. The Elevenmile Canyon engineering report was completed in FY 2007 to address road-derived sediment. Planning is underway to implement the TMDL for the Happy Meadows reach of the South Platte River on the South Park Ranger District. Planning is underway to implement restoration efforts of

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<sup>2</sup> U.S.D.A., Forest Service. 1998. FS-710. Watershed condition analysis: seriously degraded and high value stream segments on the Pike and San Isabel National Forests and Cimarron and Comanche National Grasslands. Compiled and edited by D.S. Winters and P. Gallagher. March 1998.

Road derived sediment on Sugar Creek, South Platte Ranger District. All monitoring data is entered into the corporate soils and water databases maintained by the PSICC.

Water quality monitoring of streams affected by the 2002 Hayman fire took place on eight streams. Water quality monitoring of the effects of timber harvesting was established in Harris Park on the South Platte District.

Soil and water quality monitoring is also tied to project implementation. In 2006, the Forest hydrologist, soil scientist, zone hydrologists and representatives from the six Forests districts and the two Grasslands districts, conducted field monitoring to evaluate Best Management Practices (BMPs) effectiveness. BMPs are used to ensure compliance with State and Federal regulations and with the 1984 Plan standards and guidelines. In 2007, staffing reduction did not allow interdisciplinary team BMP monitoring on all units.

Restoration of hillslopes damaged from off-highway vehicles (OHVs) took place in the Rampart OHV Area, on the South Park District off of the 211 Matukat Road, and on the Pikes Peak District in Limbaugh Canyon and Rainbow Falls. Pre-work monitoring has been established with photo points and cross sections.

Trail Creek was resurveyed to monitor geomorphology after a 100-year storm event flooded the stream and caused West Creek to wash out Highway 67 between West Creek and Deckers.

Range allotment management plans (RAMPs) and monitoring have incorporated proper functioning condition monitoring to determine the effect of livestock grazing on soil and water resources.

### **2.1.6. Soil quality standards**

The PSICC uses the soil quality standards established for the Rocky Mountain Region of the Forest Service (Region 2). These provide threshold values to document major reductions in soil productivity potential. These values act as early warning signs to indicate when further alteration of soil properties would extensively change or impair soil productivity. Past soils monitoring tied to project implementation involved visual assessments of contract provisions and project mitigation designed to reduce the degradation of soils and water resources. These projects include or involve timber and salvage sales, roads, trails and facility construction and maintenance, and recreation-related activities. More detailed and quantitative soils monitoring is being conducted. Specifically, soil compaction related to livestock grazing and erosion related to BAER treatments and OHV use is monitored. In the future, both qualitative project monitoring and more detailed studies of specific management uses and issues on the PSICC will be conducted.

## 2.2. Water Rights

*No new information was reported for this section for FY 2007. The following reflects the information reported in the FY 2006 annual monitoring report.*

Three goals of the PSICC are to

1. Maintain current water rights
2. Protect and maintain channel stability and capacity on streams
3. Accomplish any proposed increase in water use or resource activity

This includes reviewing the monthly water court resumes in Water Division 1 (South Platte Basin) and Water Division 2 (Arkansas Basin) and filing Statements of Opposition to any of the filings that may potentially harm the rights held by the Forest Service. The review also enables the PSICC to learn about individuals seeking water rights on the Forests or Grasslands who may not hold special-use permits (SUPs) for the use. Rather than filing a Statement of Opposition, the PSICC would sometimes send a letter to the applicant about the special-use permitting procedures. Generally, if the water right application is for an “absolute” water right, a Statement of Opposition is filed instead of a letter.

In 2006, the PSICC continued to work on augmentation requirements for Lake Isabel and Manitou Lake. The State of Colorado is requiring the PSICC to augment for water lost due to evaporation on both lakes. Engineering firms have been hired, their recommendations have been reviewed, and a plan of action is being put in place. Due to the nature of the potential purchase of water rights, recommendations have changed numerous times according to availability and use of water rights for sale.

The PSICC is also currently working on getting long-term SUPs issued for North Fork, Boss and O’Haver reservoirs on the Salida District.

In 2006, a great amount of work was done to follow-up on the Water Division 1 case. Most of the rights in this case were never decreed, so work was done to verify that the uses originally filed for are still current. A list was created and sent to the Department of Justice which was then filed with the Water Division 1 Court. The PSICC has received notice that the State of Colorado has opposed 15 of our surface water rights filings. We are currently looking at our options related to these uses.

In 1979, the PSICC filed for reserved rights in Water Division 2 (Case No. 79CW176). This case is coming to closure with final negotiations still in progress. The PSICC is in the process of evaluating which water rights were ultimately decreed by the court, and which ones were removed from the case. We will then begin to assess the current status of the rights that were removed.

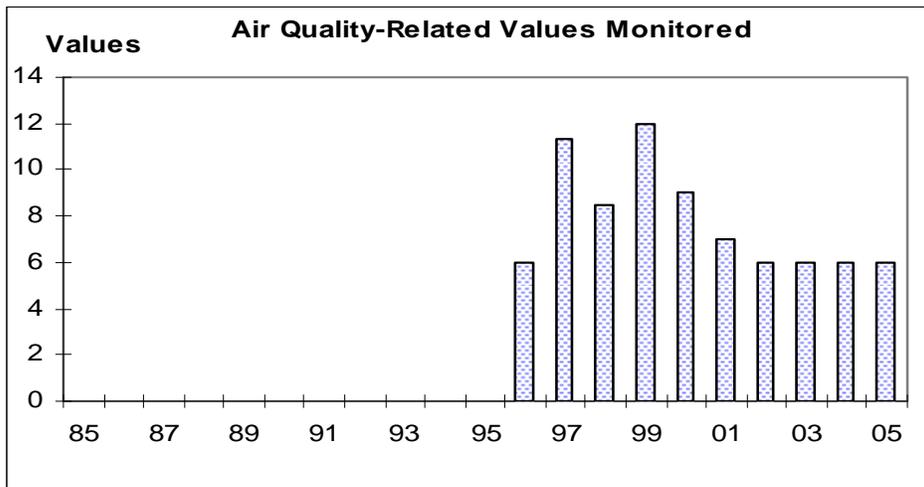
## 2.3. Air Resources

*No new information was reported for this section for FY 2007. The following reflects the information reported in the FY 2006 annual monitoring report.*

In response to requirements in the Clean Air Act, in 1994 the PSICC initiated a long-term monitoring program to develop baseline data for evaluating air quality-related values in wilderness areas (Figure 2). High-elevation lake chemistry is being monitored annually at various locations in the Mount Evans and Sangre de Cristo wilderness areas. Those data collected will be used for evaluating current relationships between air quality and wilderness values, and for reviewing any proposed projects involving major air emissions that may affect the PSICC's airsheds. Several years of data are needed to derive solid conclusions. All prescribed fires are managed to comply with Federal and State air quality regulations.

Acid deposition is also being measured through a network of precipitation chemistry monitoring sites administered under the National Atmospheric Deposition Program/National Trends Network (NADP/NTN). In Colorado, there are 18 monitoring stations distributed across the state. One station is at the Manitou Experimental Forest headquarters on the Pikes Peak District.

In 1994, with the end of the first round of the Conservation Reserve Program (CRP) in Morton County there was speculation that a significant number of acres currently in the CPR program would be broken out and put back into ranch production. As a result, two  $PM_{10}$  air quality-monitoring sites were installed by the Kansas Department of Health and Environment – one on the Cimarron National Grassland (Cimarron) and one in Richfield, Kansas.



**Figure 2. Air quality-related values in wilderness areas**

In 1998, when the Kansas Department of Health and Environment decided not to maintain either of these two sites, the Forest Service and the Morton County Conservation District continued their maintenance and equipment operation. All readings, with the exception of once at the Richfield site, have been in compliance with State standards. In 1990, corporate hog farms were being established in Morton County. The odor from the establishment of hog farms became an air quality issue in Morton County and the surrounding counties.

## **2.4. Mineral Resources**

### **2.4.1. Energy Minerals**

Both the Cimarron and Comanche National Grasslands (Grasslands) support the majority of the oil and gas leasing, exploration, development, and production activities on the PSICC. However, there has been renewed leasing interest along the Front Range of the Pike National Forest and in the Spanish Peaks area of the San Isabel National Forest. The Pikes Peak District now has areas under lease along the Rampart Range northwest of Colorado Springs and has a complete Application for Permit to Drill (APD) from Dyad Corporation. The South Park District has a proposal to lease an area southeast of the town of Jefferson, Colorado. The San Carlos District has a proposal to lease an area southwest of the town of La Veta, Colorado, and another southeast of the town of Cuchara, Colorado. Extensive seismic and other geophysical and geochemical exploration has taken place over the years in the Rampart Range and Wet Mountains.

### **2.4.2. Locatable Minerals**

The South Park District of the Pike National Forest supports the majority of mining and exploration activities; some locatable mining also takes place in the Leadville and Salida Districts of the San Isabel National Forest and the South Platte District of the Pike National Forest. The majority of the small commercial operations mine amazonite and smokey quartz crystals, with some gold placer mining taking place on the Leadville District. No major or moderate exploration, development, or production operations have taken place. Recreational mining activities such as panning, dredging, and rock hounding are on a slight increase. Over the past couple of years efforts (including criminal litigation in two cases) have been taken to bring several unauthorized operations on the South Park District into compliance with regulation and policy. These efforts have been successful in that the operators currently have approved plans of operations in place.

## **3. Biological Components**

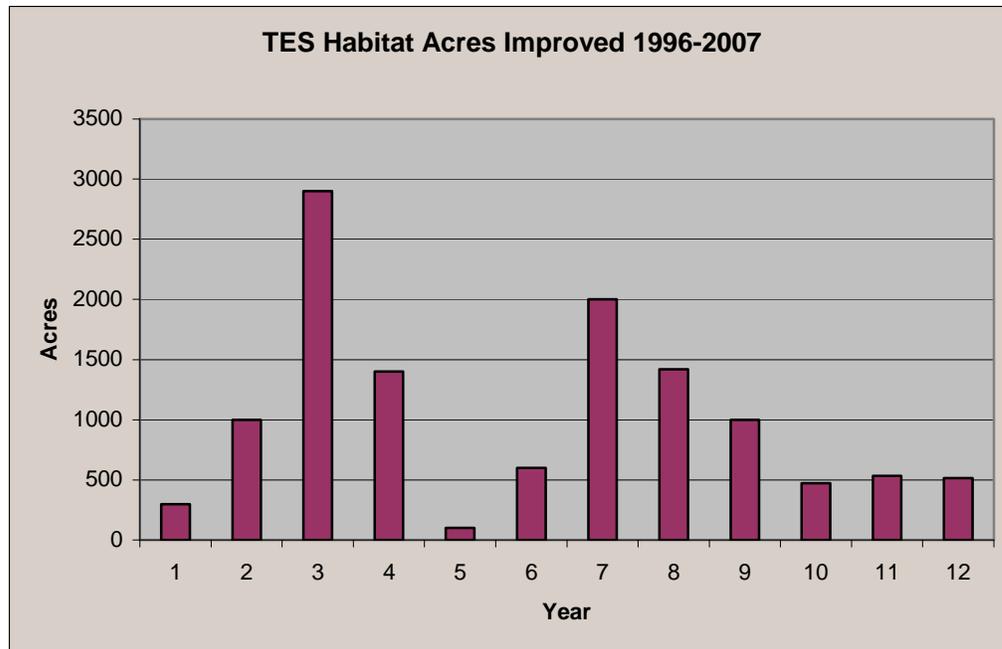
### **3.1. Wildlife, Fisheries, and Rare Plant Resources**

#### ***3.1.1. Accomplishments of interagency objectives***

PSICC personnel meet regularly with the Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), CDOW, Kansas Department of Wildlife and Parks (KDWP), and various other partners regarding wildlife objectives and opportunities for projects that will help achieve shared objectives. Topics have focused on the lesser prairie chicken, big game species, and fisheries (trout) with the state agencies, livestock grazing management with the BLM, and threatened and endangered (T&E) species with the USFWS. CDOW's Habitat Partnership Program (HPP) includes representatives from CDOW, the Forest Service, the BLM, private landowners, and hunters with the aim of addressing big game animal damage issues on private lands intermixed with state and federal ownerships. There are also two Antelope Conflict Resolution committees in southeastern Colorado, where state livestock grazing allotments and the Comanche National Grassland (Comanche) coexist with private agricultural interests. The PSICC has established partnerships with state universities and species advocacy groups such as Trout Unlimited, Ducks Unlimited, the Rocky Mountain Elk Foundation, and the National Wild Turkey Federation for research and habitat enhancement projects. The PSICC has developed a 5-Year Action Plan (2005–2010) for wildlife, fish and rare plants that was reviewed and co-signed by state agency district biologists. Program priorities for projects and funding follow this action plan, which is posted on the Region 2 Wildlife, Fisheries, and Rare Plants (WFRP) website.

#### ***3.1.2. Threatened and endangered species***

Emphasis continues to focus on completing inventories to establish baseline species population and distribution information. The T&E habitat improvement efforts have primarily involved work necessary to support the reintroduction of the greenback cutthroat trout and improve Pawnee montane skipper (butterfly) habitat. Prescribed burning and noxious weed treatments have been used extensively to restore ecosystem structure and composition for both Forest and Grassland sensitive species (such as mountain plover, black-tailed prairie dog, lesser prairie chicken, and northern goshawk). Partnerships are a critical part of achieving these accomplishments. Because of the importance of threatened, endangered, and sensitive (TES) species, the goals of the WFRP 5-Year Action Plan are focused on maintaining and enhancing the various habitats required to support these species, with increased emphasis on protecting biological diversity. Figure 3 shows program accomplishments in the number of TES habitat acres improved from 1996 through 2007.



**Figure 3. Acres of threatened, endangered, and sensitive species wildlife habitat improvement on the PSICC**

### **3.1.3. Rare Plants**

Project related surveys in July 2007 increased one known population of the federally threatened Penland’s eutrema (*Eutrema penlandii*) from 30 individuals to over 100 in six associated subpopulations.

A survey of known and potential habitat for Rocky Mountain monkeyflower (*Mimulus gemmiparus*), a Regional Forester’s Sensitive Species (RFSS), by the Colorado Natural Areas Program failed to find additional populations on the Pike and San Isabel National Forests, although at least one was found in a nearby state park.

Colorado Springs evening-primrose (*Oenothera harringtonii*), another RFSS, was found in large numbers during surveys in and near the Comanche. This species appears to be rather opportunistic, taking advantage of ample soil moisture and flowering profusely. The Colorado Natural Heritage Program may consider revising the NatureServe “G-rank” from G-2 (imperiled – at high risk of extinction) to G-3 (vulnerable – at moderate risk of extinction) based on findings in part from National Forest System (NFS) lands.

Work has continued on a third RFSS, Degener’s beardtongue (*Penstemon degeneri*), in cooperation with Dr. Leo Bruederle and Carol English of Colorado University – Denver, and the Colorado Native Plant Society. Good growing conditions in 2007 revealed that at least one population on the San Carlos District is considerably larger than previously realized, with several thousand plants blooming during July. Further details on the Degener’s beardtongue work may be seen on the Washington Office’s *Celebrating*

Wildflowers website at:

[http://www.fs.fed.us/wildflowers/rareplants/conservation/success/penstemon\\_degeneri\\_knowledge.shtml](http://www.fs.fed.us/wildflowers/rareplants/conservation/success/penstemon_degeneri_knowledge.shtml)

### **3.1.4. Management indicator species**

A decision notice for a Forest Plan amendment was published August 8, 2005, modifying the current management indicator species (MIS) list. This review indicated the need to reduce the 1984 MIS list with related Forest and Grassland major management activities in associated ecotypes (called management indicator groups).

The completed MIS Amendment Decision Notice and EA are on file at the PSICC Supervisor's Office in Pueblo, Colorado, and available on the PSICC Web site at <http://www.fs.fed.us/r2/psicc/projects/>.

#### **3.1.4.a. Retained MIS species**

Pike and San Isabel National Forests

1. Abert's squirrel
2. Brook trout
3. Greenback cutthroat trout
4. Rocky Mountain elk

Cimarron National Grassland

1. Black-tailed prairie dog
2. Bullock's oriole
3. Lesser prairie chicken

Comanche National Grassland

1. Black-tailed prairie dog
2. Bullock's oriole
3. Lesser prairie chicken
4. Long-billed curlew

#### ***Abert's squirrel***

Abert's squirrel is dependent on ponderosa pine with open understory for both nesting sites and food and therefore is generally limited to open montane forests. Target feed trees represent less than 10% of the trees in stands populated by Abert's squirrel along the Front Range. Tree chemistry also affects nest-site selection. On the PSICC, surveys show approximately 92% of nests were in a tree group with 75% having three or more interlocking canopy trees. Population dynamics are poorly known. Population estimates range from 12 to 30 animals per km<sup>2</sup> in the Black Forest of El Paso County, Colorado, and from 82 to 114 km<sup>2</sup>, near Boulder, Colorado. Spring population counts tend to be lowest. In 2004, protocol development and field-testing was done in conjunction with Colorado State University and the San Juan National Forest. The past 3 years, baseline surveys were conducted on approximately 4,000 acres of potential Abert's squirrel habitat. The Mason Gulch fire on the San Carlos District burned about 5,000 acres of

potential habitat.

### ***Black-tailed prairie dog***

The black-tailed prairie dog has been identified as a management indicator species (MIS) for the Grasslands and is also known to be an important source of habitat for other native species in shortgrass prairie (Kotliar and others 1999; Kotliar 2000; Kretzer and Cully 2001). The locations of active black-tailed prairie dog colonies have been monitored on the Grasslands using Global Positioning Satellite (GPS) technology since 1999. These surveys were conducted by Kansas State University in 1999 and from 2001–2005 through a cost-share agreement with the Forest Service (Cully and Johnson 2005). In addition, colonies were mapped on the Comanche in 1995 as part of a research project on burrowing owls (Toombs 1997). In 2006, Forest Service personnel on the Grasslands conducted a GPS survey of all known black-tailed prairie dog colonies. The following summarizes results of the 2006 survey, comparing trends in black-tailed prairie dog colony acreage on the Cimarron and on both administrative units of the Comanche (Timpas and Carrizo Units), and examines the effects of plague in 2005–2006 on the total black-tailed prairie dog distribution from 1999 to 2006.

### ***Comanche National Grassland***

A total of 6,774 acres of active black-tailed prairie dog colonies were mapped on the Comanche in 2006 (Table 1). On the Timpas Unit, we mapped 988 acres, of which 166 acres were from newly detected colonies (that is, not occurring in 2005). For colonies mapped in both 2005 and 2006, there was a 62% net increase in acreage on the Timpas Unit, which reflects a lack of plague occurrence in this area. Despite the increase in colony acreage, there is still only 0.8% of potential black-tailed prairie dog habitat occupied on the Timpas Unit (Table 2). On the Carrizo Unit, we mapped 5,786 acres, of which 218 acres were from newly detected colonies. For colonies mapped in both 2005 and 2006, there was a 61% net decrease in acreage on the Carrizo Unit, which was due to a plague epizootic that significantly reduced the size of most colonies in the central portion of the Unit. A few large colonies on the eastern, western and southern edges of the Carrizo Unit were not affected by plague and continued to expand between 2005 and 2006. Based on 2006 results, 3.5% of potential habitat is occupied by black-tailed prairie dogs on the Carrizo Unit.

Black-tailed prairie dog colony data from 1995–2006 indicate that total colony acreage is similar in 2006 to levels measured in 1995, but there have been significant annual fluctuations in black-tailed prairie dog colonies acreage during those years. A plague epizootic reported in 1995–1996, likely explains the low initial acreages measured in 1999. The large increase from 1999–2005 reflects a series of dry years that reduced vegetation height and allowed rapid expansion of colonies during 2003 and 2004. The declining acreage in 2006 represents a plague epizootic occurring 10 years after the previous outbreak. Many of the active colonies mapped in the summer of 2006 on the Carrizo Unit were continuing to decline in size or have no activity as of October 2006, so total colony acreage in the Unit is expected to decline significantly between 2006 and 2007.

**Table 1. Acres of active black-tailed prairie dog colonies measured using GPS surveys on the Comanche National Grassland, 1995-2006.**

Year	Carizzo Unit (acres)	Timpas Unit (acres)	Comanche total (acres)	Net change in active colony acreage measured (%)
1995	5,728	551	6,279	
1999	1,894	N/A	N/A	
2001	3,851	362	4,213	
2002	5,127	575	5,702	35.3
2003	6,064	556	6,620	16.1
2004	11,592	536	12,128	83.2
2005	14,387	508	14,894	22.8
2006	5,786	988	6,774	-54.5

**Table 2. Total acreage of potential habitat occupied by black-tailed prairie dogs on the Comanche National Grassland in 2002 and 2006.<sup>3</sup>**

	Comanche		
	Carrizo Unit	Timpas Unit	Total
Acres of potential habitat	122,336	98,770	221,106
Acres of low potential habitat	107,716	54,068	161,783
Acres of unsuitable habitat	23,961	22,684	46,644
Acres of unmapped habitat	3,242	10,989	14,231
<b>2002 black-tailed prairie dog habitat occupancy</b>			
Occupied acres in potential habitat	4,518	534	5,052
Occupied acres in low potential habitat	524	25	549
Occupied acres in unsuitable habitat	37	15	53
Occupied acres in unmapped habitat	29	2	31
% of potential habitat occupied	3.7	0.5	2.3
Occupied acres in potential habitat	4329	797	5,126
Occupied acres in low potential habitat	1,334	39	1,373
Occupied acres in unsuitable habitat	97	12	109
Occupied acres in unmapped habitat	11	1	11
% of potential habitat occupied	3.5	0.8	2.3

We also analyzed changes in the locations of active colonies on the Carrizo Unit during

<sup>3</sup> Numbers exclude acreages that may occur on some small inclusions of non-NFS land within allotments.

the period 1995–2006. The analysis focused on colony locations in 1995, 2002 and 2006 because there was similar total active colony acreage (approximately 5,500) in all three of those surveys. Surprisingly, only 282 acres of the Carrizo Unit was occupied in all three surveys, which represent only 5.2% of the mean active colony acreage during the three surveys. This finding demonstrates that over the course of a decade, black-tailed prairie dog colonies can undergo significant changes in locations on the landscape, most likely due to the effects of plague- and drought-driven population fluctuations. One important ecological consequence is that few localities experience long-term intense herbivory by black-tailed prairie dogs, while most colonized areas (more than 90% of colony acreage) experience intense herbivory by black-tailed prairie dogs for only a few consecutive years. This changing distribution of active colonies can in turn create a spatial and temporal mosaic in shortgrass prairie structure and plant species composition.

### **Cimarron National Grassland**

A total of 5,793 acres of active black-tailed prairie dog colonies were mapped on the Cimarron in 2006 (Table 3). Of the 5,793 acres mapped, 508 acres were from newly detected colonies. Excluding these newly detected colonies, there was an overall rate of colony acreage decline of 11.1% from 2005–2006. Including the new colonies, there was a net decline in acreage mapped of -2.3% from 2005–2006 (Table 3). Mapping results showed a plague-induced reduction of colonies on the eastern half of the Cimarron, while colonies on the western half were not yet affected by plague and continued to expand. We anticipate that plague is likely to continue to move westward during 2007 and impact the larger west-side colonies.

**Table 3. Acres of active black-tailed prairie dog colonies on the Cimarron National Grassland, 1989–2006.**

<b>Year</b>	<b>Cimarron active colony acres</b>	<b>Net annual change in active colony acreage measured (%)</b>	<b>Source</b>
1989	750		District files
1992	1,082		District files
1997	1,246		District files
1998	1,298		District files
1999	1,697		GPS surveys
2001	2,439		GPS surveys
2002	3,321	36.2	GPS surveys
2003	4,008	20.7	GPS surveys
2004	5,634	40.6	GPS surveys
2005	5,793	2.8	GPS surveys
2006	5,660	-2.3	GPS surveys

In contrast to the Comanche, results from the Cimarron from 1989–2006 suggest a steady, long-term increase in colony acreage, without any large-scale, cyclic plague

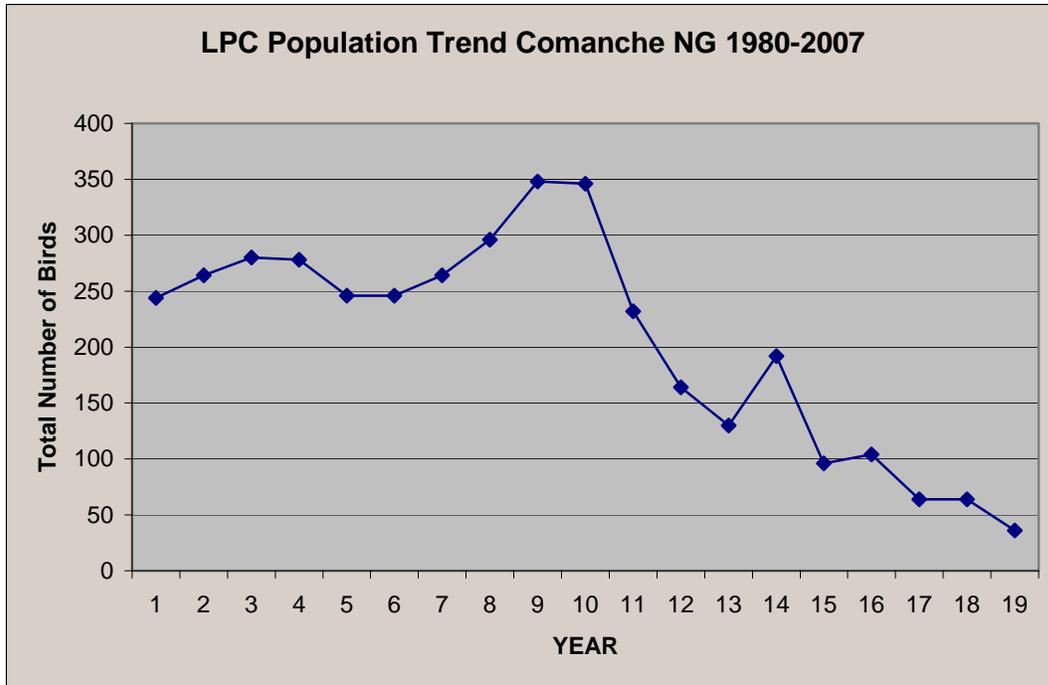
epizootics. Plague was detected on the Cimarron in 1999 and 2003 (Cully and Johnson 2005), but colony die-off was isolated in those years and did not spread to other colonies. However, plague did affect multiple colonies in the eastern Cimarron during 2006, which is likely the first stage of a larger scale epizootic. Based on 2002 data, approximately 8.4% of the potential habitat that was occupied on the Cimarron has expanded to 15% of potential habitat by 2006. The Cimarron level of potential habitat occupancy is substantially higher than on the Comanche. However, the Cimarron's current 15% occupancy rate (Table 4) measured in 2006 is still below the pre-European settlement estimates of 20% occupancy (Gober 2000); with the outbreak of plague, the Cimarron black-tailed prairie dog occupancy rate will likely decline.

**Table 4. Total acreage of potential habitat occupied by black-tailed prairie dogs on the Cimarron National Grassland in 2002 and 2006.**

	<b>Acres</b>
Acres of potential habitat	36,230
Acres of low potential habitat	48,181
Acres of unsuitable habitat	24,123
Acres of unmapped habitat	0
<b>2002 habitat occupancy on the Grasslands</b>	
Occupied acres in potential habitat	3,036
Occupied acres in low potential habitat	229
Occupied acres in unsuitable habitat	16
Occupied acres in unmapped habitat	0
% of potential habitat occupied	8.4
<b>2006 habitat occupancy on the Grasslands</b>	
Occupied acres in potential habitat	5,438
Occupied acres in low potential habitat	180
Occupied acres in unsuitable habitat	25
Occupied acres in unmapped habitat	17
% of potential habitat occupied	15.0

*Lesser prairie chicken*

Results from lek surveys on the Comanche show a downward trend in the lesser prairie chicken population during 1989–2005 (Figure 4). Assuming a 1:1 sex ratio, the total lesser prairie chicken population estimate was highest in 1988 with 348 birds and the lowest in 2007 with 18 birds.



**Figure 4. Total number of male lesser prairie chickens counted through lek censuses on the Comanche National Grassland during 1980–2007.**

The number of lesser prairie chickens counted along this transect can fluctuate considerably from year to year, likely in response to climatic variation, but the long-term trend has been a declining number of lesser prairie chickens during the period from 1964–1994, following an increasing number of birds counted during 1994–2004. Numbers counted in recent years (2000–2004, average of 5.7 birds/square mile) are still lower than numbers counted in the 1960s (1964–1970, average of 10.2 birds/square mile) and the 1970s (1971–1980, average of 10.0 birds/square mile).

During 1995–1999, more intensive surveys of the lesser prairie chicken population on the Cimarron were conducted by Lawrence and Ruth Smith from Elkhart, Kansas, under contract with the Cimarron. They conducted a complete census of leks each spring from 1995–1999 by intensively searching along and listening from all roads on the Grassland south of the Cimarron River (lek census method). The Forest Service and KDWP staffs have repeated this survey style since 2005. See Table 5 for population estimates of lesser prairie chickens on the Cimarron from 1995–2007.

**Table 5. Population estimates of lesser prairie chicken on the Cimarron National Grassland during 1995–2007, based on lek-census method.**

Year	Birds flushed	Est. # of males	Est. total # birds	Total acres surveyed	Square miles surveyed	Total population est: birds/mi <sup>2</sup>	Annual % change	Cumulative % change
1995	142	135	270	61638	96.3	2.80	N/A	N/A
1996	129	123	245	61638	96.3	2.54	-9.26	-9.26
1997	91	86	173	61638	96.3	1.80	-29.39	-35.93
1998	138	131	262	61638	96.3	2.72	51.45	-2.96
1999	149	142	283	61638	96.3	2.94	8.02	4.81
2005	131	124	249	61638	96.3	2.59	-12.01	-7.78
2006	139	132	264	61638	96.3	2.74	6.02	-2.22
2007	100	95	190	61638	96.3	1.97	-28.03	-29.63
<b>Total population change</b>							<b>-29.63</b>	

*Mountain plover*

One of the desired outcomes for grasslands ecosystems (shortgrass prairie) is to manage for mountain plover, which requires annual disturbance from heavy grazing by herbivores (like black-tailed prairie dogs, livestock and wild ungulates), prescribed fire and wildfire.

During 2006, mountain plover surveys were conducted on black-tailed prairie dog colonies, one prescribed burn, one wildfire, and two livestock grazing allotments where prescribed burns were conducted in previous years. Because of drought conditions during the fall of 2005 through the spring of 2006, most planned prescribed burns on the Grasslands were not implemented. However, one prescribed burn was conducted on the Cimarron in shortgrass prairie with potential mountain plover habitat (the Elevator burn), and one wildfire occurred on the Comanche in potential mountain plover habitat (the Richardson fire). These burn sites, along with two black-tailed prairie dog colony areas on the Comanche that contained high mountain plover nesting densities in 2005 (the 2005 Dry Creek burn and a large black-tailed prairie dog colony located on and adjacent to the 2004 Carrizo Swing burn), were surveyed for mountain plover nests in the spring of 2006. Mountain plovers also utilize black-tailed prairie dog colonies for breeding. For this reason, a subset of 31 black-tailed prairie dog colonies distributed across the Carrizo and Timpas Units of the Comanche were surveyed for mountain plovers during May and early June of 2006 (Table 6).

**Table 6. Numbers of mountain plovers observed on prescribed burns in 2005 on the Comanche National Grassland.**

Allotment	Acres surveyed	Habitat	# of birds observed <sup>4</sup>	# of birds observed <sup>5</sup>
Dry Creek	640	Prescribed burn	42	12
Gramma grass	480	Prescribed burn	1	0
Sunset	320	Prescribed burn	18	0
<b>Total</b>	<b>1,440</b>		<b>61</b>	<b>12</b>

The Dry Creek allotment was also burned in 1999 for mountain plover habitat improvement. Comparison of mountain plover numbers on the burn in 1999 (numbers reported by Giesen 1999) and 2005 are shown in Table 7.

**Table 7. Mountain plover densities during migration on prescribed burns in the Dry Creek allotment in 1999 and 2005 on the Comanche's Carrizo Unit.**

Year	Acres burned and surveyed	Birds observed: migration	Birds observed: breeding	Bird nests documented
1999	640	107	33	33
2005	640	42	12	9

One prescribed burn on the Cimarron (the Elevator burn) and one wildfire on the Comanche (the Richardson fire) took place in potential mountain plover habitat (shortgrass prairie on loamy soils with slope <5%) during winter/early spring of 2006. The acres of potential mountain plover nesting habitat provided by these fires is shown in Table 8.

**Table 8. Burns providing potential nesting habitat for mountain plover on both Grasslands.**

Allotment	Acres burned	Grazing association	Comments
Elevator	480	Cimarron	Mid-height and short grass prior to burn; included prairie dog colony
Richardson	70	Campo (Comanche)	Shortgrass prior to burn; included prairie dog colony
<b>Total</b>	<b>550</b>		

<sup>4</sup> Based on migration surveys conducted March 30 through April 12, 2005.

<sup>5</sup> Based on nesting surveys conducted April 20 through April 21, 2005.

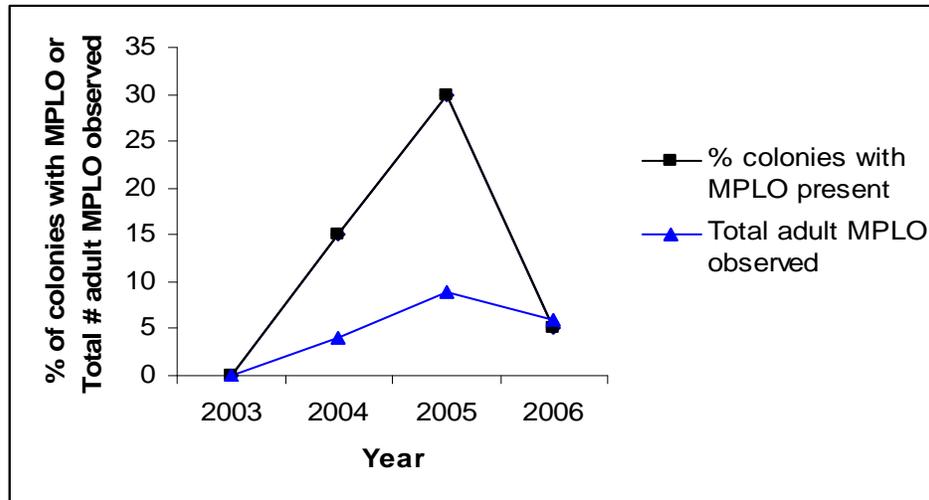
### Mountain plover population surveys

During May of 2006, a systematic grid of points was surveyed in four locations on the Grasslands (see below) with grid points spaced at approximately 0.2 mile intervals (Svingen and Giesen 1999). At each point, the observer would exit the vehicle for several seconds to show a human silhouette (to cause any nearby mountain plovers to move off of the nest) and then re-enter the vehicle and scan with binoculars for 2–3 minutes. In areas with suspected nesting mountain plovers or significant amounts of bare ground, the survey interval was shortened to 0.1 mile in order to more intensively survey the area. See Table 9 for survey results. No mountain plover surveys were conducted in 2007.

**Table 9. Areas surveyed in 2006 for nesting mountain plovers using a systematic grid of survey points.**

Allotment	Approx. # of acres surveyed	Survey date	Birds observed	Habitat and comments
Carrizo Swing	960	5/4/06	1 adult and nest with eggs	Black-tailed prairie dog colony that expanded in response to 2004 prescribed burn; colony experiencing plague outbreak during spring 2006; 28 survey points
Dry Creek	640	5/13/06	None	Shortgrass prairie burned in spring of 2005; no black-tailed prairie dogs; 30 surveys points (2 transects used 0.1 mi spacing between points)
Elevator	480	5/17/06	3 adults, 2 nests with eggs	Prescribed burn with black-tailed prairie dog colony; colony active during survey; 12 survey points
Richardson	400	5/16/06	None	Wildfire and adjacent black-tailed prairie dog colony; 10 survey points

Surveys of the Carrizo Unit (Comanche) documented mountain plovers on 1 of 20 black-tailed prairie dog colonies (5%) in 2006, with six adult mountain plovers and one chick observed at the occupied colony (Figure 5). Surveys of the Timpas Unit (Comanche) did not find any active mountain plover nests.



**Figure 5. Trends in number of mountain plovers observed and % of black-tailed prairie dog colonies with mountain plovers present—Carrizo Unit of Comanche.<sup>6</sup>**

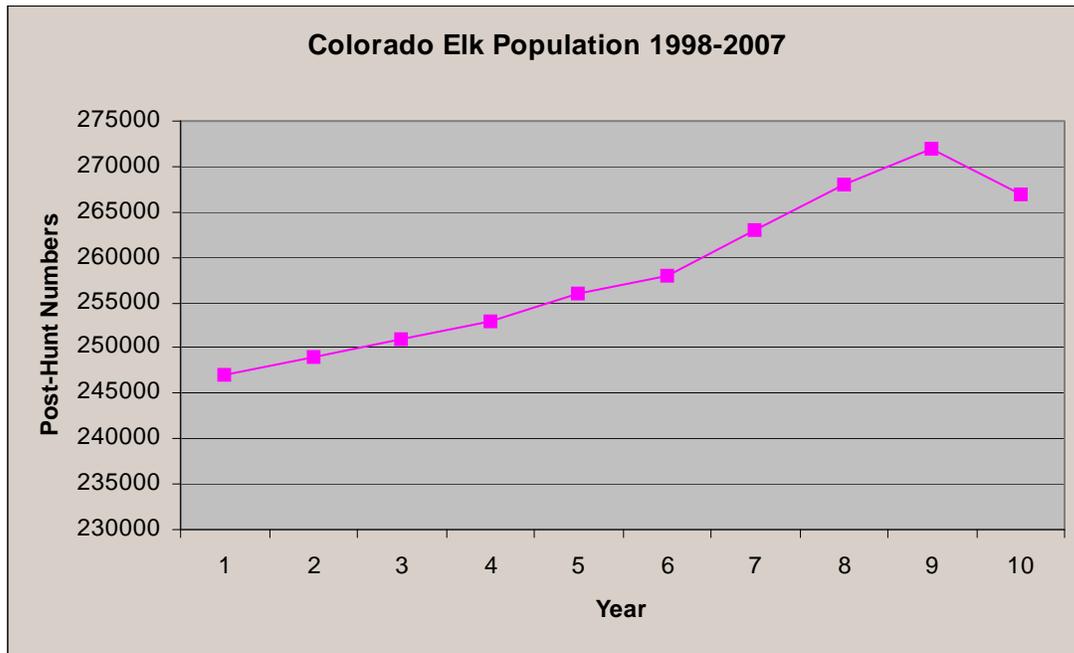
Overall, mountain plover survey results during 2007 indicate:

1. Prescribed burns continue to provide nesting habitat for mountain plovers on the Grasslands, but the density of nesting mountain plovers on burns during 2004–2007 (1.2–9 nests per square mile on the Elevator, Dry Creek and Vienna burns) is still lower than densities documented on burns during 1998–1999 (Svingen and Giesen 1999).
2. Nesting mountain plovers continue to be documented on black-tailed prairie dog colonies on the Comanche, but the proportion of colonies with mountain plovers based on the systematic surveys declined in 2006 and 2007 compared to 2004 and 2005. Decreased use of black-tailed prairie dog colonies on the Comanche in 2006 and 2007 may be related to the epidemic plague events during 2005–2007, which led to reduced black-tailed prairie dog acreage on the Comanche. Lack of mountain plover information on adjacent ownerships (nesting success on private lands) continues to be a source of uncertainty for total estimates of the mountain plover population. High nesting activity documented on the Comanche during 2005 indicates that prescribed burning and black-tailed prairie dog colonies provide the nesting habitat on the Grasslands.
3. Lack of data from adjacent private and Department of Defense lands makes assessment of overall mountain plover populations in southeast Colorado speculative at best. Due to mountain plover use of agriculture fields, especially plowed bare soils, usage estimates of Grasslands habitat is also confounded by adjacent land management practices.

<sup>6</sup> Based on surveys conducted annually at 50 permanent sampling points located on 20 black-tailed prairie dog colonies (1–5 points per colony) during 2003–2006.

*Rocky Mountain elk*

Elk was initially selected as an MIS because of the public’s interest in hunting and viewing, and their usage of unique habitats on the PSICC. Elk also have specific habitat management guidelines in the 1984 Plan. The CDOW annually monitors elk at the game management unit (GMU) scale to assess changes in population trends (Figure 6). Other local factors such as human disturbance (recreation), roads, hazardous fuels reduction, fire suppression and forest/range management can directly influence local elk numbers on the PSICC. The 1984 Plan provides some specific treatment guidance in big game diversity units that is unique from other habitat prescriptions.



**Figure 6. Post-hunt Colorado elk population (January 2007)**

*Fish and Aquatic Resources*

***Fish population surveys and comparisons—Cimarron River***

Table 10 lists the fish found at the Cimarron River survey sites. The table also indicates the relative abundance (% by number), which is the percent a species of fish sampled that makes up of the total population of the fish community sampled. Also, the percent difference of relative abundance is shown, which indicates, where comparable, the difference between the abundance of the fish species found in 2004 and in the previous years (2002 and 2003) surveys.

**Table 10. Cimarron River sampling results: fishery population comparisons, 2002–2004**

Species	Year					
	2002		2003		2004	
	#	%by#	#	%by#	#	%by#
Bass, largemouth	13	1.1	3	0.2	0	0.0
Bluegill	180	15.8	8	0.5	7	0.4
Bullhead, black	0	0.0	0	0.0	190	11.7
Bullhead, yellow	0	0.0	1	0.1	0	0.0
Carp, common	33	2.9	25	1.4	31	1.9
Killifish, northern plains	52	4.6	25	1.4	42	2.6
Minnow, fathead	7	0.6	142	8.2	94	5.8
Shiner, red	840	73.9	1,498	86.2	1,151	71.0
Shiner, sand	12	1.1	32	1.8	0	0.0
Sunfish, green	0	0.0	4	0.2	105	6.5
<b>Totals</b>	<b>1,137</b>	<b>100</b>	<b>1,738</b>	<b>100</b>	<b>1,620</b>	<b>100</b>

***Freshwater mussel community***

There were no mussels collected during the sample period, 2002–2004.

***Macroinvertebrate community***

Table 11 lists the species of macroinvertebrates found in Cimarron River from 2002–2004.

**Table 11. Macroinvertebrate species found in the Cimarron River in 2002–2004**

Order	Family	Genus	Common name
Coleoptera	Heteroceridae	Neoheterocerus	Beetle, mudloving
Coleoptera	Hydraenidae	Ochthebius	Beetle, minute moss
Coleoptera	Hydrophilidae	Bersosus	Beetle, water scavenger
Diptera	Ceratopogonidae		Midge, biting
Diptera	Ceratopogonidae	Culicoides	Midge, biting
Diptera	Ceratopogonidae	Dasyhelea	Midge, biting
Diptera	Ceratopogonidae	Probezzia	Midge, biting
Diptera	Ceratopogonidae	Sphaeromisa	Midge, biting
Diptera	Chironomidae		Midge
Odonata	Coenagrionidae	Ischnura	Damselfly, forktail
Odonata	Gomphidae	Arigomphus	Dragonfly, clubtail

### ***Fish Surveys on the Pike and San Isabel National Forests***

Fish surveys have been conducted on the Pike National Forest and the San Isabel National Forest. Since 2005 a baseline was established for determining future condition changes and/or major management activities. Comparisons can now be made to help focus attention on areas that may need attention, such as habitat improvement to fish spawning areas. Survey data collected for the Pike National Forest is shown in Table 7; for the San Isabel National Forest in Table 8. Fish were sampled using a standard multi-pass depletion/removal technique with a backpack electro-shocker. In the tables, biomass estimates designated as n/a denote that insufficient numbers of fish were collected to calculate a robust estimate; blank cells denote that no sample was taken.

**Table 12. Pike National Forest estimated trout biomass (kg/ha) by species and year for 26 streams sampled two or more times from 2003 through 2007.**

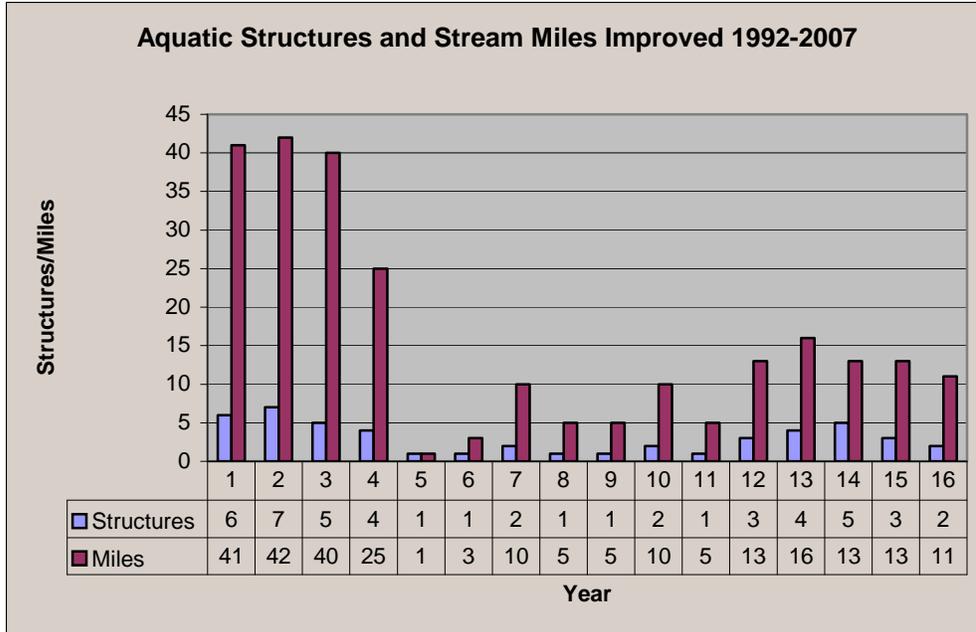
Stream name	Trout species														
	Brook					Brown					Cutthroat				
	2003	2004	2005	2006	2007	2003	2004	2005	2006	2007	2003	2004	2005	2006	2007
Bear	0	0	0	0	0	0	0	0	0	0	174				
Beaver 1	69		74	110		0	0	0	0	0	0		0	0	
Beaver 2			79	148				0	0				0	0	
Buffalo 1	0		0			40		86			0		0		
Buffalo 2	0		0			90		91			0		0		
Cabin 1			111		399			0		0			0		0
Camp			177		131			0		0			0		0
Deer 1	68		44			5		19			0		0		
Duck (309)	19		14		10	0		0		0	0		0		0
Duck (310)	63		82		109	0		0		0	1		6		5
N.F. Elk 1 (406)		4	7				0	0							
N.F. Elk 2 (405)		61	40	28			0	0	0			0	0	0	
N.F. Elk 3 (403)		117	56	208			0	0	0			0	0	0	
N.F. Elk 4 (404)		80	75	68			0	0	0			0	0	0	
N.F. Elk 5 (401)		69	64				0	0				0	0		
Fern			48		61			0		0			0		0
French					54					0					0
Hoosier	41		4			0		0			0		0		
N.F. Lost			116		174			0		0			0		0
Scott Gomer	103		106			0		0			0		0		
Wigwam 1	n/a		0		0	0		5		260	0		0		0
Wigwam 2	0		0		0	0		0		0	0		0		0
Wigwam 3	0		0		0	0		0		0	0		0		0
Wigwam 4	0		57		0	66		30		105	0	0	0		0
Wigwam 5	554		65		58	0		31		49	0		0		0
Wigwam 6	0		0		0	0		0		0	0		0		0

**Table 13. San Isabel National Forest estimated trout biomass (kg/ha) by species and year for 20 streams sampled two or more times from 2005 through 2007.**

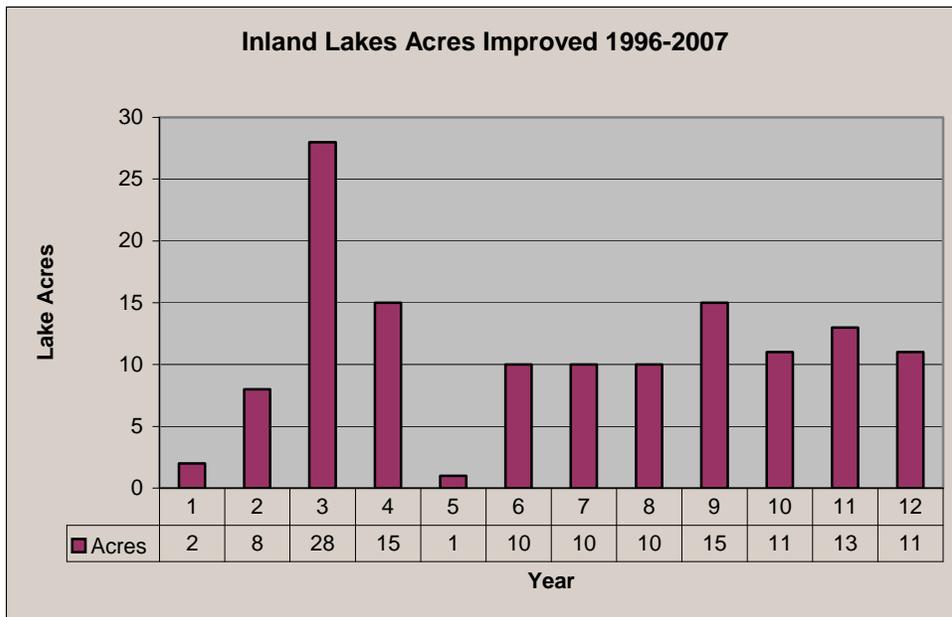
Stream name	Trout species											
	Brook			Brown			Cutthroat			Rainbow		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Beaver	161	188	86	0	0	0	0	0	0	0	0	0
Big Cottonwood	0	0	0	281	517	443	0	0	0	0	0	0
Browns	31	7	14	2	7	4	4	6	4	0	0	0
Cree		0	0		0	0		31	55		0	0
North Fork Clear	25	38	27	0	0	0	0	0	0	0	0	0
South Fork Clear	41	52	48	0	0	0	0	0	0	0	0	0
Denny	35	63	52	0	0	0	0	0	0	0	0	0
Fourmile	80	85	116	n/a	11	n/a	34	21	30	0	0	0
Lower Gray's	6	0	9	99	181	68	0	0	0	0	28	42
Upper Gray's	179	112	86	0	0	0	0	0	0	0	0	0
North Fork Lake	213	99	66	0	0	0	0	0	0	0	0	0
SF of South Fork Lake	19	11	n/a	0	0	0	43	107	53	0	0	0
Upper S. Cottonwood	67	51	285	30	6	218	0	0	0	0	0	0
Ophir	38	35	43	0	0	0	0	0	0	0	0	0
South Colony		44	55		0	0		46	48		0	0
South Hardscrabble		137	153		7	0		0	0		0	0
Squaw	509	276	227	0	0	0	0	0	0	0	0	0
St. Charles River		28	63		165	161		0	0			0
Starvation	113	71		n/a	0		0	0		0	0	
Tennessee	30	32	21	224	148	68	0	0	0	0	0	0

**Aquatic habitat improvements**

Figures 7 and 8 show how many stream miles and lake acres of aquatic and riparian areas were improved on the PSICC in 2007. Previous years are shown for comparison.



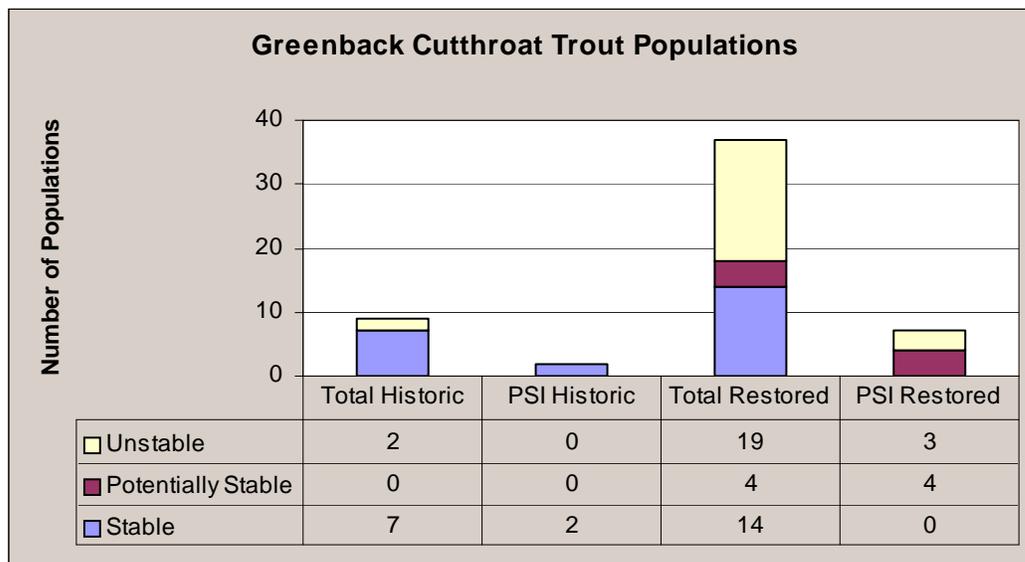
**Figure 7. Improved stream miles and aquatic structures on PSICC since 1992.**



**Figure 8. Lake acres with habitat improvements on PSICC since 1996.**

## Greenback cutthroat trout

Martin (2008) researched the genetics in Colorado of native greenback (*Onchorhynchus clarki stomias*) and Colorado River (*Onchorhynchus clarki pleuriticus*) cutthroat trout. Greenback cutthroat trout, whose native range is the east slope of the continental divide in Colorado, and were listed as threatened under the Endangered Species Act in 1978. Unfortunately, the lakes, rivers and streams have experienced numerous introductions of non-native trout, including brown, brook, rainbow and non-native cutthroat trout. Rainbow and other non-native cutthroat trout readily hybridize with native greenbacks (Martin 2008). Previous stream survey work revealed that rainbow trout have hybridized with native fish at only a few sites (Martin and others 2005). Restoration efforts have largely eliminated non-native fish from the upper reaches of many streams and rivers. It is unclear, however, whether all putatively native trout populations are pure, or if the gene pools are a composite of different subspecies of cutthroat trout (Martin 2008). Due to this hybridization, current greenback cutthroat trout populations are restricted to small, remote high elevation streams and lakes where populations often have been protected by fish movement barriers. Approximately 18 stable populations are located in the South Platte River drainage, and three stable populations are located within the Arkansas River drainage (USFWS 2005). In addition to the three historic populations on the Pike and San Isabel National Forests, seven populations have been restored. At this time, two of the PSICC populations are considered stable, four potentially stable, and three unstable. The following chart (Figure 9) shows the number of populations due to greenback recovery efforts over the existing historic populations for all of Colorado and the PSICC.



**Figure 9. Populations of greenback cutthroat trout on the PSICC and in Colorado.**

### 3.1.5. Habitat modification and improvement

#### 3.1.5.a. Terrestrial Habitat Modification and Improvement on the PSICC

The annual number of wildlife habitat improvement acres and structures has remained relatively stable. Additional resources from partnership grants have increased the effectiveness of biotic inventories and habitat assessment capabilities. However, because the way improvements are tracked and funds allocated have changed several times over the last few years, direct comparisons between years is unwieldy. Figures 10 and 11 illustrate the approximate accomplishments in habitat improvement from 1998 to 2007.

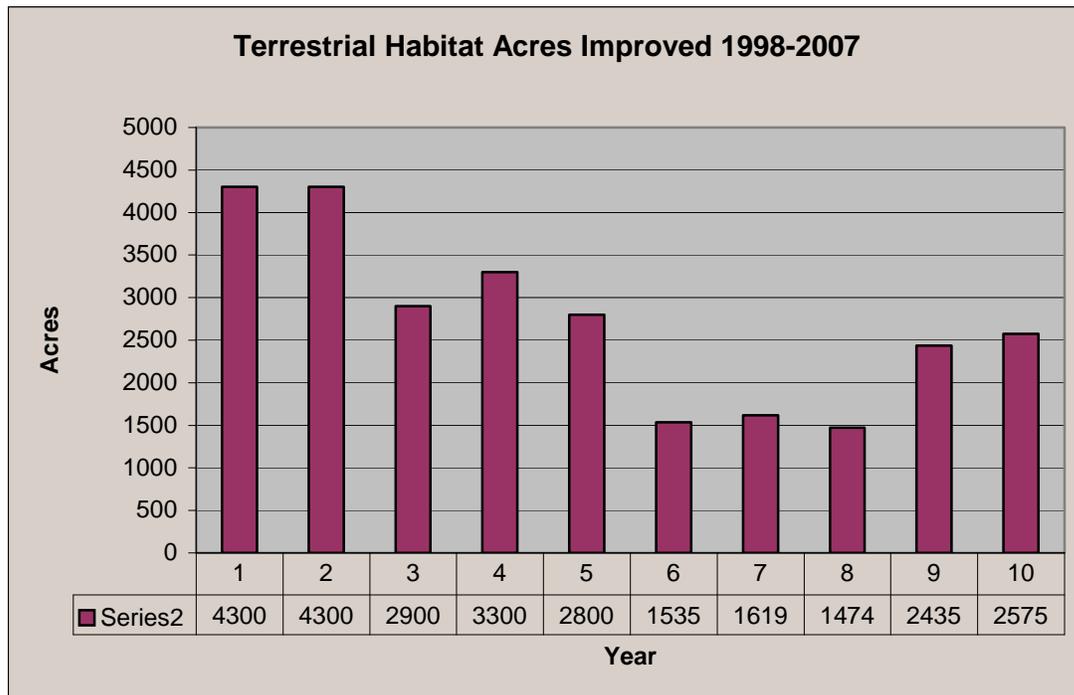
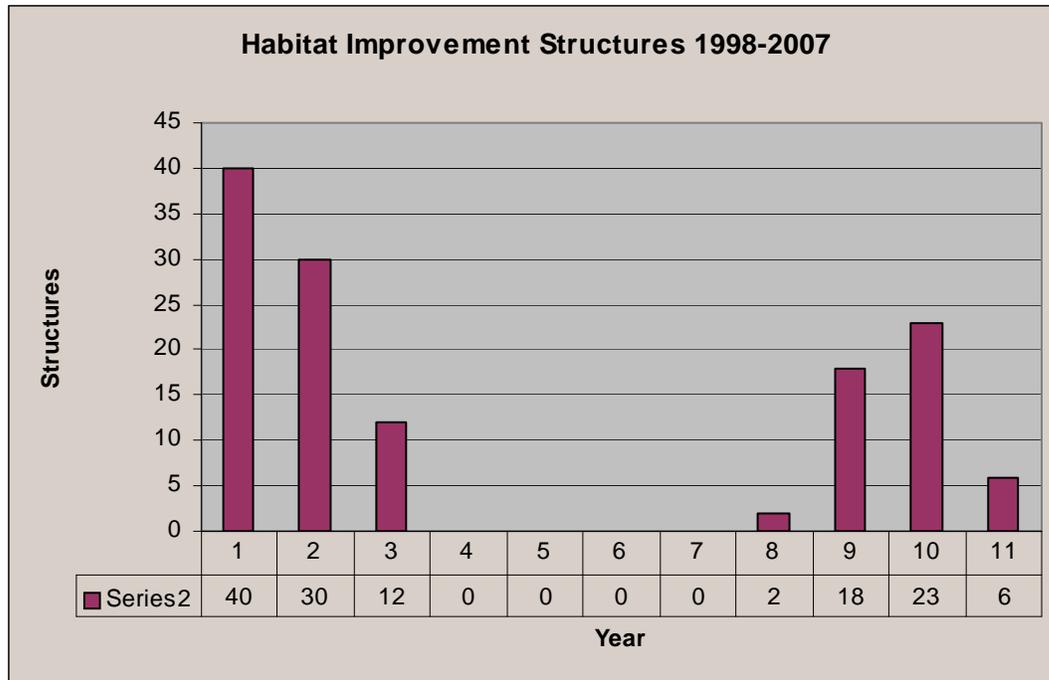
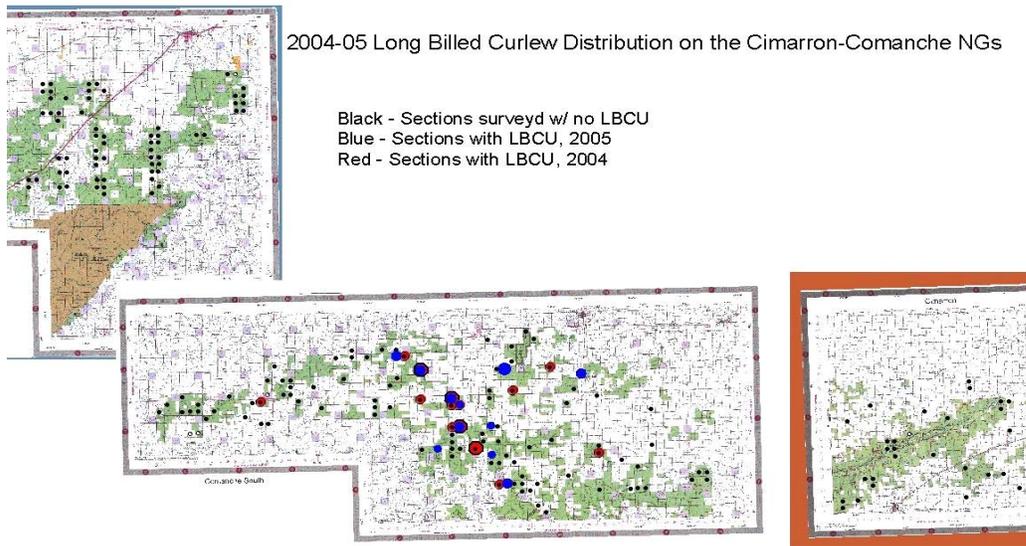


Figure 10. Acres of terrestrial wildlife (all) habitat improvement on the PSICC.



**Figure 11. Wildlife habitat improvement structures on the PSICC.**

New information from research and monitoring will support better project designs and focus of resources. External partners are now a critical source of funding for projects and their implementation. More partnership funding is available than PSICC funds can match and make use of with current program funding and personnel levels. Surveys of other species (such as spotted owl, songbirds, Pawnee montane skipper, boreal toad) are kept on file at the local ranger district office for use in projects analyses. For example, long-billed curlew surveys and sightings conducted by the Grasslands show specific shortgrass prairie areas are utilized as foraging habitat on the Grasslands during early spring and summer. Although no active nests have been found on the Cimarron, they do use recent disturbed areas (burned) for foraging each year (See Figure 12).

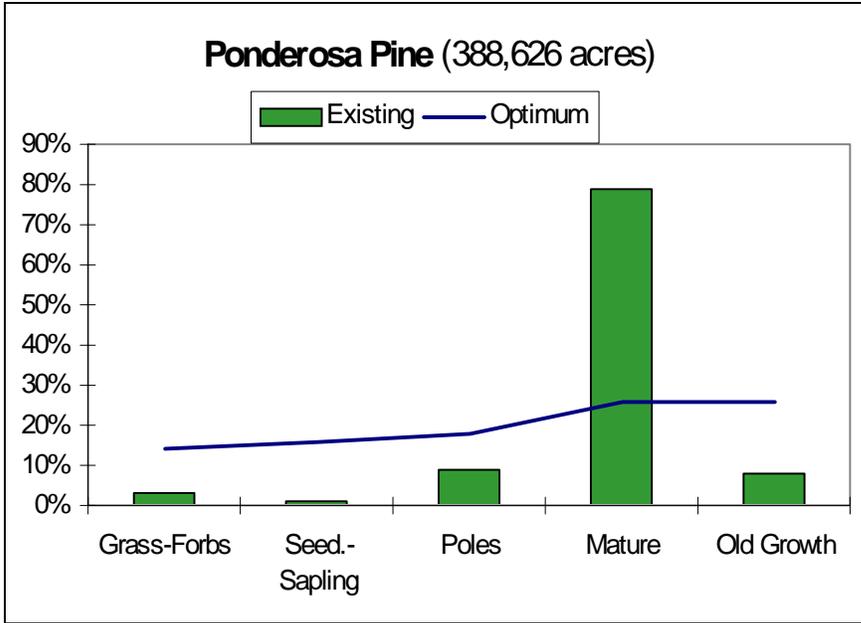


**Figure 12. Surveyed and monitored long-billed curlew habitat use on the Grasslands.**

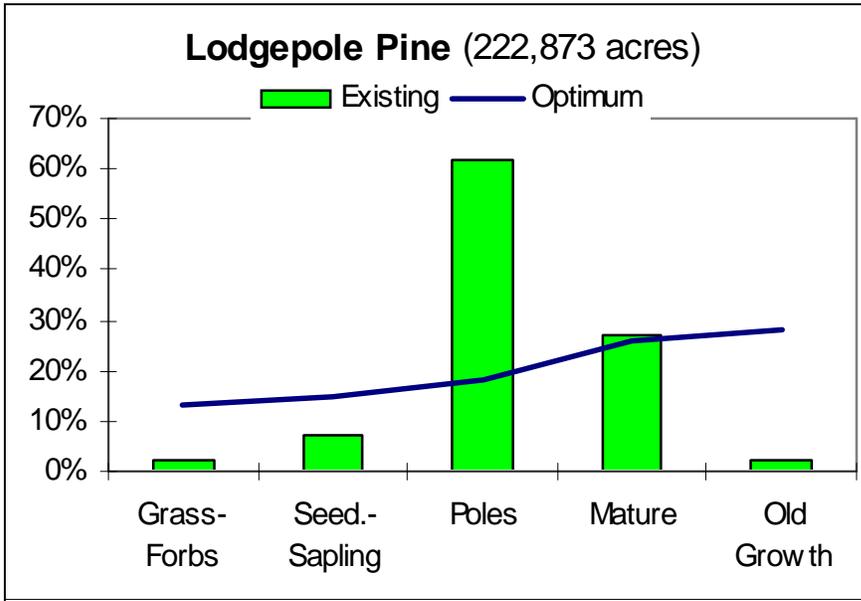
### **3.2. Habitat Diversity: Forested Vegetation**

#### **3.2.1. Wildlife habitat diversity**

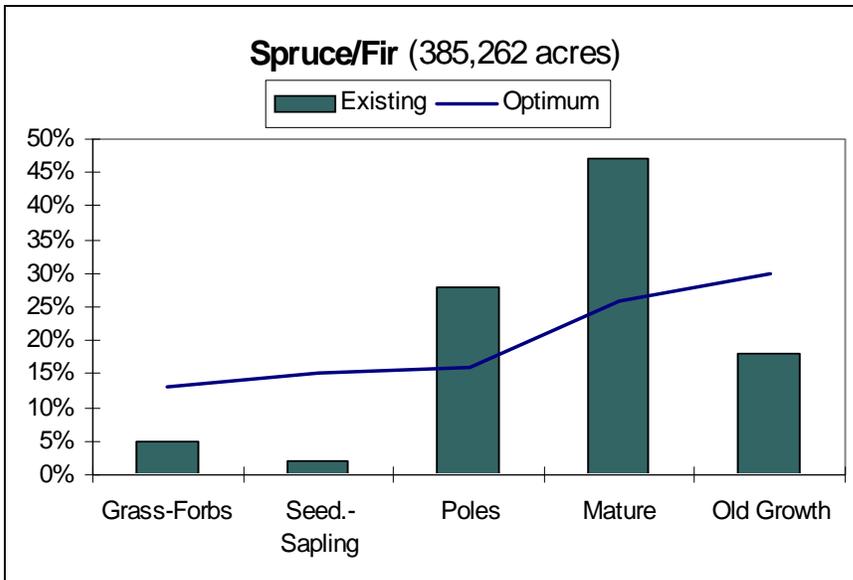
Analyses made during the development of the 1984 Plan compared existing tree species age-class diversity on NFS lands with a theoretical mix that would support desirable native wildlife species. The existing and optimum acreages for PSICC’s major forest cover types (ponderosa pine, lodgepole pine, spruce/fir, Douglas-fir, and aspen) are shown in Figures 13 through 17.



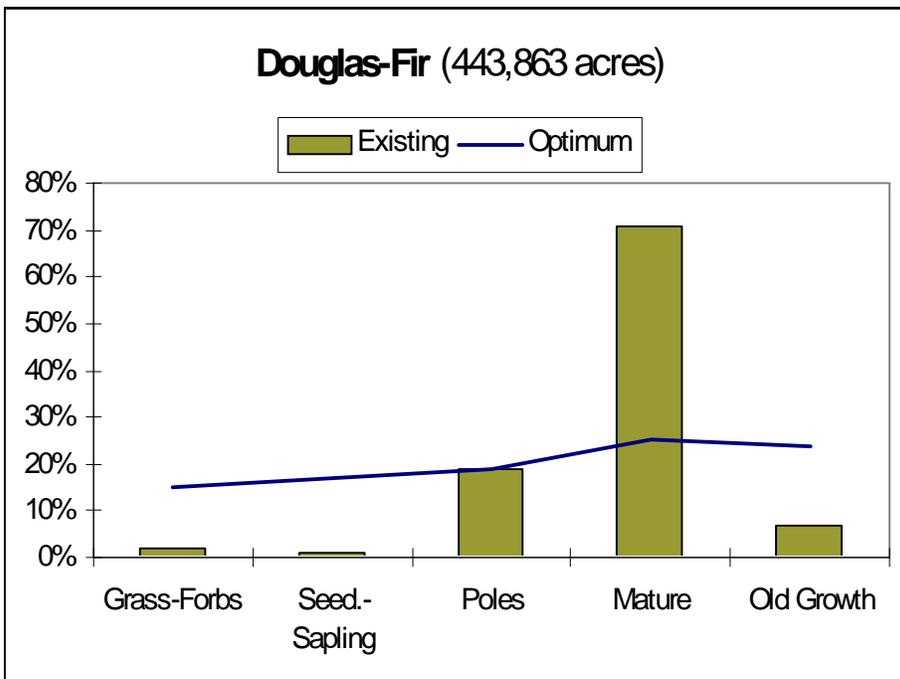
**Figure 13. Ponderosa pine forest on the PSICC**



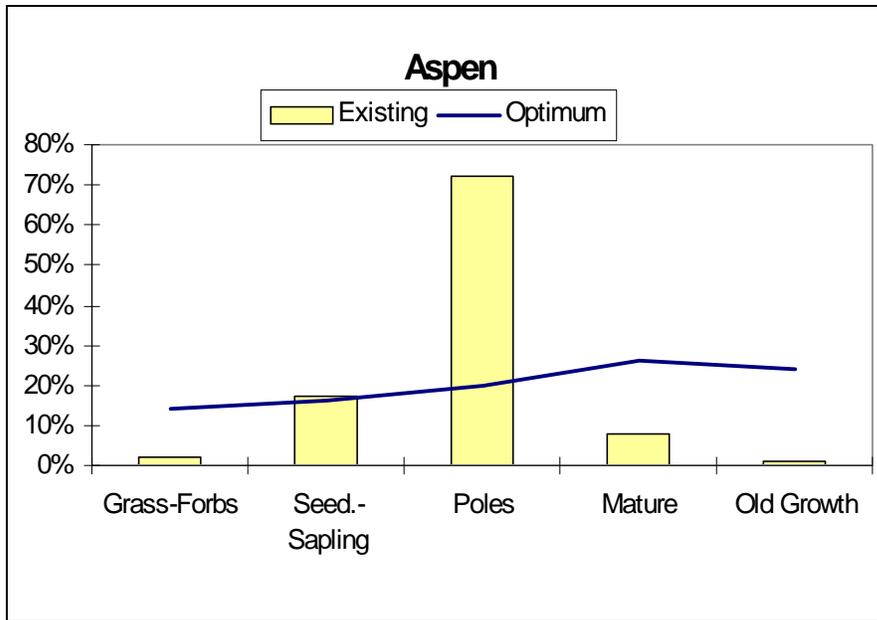
**Figure 14. Lodgepole pine forest on the PSICC**



**Figure 15. Spruce/fir forest on the PSICC**



**Figure 16. Douglas-fir forest on the PSICC**



**Figure 17. Aspen forest on the PSICC**

The conclusion drawn in 1984 was that an imbalance of the major forest cover types existed, and that relatively young forest stands and old growth were under-represented. Consequently, one goal of the 1984 Plan was to focus forest management in over-represented structural stages and produce a landscape with a more balanced mix of habitat characteristics.

However, forest structure vegetation management has been focused on hazardous fuels reductions, especially in urban interface areas. Wildfires have been the primary cause of changes to forest structure types during the past decade.

### **3.3. Habitat Diversity: Grasslands Vegetation**

The Grasslands are in the Great Plains Physiographic Province. High winds, common in spring and early summer, combined with plowing and overgrazing contributed to the soil erosion in the 1930s Dust Bowl period. These winds are still a threat today, particularly when accompanied by drought, high temperatures, and the absence of cover vegetation.

#### **3.3.1. Cimarron National Grassland ecosystems**

Spanning 108,175 acres in southwestern Kansas, the Cimarron is characterized by a riparian and two prairie ecosystems.

##### **Riparian**

The most productive, yet smallest of the three ecosystems (10%) is found within the

Cimarron River watershed on deep, well-drained soils. Over the past 100 years, riparian areas in this watershed have been altered by agricultural practices, oil and gas operations, and urban development. These activities have impacted the soils, hydrology, and vegetation found within the watershed. Although this ecosystem is the most productive of the three, the spread of tamarisk (salt-cedar), a non-native invasive plant species, puts the riparian corridors at risk.

### Sandsage Prairie

The largest (60%) and least productive ecosystem on the Cimarron. Today, the very sandy and highly erosive soils of the sandsage prairie can support minimal perennial species. This absence of plant cover is attributed to prolonged periods of drought compounded by the effects of the 1930s Dust Bowl period. Sand sagebrush eradication projects conducted in the early 1980s further affected the soil stability and native plant communities of this ecosystem.

### Shortgrass Prairie

The second largest (30%) and second most productive ecosystem on the Cimarron. Shortgrass prairie supports a mix of warm and cool season perennial grasses.

## **3.3.2. Comanche National Grassland ecosystems**

Located in southeast Colorado and covering nearly 551,940 acres, the Comanche lies between the Central and Southern Great Plains. Moving from north to south, the Comanche is characterized by rolling loamy plains of shortgrass prairie supporting a vegetation community dominated by blue grama-buffalo grass. Piñon-juniper woodlands edge the plains, as the topography changes to canyons and tablelands. Further south, sandy and deep sandy soils support short- and mid-grass prairie vegetation where sandsage-bluestem and bluestem-blue grama dominate. Woody species in riparian areas and trees are important sites for providing structural diversity and nesting habitat for birds.

## **3.4. Riparian and Aquatic Assessments**

### **3.4.1. Habitat trends**

Riparian and aquatic resources were described in the final environmental impact statement for the 1984 Plan. In 1997 and 2002, riparian area inventories and condition assessments of 6<sup>th</sup> level watersheds on the PSICC were conducted. From these data, watersheds were categorized into three condition classes. Table 14 summarizes the percentages of each of these classifications on the PSICC in both 1997 and 2002.

**Table 14. Watershed acres (%) by condition class in 1997 and 2002**

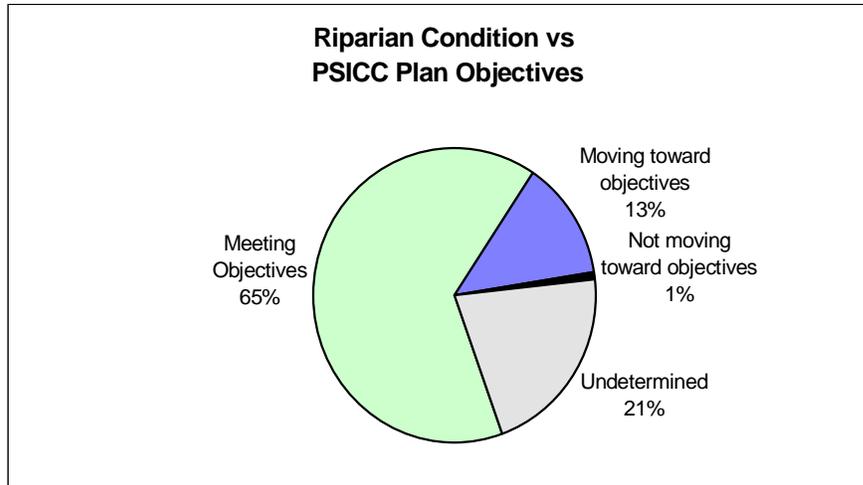
Unit	Class I (%)		Class II (%)		Class III (%)	
	Pristine		Moderately impacted		Severely degraded	
	1997	2002	1997	2002	1997	2002
Pike National Forest	2	2	51	36	47	62
San Isabel National Forest	5	5	66	66	29	29
Cimarron National Grassland	0	0	60	60	40	40
Comanche National Grassland	0	0	87	87	13	13

The results of this work indicate a wide range of watershed and riparian conditions on the PSICC. The majority of watersheds are rated as Class II – moderately impacted, indicating that anthropogenic activities have altered the lands managed by the PSICC in the past and present.

The Pike National Forest contains a high percentage of Class III watersheds. This is due to historic and current levels of elevated erosion and sedimentation. Much of the Pike is made up of highly erodible and poorly developed granitic soil, which can contribute large amounts of sediment into stream systems along the Front Range. Although erosion occurs naturally, the presence and use of roads and trails, road maintenance activities, off-road uses, streamflow modifications (such as mining), and recent large wildfires have increased erosion rates and elevated sediment deposition into downstream watersheds.

Although almost one third of the San Isabel National Forest falls into Class III; most of these watersheds have been heavily affected by historic mining activities and, to a lesser extent, by current management activities. The toxic effluent from mine audits has been addressed, but technology is still limited for their successful treatment.

The Grasslands have been significantly affected by historic agricultural activities, and pristine watersheds no longer exist. Most watersheds on the Grasslands fall into Class II; the percentages of Class III watersheds vary between the Cimarron and the Comanche. The Grasslands’ surface water flows are significantly altered by municipal and agricultural developments. Upstream dewatering and agricultural runoff have seriously reduced water quality and quantity in the Cimarron River and its tributaries. Stream systems with headwaters originating on or adjacent to the Grasslands show evidence of excess sedimentation caused from increased erosion from disturbance by cattle and vegetation conversion from perennial native to perennial nonnative and agricultural annual species. Figure 18 shows how management of riparian conditions across the PSICC is meeting the objectives in the 1984 Plan.



**Figure 18. Riparian condition and PSICC 1984 Plan objectives**

#### ***.4.2. Aquatic habitat modification and enhancement on the PSICC***

Impacts to riparian and aquatic ecosystems are derived from a number of human-related activities, with sedimentation from erosion causing the most extensive amount of impact to riparian areas. Because sedimentation can change stream channel physiology, increased water temperatures, reduction in aquatic habitat and other indirect effects, in-stream channel and riparian re-establishment projects have focused on restoring the physical processes needed to sustain habitat for aquatic and riparian-dependent species.

Most human-induced erosion is related to ground-disturbing activities, such as road and trail use, construction and maintenance, livestock grazing, mining, and timber harvest. Other direct or indirect consequences from human-related activities that currently effect aquatic and riparian ecosystems include removal of and/or invasive riparian vegetation with associated increases in water temperatures, mining effluent releases, and stream flow modifications (reduced flows). Recent adaptations of traditional habitat improvement methods have led to an increase in the effectiveness of stream enhancement projects. More emphasis is placed on treating root causes of dysfunction (disturbance and structural stability) than the symptoms (total pools, sedimentation).

Figure 19 and Figure 20 show the aquatic habitat accomplishments from 1985 through 2003. In 1996, accomplishment reporting for streams changed from “number of structures” to “miles improved.” This change is most evident in Figure 20, which shows habitat improvement structures per mile. While it seems that the numbers of structures/acres treated have decreased, the actual numbers of improvements have remained stable for over a decade.

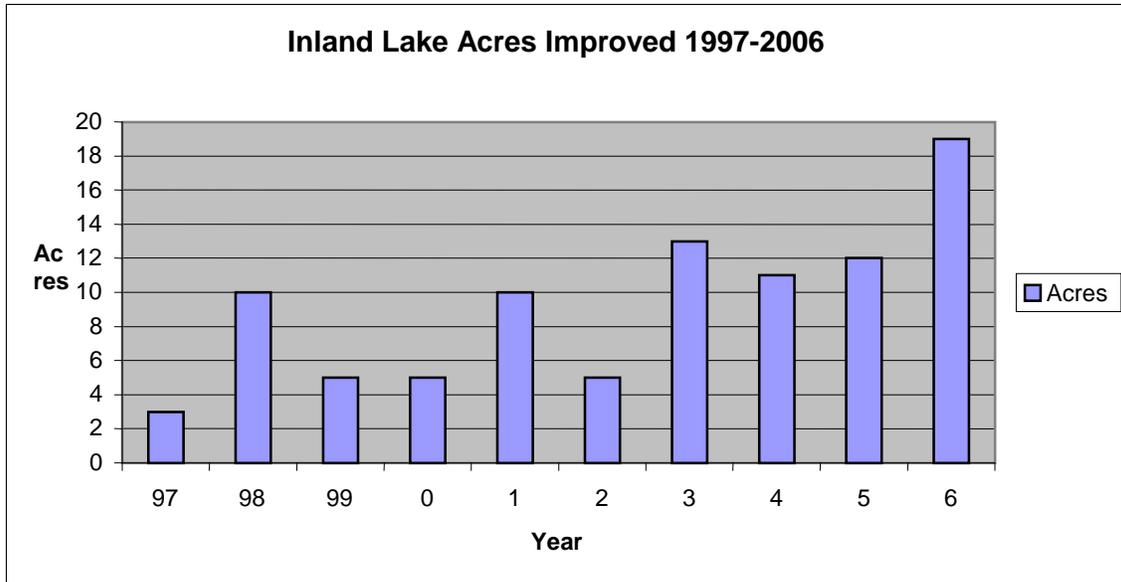


Figure 19. Acres of lake habitat improved on the PSICC.

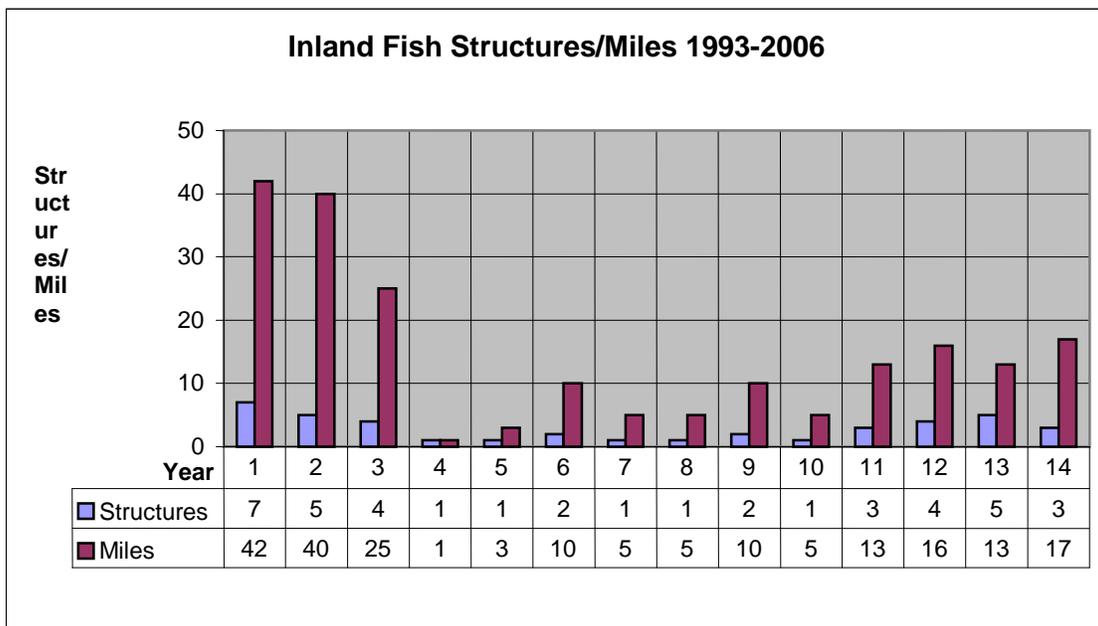


Figure 20. Stream habitat improvement structures and miles on the PSICC.

### 3.4.3. Monitoring of other species

Besides annual projects improving habitats, adding structures, removing noxious weeds and reintroductions, the wildlife, fish, and rare plant program also monitors (with numerous cooperators) as many species and plants as time and resources allow. These

surveys are used to protect species and their habitats, as well as provide specific information for proactive habitat improvement projects in future years.

In conjunction with CDOW, KDWP, Colorado State University (CSU), Indiana State University (ISU), Rocky Mountain Bird Observatory (RMBO) and other individuals and groups:

1. Sensitive and rare plant surveys were conducted on the Comanche district (ISU), and on all districts as part of project planning (new sites found);
2. Breeding bird survey routes (RMBO);
3. Species surveys, including black swift, northern goshawk, Mexican spotted owl, boreal toad, Pawnee montane skipper, willow ptarmigan;
4. Stream fish and habitat surveys.

Program and project surveys covered hundreds of thousands of acres across PSICC each year.

### **3.5. Range Condition and Use**

The condition of the range for the PSICC is generally in a steady to upward trend. The winter of 2007 provided above average moisture to districts on the Grasslands and Forests. The high winter moisture coupled with greater than average moisture in 2006 provided needed recovery to drought-stricken areas on the PSICC. As forage production has increased, herd expansion has been slow. In 2007, the PSICC grazed 181,527 AUMs compared to 180,807 in 2006.

Range management specialists utilize a number of techniques to monitor long-term range condition. Factors that influence range condition include species composition, basal and foliar cover, percentage of bare ground, and production. Monitoring throughout the PSICC has shown an improvement in range condition as permittees have responded to increased demands in management practices and a concerted effort has been made to improve range infrastructure. In 2007, permittees have shown an increased interest in monitoring, herding, salting and expanding water distribution systems.

#### **3.5.1. Allotment management planning**

NEPA analysis was conducted for the Salida and Leadville District's range allotment management plan. This analysis included 10 allotments for the Salida District and two for the Leadville District. A draft EA was completed in 2007 and a decision notice will be signed in 2008.

The San Carlos District made progress on planning in 2007. Four allotments were closed, four allotments completed analysis with signed decision memos, and ten allotments were visited and studied to determine existing and desired conditions in preparation for a draft EA in 2008.

### **3.5.2. Acres administered to standard**

The range management personnel gave added emphasis to administering the livestock grazing that took place on the PSICC in 2007. The drought, from the first half of the decade, was intense and wide spread. When needed, changes in management were implemented to correct a situation before it resulted in resource problems. This careful planning and management, through the drought, was evident as plants responded to improved moisture conditions in 2006 and 2007. In addition to management, many infrastructure improvements were accomplished, allowing for better flexibility and control of livestock.

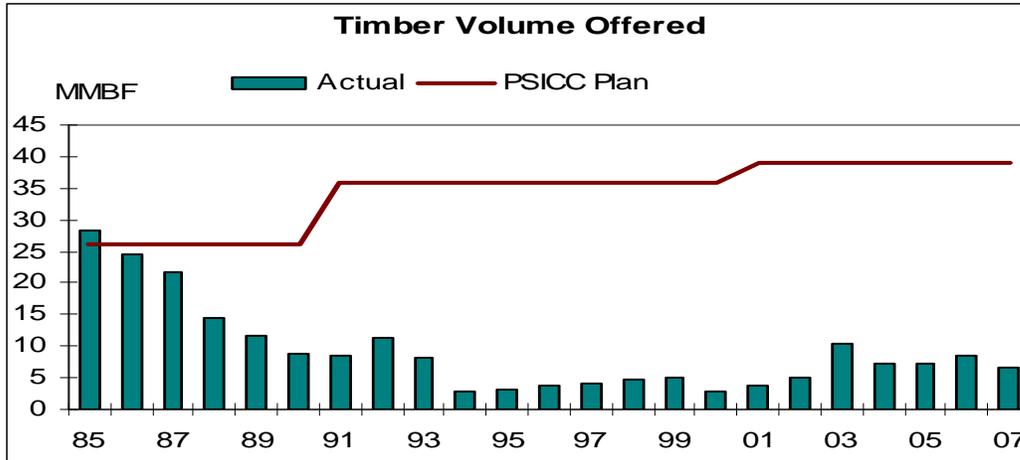
In 2007, 1,205,528 acres of rangeland were administered to standard. These acres have been monitored by range management specialists, evaluating the grazing use by authorized livestock while implementing direction found in the 1984 Plan, allotment management plans, term grazing permits, grazing agreements, biological opinions, and other documents developed to guide livestock grazing.<sup>7</sup>

### **3.6. Forest Condition and Use**

The 1984 Plan established an allowable sale quantity of 37 million board-feet (mmbf) per year, with the intent that timber offer targets would gradually approach that level as more acres were put under management. In 1984, approximately 1,065,220 acres were considered tentatively suitable for commercial timber harvest. Much of the timber sold was used for fuel wood. In addition, the economics of harvesting timber on PSICC were such that, once the below-cost issue began affecting policy, funding for the commercial timber program was curtailed to a level well below Plan projections in the 1984 Plan. By FY94, the timber program had declined to historically low levels, with most of the volume harvested still being sold for fuel wood. The timber volume offered since the 1984 Plan has been implemented is shown in Figure 21.

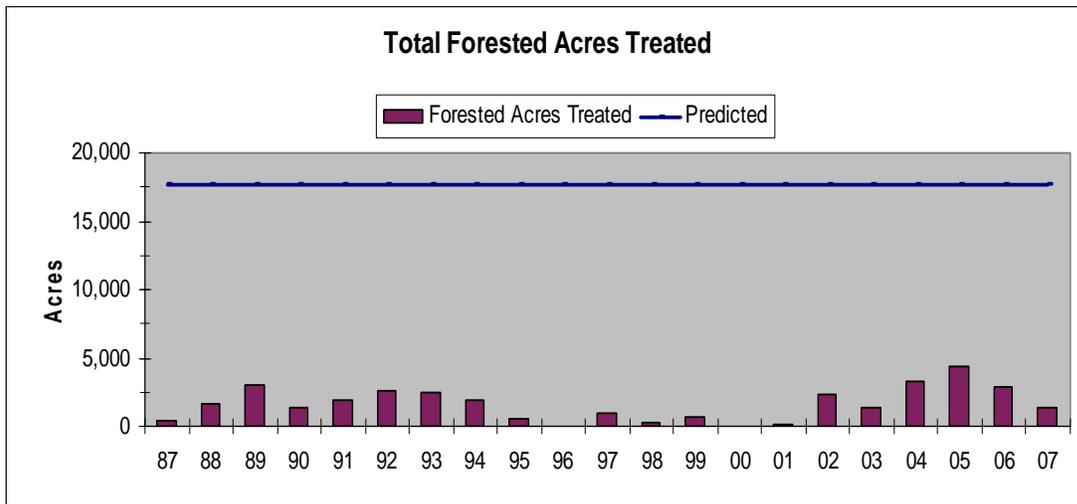
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<sup>7</sup> USDA-Forest Service. 2007. Forest Service Handbook (FSH) 2209.13. Grazing Permit Administration Handbook. Chapter 10. page 69.



**Figure 21. Timber volume offered**

As shown in Figure 22, the treatment rate of forested acres by all types of projects designed to modify forested vegetation, has not kept pace with predictions. The Timber Harvest History table in Appendix A shows acres harvested and cutting method on the PSICC since 1987. The net effect is that the situation as described in the 1984 Plan has not substantially changed, except that most of the trees are about 24 years older.



**Figure 22. Total number of forested acres treated**

Forest management on the PSICC has not kept pace with the growth rate of the trees. This unmanaged growth, coupled with recent drought conditions has accelerated insect and disease infestations, and has produced an ominous fuels build-up. A situation of increasing severity exists, particularly along the Front Range, where the Buffalo Creek, Hi Meadow, Hayman, and Mason Gulch fires occurred.

Steps are being taken to:

1. Build a new and active forest management program.
2. Seek possible markets for the types of smaller-sized wood products whose removal would best benefit forest health.
3. Use timber sales as a tool to achieve natural resource management goals.

This is discussed further in the Fuels Treatment section of this report.

### 3.6.1. Reforestation and timber stand improvement activities

These activities have been variable over time, as is shown in Figure 23 and Figure 24. Funds for these activities are obtained primarily from timber sale revenues.

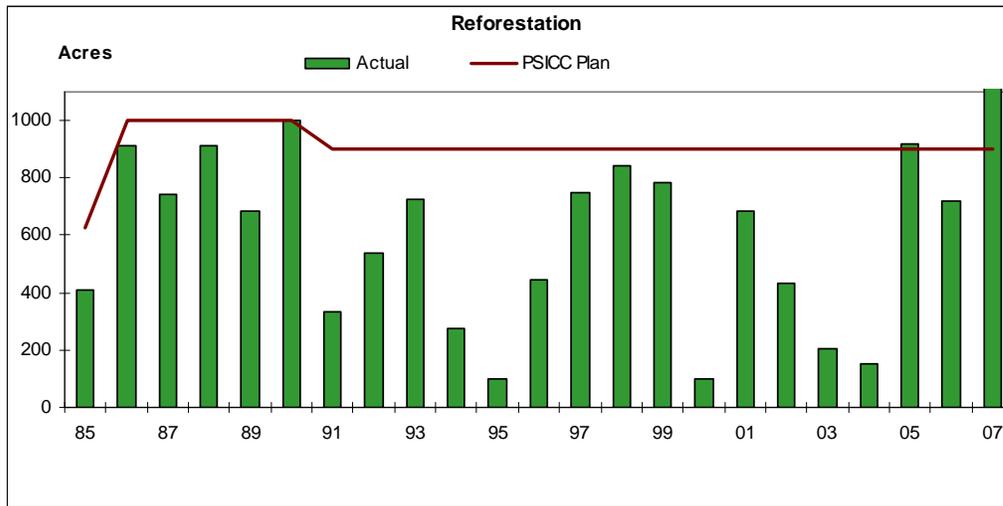


Figure 23. Acres of reforestation: Actual and PSICC Plan

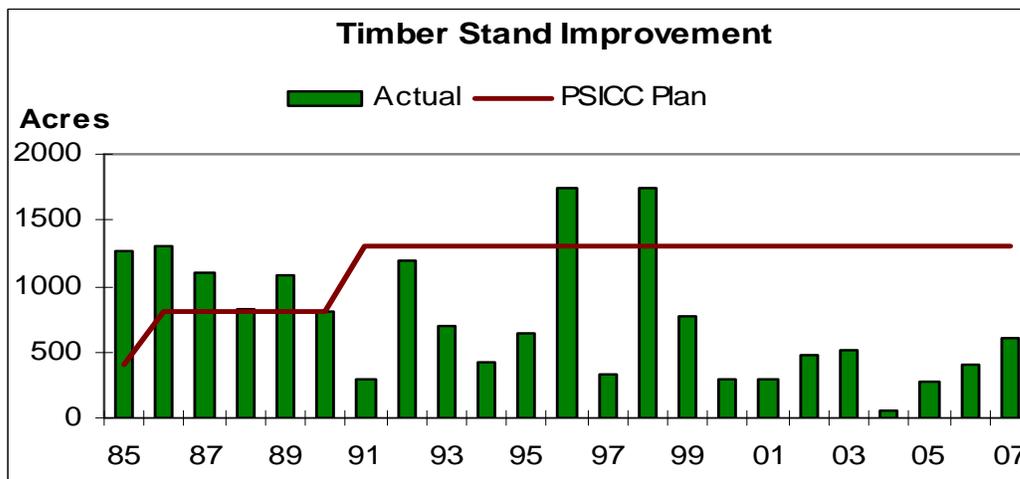


Figure 24. Acres of timber stand improvement: Actual and PSICC Plan

The reforestation increases, beginning in FY 1996, are due to the restoration efforts after the 1996 Buffalo Creek Fire and the large fires of 2002, including the Hayman fire that burned approximately 138,000 acres. These events created a tremendous reforestation need on the Pike National Forest. Where the burning severity was moderate or high, the natural seed source has been lost for thousands of acres. To have a functioning ponderosa pine ecosystem in the future, seedlings need to be planted. Reforestation efforts following the Hayman fire started in 2003 with cone collection. In 2004, 100 acres were planted followed by 920 acres in 2005, 722 acres in 2006, and 1250 acres in 2007. As funding is received for cone collection, greenhouse expenses, and planting contracts, reforestation will continue in areas of the large burns. The National Arbor Day Foundation donated more than \$200,000 toward reforestation in the Hayman fire burn area during the past five years.

### **3.7. Fuels Treatment**

A history of fire suppression, land use practices (such as widespread burning and logging in the late 1800s, heavy livestock grazing the late 1800s and early 1900s, and tree planting in the early 1900s) and climatic variation has, over the last century, altered fire regimes and associated fuel loading, landscape composition, structure, and function across the Forest. As a result, the number, size, and severity of wildland fires have departed significantly from those of historical conditions – sometimes with catastrophic consequences. These negative effects of certain land-use practices on land health and sustainability have been recognized in recent years.

Recent examples of increasing wildland fire size and uncharacteristic severity in Colorado include the 2000 fire season in the Pike and San Isabel National Forests in which over 24,000 acres burned and 59 structures were destroyed. The 2002 Hayman fire in Colorado burned approximately 138,000 acres and cost nearly \$44.2 million to suppress. To date, the Hayman fire is the largest wildland fire in the state of Colorado.

Over the past year the PSICC has integrated two strategies into the hazardous fuels program. The first is the Front Range Fuels Treatment Strategy which emphasizes the need to identify, prioritize, and rapidly implement hazardous fuels treatment projects within Colorado's Front Range. This strategy focuses on a large-scale rapid assessment of the hazardous fuel conditions along the Front Range, enabling the identification of 300,000 acres on the Pike National Forest alone where treatment needs are of the greatest concern. The second is the reintroduction of Integrated Resource Management with a heavy emphasis on overall vegetation management to improve forest health, reduce wildfire risks to communities and the environment, and correct problems associated with long-term disruptions of natural fire cycles that have increased the risk of severe wildland fires to fire prone and fire dependent ecosystems (the PSICC treated 20,246 acres in 2006). This second strategy addresses the need to accelerate management of:

1. Hazardous fuel loadings.
2. Increasing insect infestation problems.
3. Reducing wildland fire impacts.
4. Protecting and restoring high value watersheds and wildlife habitats.

5. Enhancing ecosystem sustainability and the sustainability of communities in high hazard priority areas within the PSICC.

The current fire risk and beetle infestations on the PSICC are linked by a common factor of overly dense forests which resulted from 100 years of fire suppression and the prolific growth of ponderosa pine and mixed conifer stands. Cycles of drought exacerbate the stress on overcrowded tree stands. An estimated 900,000 acres on the PSICC are overcrowded with dense stands of ponderosa pine, mixed conifer trees, and decadent growth from grass and shrub species. Along with a growing mix of homes situated within forested areas and the many high priority areas and communities at risk adjacent to or within the PSICC, we are faced with the dilemma of how to choose treatment areas and communities to work with. Although many communities and counties have demonstrated their support for fuels treatment, some have not yet done so or are at different stages of developing fire and fuels management plans and strategies. Meeting the objectives of the two strategies mentioned above and also of the Healthy Forest Restoration Act, the National Fire Plan, the Healthy Forest Initiative, and the 10-Year Comprehensive Strategy, requires a coordinated effort across landscapes to restore and maintain the health of fire prone ecosystems. Currently, 500,000 acres of high priority treatments areas have been identified throughout the PSICC.

### ***3.7.1. Fuels management outlook for the future***

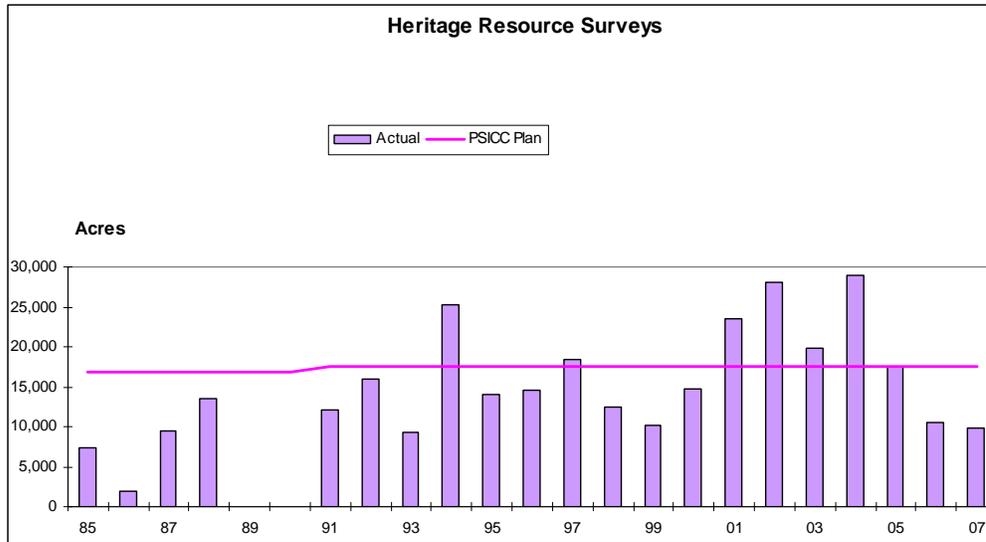
The key to the PSICC's success in fuels management will be extensive collaboration with the public and local, county, state, and other federal agencies to support specific treatment areas and types, along with the application of Wyden Amendment authorities and the Good Neighbor Policy to conduct fuels treatment work across boundaries. In five years the 500,000 acres of high priority to treatment areas is projected to increase to 575,000 acres, an estimate based on the rate of tree growth and increased insect infestation and disease. If the PSICC continues to accelerate treatment work by increasing the Hazardous Fuels and Vegetation Management Program, about 36% of these priority acres will be treated after five years, and 70% after ten years. Treating hazardous fuels and insect and disease infestations will help reduce the impacts of wildfires on communities and restore health to fire adapted ecosystems. Programs that focus on restoration of fire prone and fire dependent ecosystems and better integration of vegetation management, forest health, wildlife, range, watershed, and other available dollars will be more aggressively explored.

## **4. Social Components**

### **4.1. Heritage Resources**

#### ***4.1.1. Cultural resources compliance surveys, inventories, and recorded sites***

Inventories are conducted in areas where ground-disturbing projects are planned; such inventories include on the ground searches for new cultural sites, recording these sites, and evaluations of previously recorded sites. In recent years, major inventories (in terms of total acres surveyed) have occurred on grazing allotments (primarily on the San Isabel National Forest) in support of allotment management planning, and for proposed large fuels reduction and vegetation management projects. To support the Front Range Fuels Reduction Strategy, much of the inventory effort in recent years including 2007 on the Pike National Forest has focused on the Rampart Range and the vicinity of the South Fork of the South Platte River north of Cheesman Reservoir; these areas are southwest of the Denver metropolitan area. In 2007 cultural inventory efforts on the San Isabel National Forest were focused in the east part of the Wet Mountains west of Pueblo, in the Arkansas Hills northeast of Salida and in the eastern slopes of the Collegiate Range west of the Arkansas River. Fire support surveys were also accomplished on the Comanche National Grassland in southeast Colorado and on the Cimarron National Grassland in southwest Kansas. Non-project related surveys have continued in areas known to contain high densities of cultural resources. These multi-year efforts include Picket Wire Canyonlands (a special management area with an extremely high density of archaeological sites), the canyons north of the Cimarron River in extreme southeast Colorado, Guanella Pass west of Denver, and in the vicinity of the Buffalo Peaks south of Fairplay. The total acres inventoried and cultural sites evaluated (including those newly recorded) by year are shown in Figure 25 and Table 15. In FY 2006 and FY 2007, total inventory acreage and total sites recorded have diminished when compared to earlier years because of fewer large scale fire and vegetation management projects.



**Figure 25. Heritage resource surveys conducted 1985 through 2006**

### ***4.1.2. Interpretation, protection, public outreach and accomplishments***

This part of the program consists of interpreting non-vulnerable heritage sites for the public, protecting important historic resources against natural deterioration and vandalism, and offering public opportunities to participate in heritage resource management.

#### **4.1.2.a. Interpretive Efforts**

Interpretive efforts on the Grasslands have continued to focus on the Santa Fe Trail, and the Picket Wire Canyonlands including the National Register listed Rourke Ranch; also, in 2007 an auto tour with interpretation of cultural sites was designed and implemented on the Carrizo Unit of the Comanche which in south and east of Springfield. For the Forests, the focus has been on historic mining regions, railroad and homestead sites, primarily in the Chalk Creek, Clear Creek and Twin Lakes areas. In 2007, interpretive signs were designed, fabricated and installed at Ski Cooper near Leadville which was the training facility for the 10<sup>th</sup> Mountain Division during World War II. Also, a program to develop interpretive media at historic rental cabins (a RecFeeDemo project) was continued.

#### **4.1.2.b. Protection Efforts**

Protection efforts in FY 2007 were focused areas with known high densities of prehistoric sites and included Picket Wire Canyonlands, the Marshall Pass area and Squirrel Creek; a total of 138 cultural properties were inspected to assess changing conditions. Major historic property repair and restoration projects in 2007 included Rourke Ranch and Vogel Canyon on the Comanche National Grasslands, Squirrel Creek

Campground, Music Pass peeled tree groves, and the Interlaken Resort Historic District on the San Isabel National Forest, and Derby Cabin on the Pike National Forest.

#### 4.1.2.c. Public Outreach

Efforts in public outreach were primarily Passport in Time (PIT) projects. Three of these were on the Comanche National Grassland and included paleontological excavations and archaeological site survey in the Picket Wire Canyonlands and additional archeological survey in the Little Black Mesa area. Passport projects on the Pike National Forest were site surveys near Guanella Pass and in the Salt Creek area south of the Buffalo Peaks. On the San Isabel National Forest, PIT volunteers aided in the repair of Dexter Cabin, a part of the Interlaken Resort Historic District. Also, PIT volunteers aided with the cleaning, analysis and curation of artifacts collected during field work conducted on the Forests and Grasslands in 2007; this project was located at the Monument Curation Facility in Monument, Colorado. In FY 2007 there were several public outreach efforts that were not part of the Passports program. These projects included prehistoric rock art monitoring and graffiti repair in the Picket Wire Canyonlands and Vogel Canyon area on the Comanche National Grassland, and public events on the Santa Fe Trail, Cimarron and Comanche National Grasslands, and at the Boreas Pass Railroad Section House, Pike National Forest. PIT and other volunteer projects are designed to use volunteers to accomplish work that the PSICC could not do using appropriated funds.

#### 4.1.2.d. Accomplishments

Accomplishments in resources interpreted and protected, and in public outreach opportunities, generally continued at the same levels as in FY 2005 and FY 2006. A summary of accomplishments can be found in Table 15.

**Table 15. Heritage resources accomplishments, 1994–2007**

Heritage Activity Fiscal Year	Heritage sites interpreted	Public participation projects	Number of properties (cumulative)	Heritage sites preserved and protected	Heritage sites evaluated	Resource facilitation projects	Inventory/ acres surveyed
1994	10	0	1,278	10	28	121	25,285
1995	18	12	2,158	0	475	92	14,000
1996	10	0	2,343	45	173	67	14,600
1997	16	6	2,741	50	150	113	18,460
1998	40	9	2,823	69	240	155	12,491
1999	12	8	3,056	156	265	158	10,246
2000	24	7	3,406	174	437	142	14,700
2001	14	7	3,766	152	360	137	23,435
2002	9	6	4,022	144	345	142	28,000
2003	10	7	4,284	148	294	169	19,879
2004	10	8	4,629	144	376	187	28,966
2005	12	8	5,077	148	348	215	17,631
2006	11	8	5,417	142	440	230	10,490
2007	10	8	5,544	138	325	228	9,870

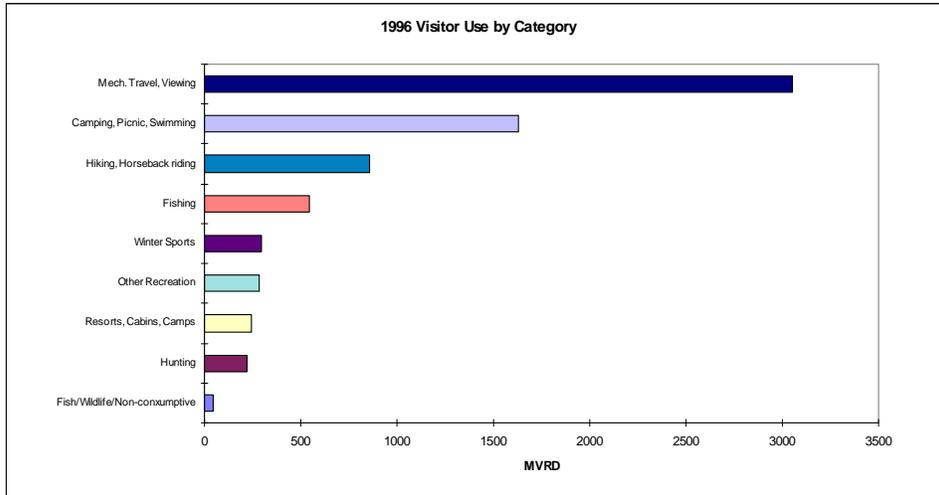
## 4.2. Recreation

*No new information was reported for this section for FY 2007. The following reflects the information reported in the FY 2006 annual monitoring report.*

The PSICC provides wilderness, scenic byways, wild and scenic rivers, campgrounds, picnic areas, motorized trails, fishing, National Scenic and Historic Trails, cabin rentals, a Christmas tree program and many other activities for its visitors. From the depths of Picket Wire Canyon to the summit of Mount Elbert the PSICC offers something for everyone.

Recreation visitor use data collection and reporting in the Forest Service has undergone dramatic changes since our 1984 Plan was approved. At that time data was reported using the Recreation Information Management (RIM) system, which contained detailed estimates of use on each Ranger District or smaller composite area. Use was measured in 12-hour visitor days. In 1987, RIM was abandoned and was replaced with the National Visitor Use Monitoring (NVUM) system in 2001. NVUM was designed as a statistically valid sample of visitor use at the level of a National Forest, but it uses visits as the basic measurement rather than visitor days. Samples or interviews are repeated every five years. On the PSICC NVUM was conducted in 2001 and was conducted again in 2006, using approximately 300 sample sites. Each National Forest is on a five year schedule. NVUM will be the standard monitoring protocol used to better understand the public's use of, value of and satisfaction with National Forest System recreation opportunities. Some correlations can be made between older visitor use (reported in visitor days) and NVUM visits, although many aspects of the older and newer data are not directly comparable. A complete copy of the FY 2001 NVUM report is available for review; the 2006 report will be finished in the fall of 2006.

The PSICC has one of the heaviest recreation workloads in Region 2. Much of that can be attributed to its location near the Denver-Colorado Springs-Pueblo metropolitan areas, and Interstate-70 corridor are some of the fastest growing population centers in the U.S. Visitor use on the Forest for FY 2001 is estimated at 4.0 million visits, placing the PSICC in the top 10 recreation forests in the nation. The top ten include the Mt. Hood near Portland, Oregon; Mt. Baker-Snoqualmie near Seattle; Wasatch-Cache near Salt Lake City; the Cleveland near San Diego; and the Angeles and San Bernardino near Los Angeles. Figure 26 shows combinations of visitor uses categories derived from 1996 data.



**Figure 26. PSICC visitor use by category (1996 data)**

Table 16 lists activity types and the percent participation compiled from the FY 2001 NVUM report. From the FY 2001 data, the top five recreation activities were; viewing natural features, relaxing, viewing wildlife, driving for pleasure, and hiking/walking. It is interesting to note that viewing natural features, driving for pleasure, and hiking and walking (mechanized travel, viewing, and hiking) still rank as the highest among those activities offered to forest visitors. The FY 2001 report also shows increased participation in the activities of wildlife viewing, nature study, and gathering natural products (Fish/Wildlife/Non-consumptive visitor use).

**Table 16. PSICC activity participation by primary activity (from FY 2001 NVUM report)**

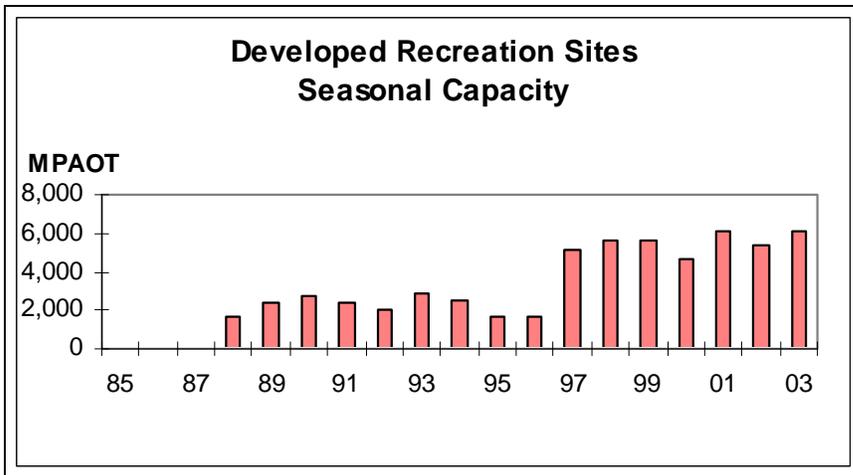
Activity	Percent particip.	Activity	Percent particip.
Camping in developed sites (family or group)	8.6	Off-highway vehicle travel (4-2heelers, dirt bikes, etc.)	18.0
Primitive camping	4.8	Driving for pleasure on roads	46.1
Backpacking, camping in unroaded areas	2.6	Snowmobile travel	0
Resorts, cabins & other accommodations on FS managed lands (private or FS run)	10.1	Motorized water travel (boats, ski sleds, etc.	0.2
Picnicking and family day gatherings in developed sites (family or group)	16.9	Other motorized land/air activities (plane, other)	0.7
Viewing wildlife, birds, fish, etc., on NFS lands	58.1	Hiking or walking	43.9

Activity	Percent particip.	Activity	Percent particip.
Viewing natural features such as scenery, flowers, etc., on NFS lands	69.6	Horseback riding	1.6
Visiting historic and prehistoric sites/area	9.3	Bicycling, including mountain bikes	3.1
Visiting a nature center, nature trail or visitor information services	16.1	Non-motorized water travel (canoe, raft, etc.)	1.4
Nature study	5.3	Downhill skiing or snowboarding	5.4
General/other – relaxing, hanging out, escaping noise and heat, etc.	57.2	Cross-country skiing, snowshoeing	0.9
Fishing – all types	11.1	Other non-motorized activities (swimming, games and sports)	9.7
Hunting – all types	2.4	Gathering mushrooms, berries, firewood, or other natural products	4.3

#### **4.2.1. Developed recreation**

Many recreation visits occur at developed facilities, particularly campgrounds, and day use areas (see Figure 26). These facilities are for the Forest Service by concessionaires. The PSICC has used concessionaires since 1993. Two different companies manage over 100 fee sites on our six mountain Districts. In 2005 they generated \$1.16 million in revenue. This resulted in fees to the government of approximately \$75,000 to be used on deferred maintenance projects. These permits will be advertised and re-issued in 2008. An increase in developed site capacity beginning in FY 1997 (see Figure 27) is due primarily to the addition of developed trailhead parking areas. A small amount of capacity was lost during 2002 because of safety-related site closures (some fire-related), dredging a lake, and construction (approximately 60,000 reduction). Annually there are small closures as a result of construction projects in our developed facilities.

The PSICC also offers four cabins for overnight rental. These cabins are available through the Federal Lands Recreation Enhancement Act. One cabin is available year-round while the other three are available from May through November. This program generates about \$22,000 revenue annually which is used to make additional cabins available. In 2007, two additional sites will be available for use, Crescent Mining Camp and Dawson Cabin. Each of these sites provides visitors with a unique experience and a glimpse to the past.



**Figure 27. Developed recreation sites' seasonal capacity**

The FY 2001 NVUM report polled recreation visitors about the types of constructed facilities and special designated areas they used during their visits. This data is listed in Table 17. The five most-used types of facilities and were: roads, non-motorized trails, scenic byways, picnic areas, and Wilderness.

**Table 17. Percentage use of facilities and specially designated areas on PSICC (from FY 2001 NVUM report)**

Facility/Area Type	Percent indicating use (FS visits)	Facility/Area Type	Percent indicating use (FS visits)
Boat launch	0.5	Interpretive site	3.7
Designated off-road vehicle area	7.2	Lodges/resorts on NFS land	2.1
Designated snow play area	0.7	Motorized developed trails	2.9
Designated snowmobile area	0.7	Nordic ski area	0.7
Designated wilderness	8.4	Organization camp	1.2
Developed campground	5.7	Other forest roads	24.0
Developed fishing site/dock	2.6	Picnic area	11.3
Downhill ski area	5.4	Recreation residences	1.1
Fire lookouts/cabins Forest Service-owned	0.0	Scenic byway	19.6
Forest Service office or other info site	1.2	Swimming area	0.6
Hiking, biking or horseback trails	23.7	Visitor center, museum	3.2

#### 4.2.1.a. Recreation facilities backlog

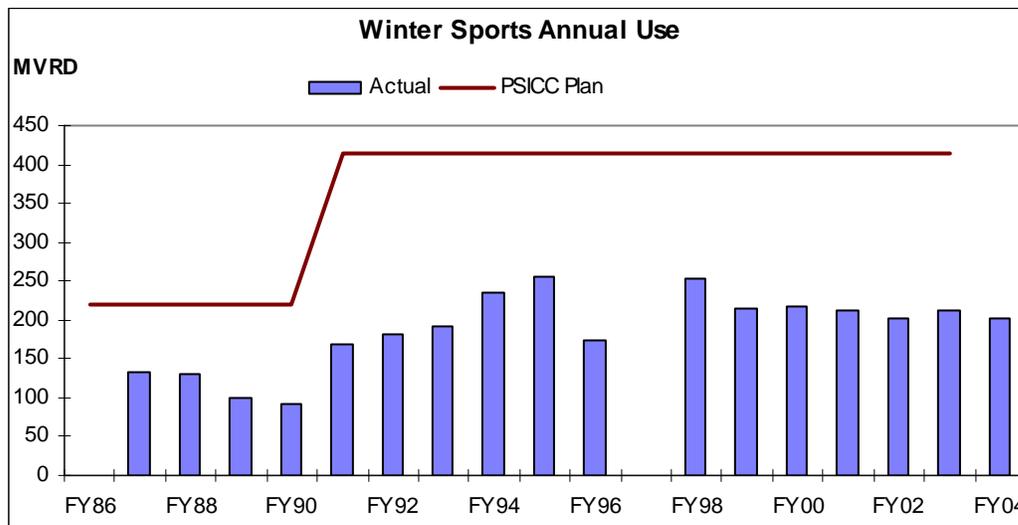
The PSICC has a strong recreation component in its overall program. It is also urban in character because more than four million people live within commuting distance. This Forest is most heavily used on weekends as a result of our proximity to the Front Range population. Many of the developed campgrounds, which were built in the 1960s, are deteriorating. Operation and maintenance dollars have not kept pace with this deterioration, creating an increasing the backlog of needed work. The agency has a target of reducing backlog maintenance by 25% per year for the next four years.

In FY 2007 the PSICC will prepare a Recreation Facility Masterplan. This report will provide direction on closing economically marginal facilities and investing in others. This will also help address the maintenance backlog

Repair and maintenance of the existing infrastructure will be the focus of our capital improvement funds, in lieu of building entirely new facilities. Health, safety and sanitation projects will take priority. Increasingly stringent Colorado state water quality requirements will require an emphasis on upgrading and improving water systems.

#### 4.2.2. Winter sports

In general, downhill skiing use has leveled off nationwide. Use on the PSICC parallels that trend in spite of the front-range population increases and pressure. In 2005 we had 231,000 skier visits. Figure 28 shows that capacity exceeds demand.



**Figure 28. Winters sports annual use on the PSICC**

The PSICC has two operating ski areas: Ski Cooper and Monarch Ski and Snowboard. One other area on the San Isabel National Forest, the Cuchara Valley Resort, remains closed.

### 4.2.3. Dispersed recreation: general forest areas

This section addresses those activities that occur outside of developed facilities. Because of the Forests proximity to the Denver-Colorado Springs-Pueblo metropolitan areas, the PSICC receives a large amount of dispersed recreation use.

Dispersed recreation constitutes the largest share of total recreation use. In recent years, visitor levels have exceeded projections made in the 1984 Plan. The FY 2001 NVUM report lists many activities that fall into the Dispersed Recreation Use category (refer to Table 17). As mentioned in the introduction to the Recreation section, the top five recreation activities were viewing natural features, relaxing, viewing wildlife, driving for pleasure, and hiking/walking – all of which are considered Dispersed Recreation.

Immediately following approval of the 1984 Plan, the PSICC recognized the importance of implementing the travel management direction in the 1984 Plan. In the fall of 2005 the Chief of the Forest Service initiated a new Travel Management Rule, in effect eliminating all off-road and trail motorized use. This new rule will be fully implemented by October 2009. The intent of the rule is to mitigate current and future natural resource damage associated with motorized use.

### 4.2.4. Wilderness

The PSICC has nine designated wilderness areas, which together total approximately 449,000 acres (Table 18). Several of these areas cross Forest boundaries; the PSICC is the lead manager for three of those. In 2004 the Forest Service identified 10 management actions that would be completed for each Wilderness in the system over a 10-year period. The PSICC completed Wilderness education plans for three areas in 2004 and in 2005 began concentrating on developing management plans for fire and invasive plants.

**Table 18. Designated Wilderness areas on the PSICC**

<b>Wilderness Area</b>	<b>Designation Date</b>	<b>National Forest</b>	<b>Approximate acreage (on the PSICC only)</b>
Buffalo Peaks	January 1993	Pike and San Isabel	43,410
Collegiate Peaks	November 1980	San Isabel, Gunnison, White River	106,620
Greenhorn Mountain	January 1993	San Isabel	22,040
Holy Cross	November 1980	San Isabel, White River	15,000
Lost Creek	June 1980	Pike	58,040
Lost Creek Wilderness addition	January 1993		14,700
Mount Evans	June 1980	Pike, Arapaho	34,680
Mount Massive	October 1979	San Isabel	26,100
Sangre de Cristo	January 1993	San Isabel, Rio Grande	226,455
Spanish Peaks	February 1999	San Isabel	18,000

A wilderness study area, Brown's Canyon, is being considered by Congress for designation. This 20,000 acre area along the east side of the Arkansas River on the Salida District includes 12,100 acres on the PSICC.

Routes for climbing peaks over 14,000 feet have become particularly popular and heavily used. The FY 2001 NVUM report estimated wilderness use at 67,000 visits, with an average stay of 1.6 days per visit (based on a 25.2 hour average length of stay) or approximately 134,000 recreation visitor days (RVDs).

### **4.3. Scenic Resources**

*No new information was reported for this section for FY 2007. The following reflects the information reported in the FY 2006 annual monitoring report.*

Scenic quality is being maintained. Activities with the potential to adversely affect the scenic integrity have been carefully designed to minimize those affects. The new Scenery Management System (SMS) will be implemented following the completion of revision of the 1984 Plan. For more information about the revision, see the Web site at [http://www.fs.fed.us/r2/psicc/projects/forest\\_revision/index.shtml](http://www.fs.fed.us/r2/psicc/projects/forest_revision/index.shtml).

Direction in the Built Environment Image Guide<sup>8</sup> (BEIG) is followed to ensure that new buildings, signs, or other human-made features compliment the natural and cultural settings.

### **4.4. Travel Management**

*No new information was reported for this section for FY 2007. The following reflects the information reported in the FY 2006 annual monitoring report.*

Travel management is a persistent and growing topic of concern for the PSICC. Increasing population pressures and increased sales and use of off-highway vehicles are resulting in greater resource impacts and potential for conflict. Unmanaged recreation has been identified as one of the four major threats to long-term forest health, and off-highway vehicle use constitutes a significant component of this threat.

Roads analyses have been conducted in several locations at the watershed and multiple-watershed scales, including the Hayman burn area. In addition, Forest-scale roads analysis was completed on the Grasslands in FY 2004 as part of the 1984 Plan revision effort. Forest-scale roads analysis is currently being conducted for the Pike and San Isabel National Forests, in conjunction with the revision of the 1984 Plan.

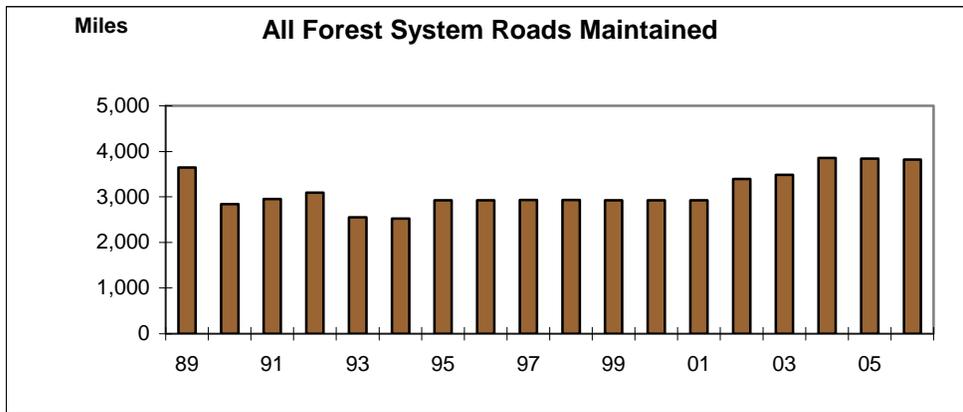
The PSICC is continuing an aggressive effort to identify and correct errors and inaccuracies in its roads and trails data, including tabular and geo-spatial data. This is becoming increasingly important for travel analysis and planning work. The release of

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<sup>8</sup> USDA-Forest Service. 2001. FS-710. The Built Environment Image Guide for the National Forests and Grasslands. Washington, D.C.

the final travel management rule (36 CFR parts 212, 251,261, and 295) is further elevating the importance of travel management on a nationwide basis. Travel management planning and implementation will be closely tied to revision of the 1984 Plan, given the direct relationship with, and impacts to, all major resource areas.

Figure 29 shows the total miles of roads identified as system roads that are authorized for public use. This use can vary from full use by the public with motor vehicles to administrative use only by the PSICC and designated permittees. Not included in the chart are Maintenance Level 1 (Intermittent Use) roads that are generally closed to all vehicle traffic for extended periods and which may be re-opened for specific resource needs. With continued shortfalls in maintenance funding, additional miles of road are being rendered unsuitable for use by passenger cars and moved into a high-clearance vehicle standard. This reflects a nationwide trend.



**Figure 29. All maintained Forest System roads on the PSICC**

The apparent increase in miles in FY 2002 is because temporary roads that serve oil and gas operations on the Grasslands were added to the system to better reflect actual conditions. Typically, temporary roads are obliterated after a specified short-term use (for example, after vegetation treatment is performed). Many of the oil and gas roads are longer-term, and they are largely available for, and passable to, the general public. Hence, their administrative classification was changed and these miles were added to the system. Additional changes are the result of ongoing corrections to the Forests and Grasslands transportation database, as opposed to changes in actual on-the-ground mileage.

## **5. Economic Components**

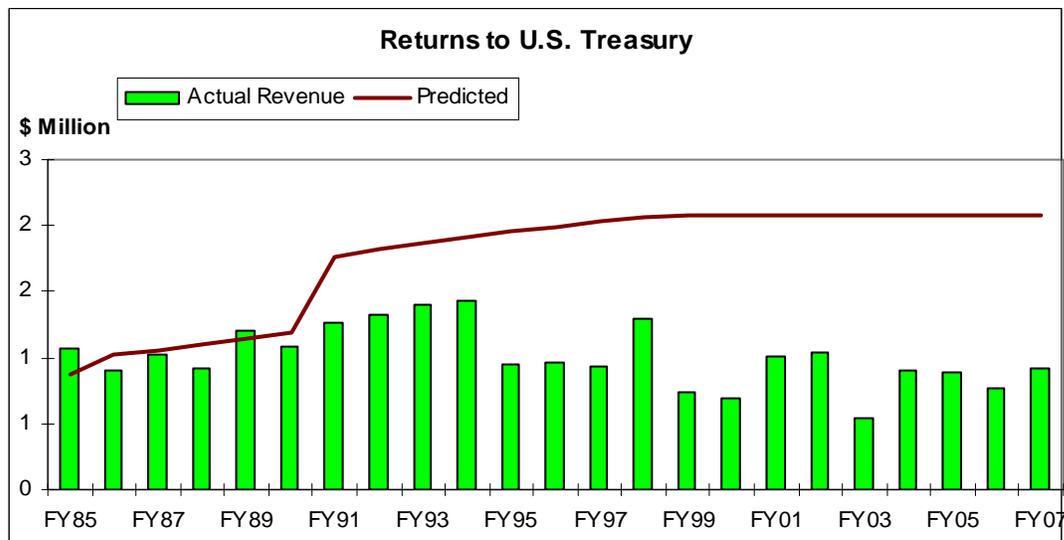
### **5.1. Capital Investments**

The Capital Investment Program (CIP) consists of two parts: one funded at the Regional level, and one funded at the Forest level. Before FY 1992, CIP was primarily for roads and general purpose timber and recreation use. After FY 1992, the emphasis shifted to

include developed recreation areas and trail construction and reconstruction. PSICC's part of the CIP has been funded in the \$250,000 to \$500,000 range since 1991. The Regional CIP has been funded in the \$700,000 to \$2.3 million range, with the lowest funding in 1996 and the highest in 1992. As stated previously, the emphasis has shifted from roads in the early 1990s to developed recreation areas in the late 1990s.

## 5.2. Returns to the U.S. Treasury

A wide range of activities generates revenues for the U.S. Treasury. These include special-use permits (such as ski areas, roads, waterlines, powerlines, outfitter-guides, recreation residences), livestock grazing permits, fuel wood permits, Christmas tree permits, transplant sales, timber sales, and others. Revenues from oil and gas leases are not shown in Figure 30, but are included in Appendix B of this report.



**Figure 30. Revenue returns to the U.S. Treasury: actual and predicted for fiscal years 1985 through 2007.**

## 5.3. Payments to Counties

In most cases, 25% of the revenues paid into the U.S. Treasury are returned to the counties where the revenue-generating activities took place. The flow of these funds to counties is shown in Table 19. The most dramatic change occurred on the Cimarron National Grassland in 1987, when a number of oil and gas leases reverted to the United States. Revenues from those leases have declined in recent years as production has declined.

**Table 19. 25% Fund payments to counties by units on the PSICC**

Nominal year dollars

Fiscal year	Pike	San Isabel	Comanche <sup>9</sup>	Cimarron <sup>10</sup>	PSICC total
FY85	115,898	123,019	145,707	77,852	<b>462,476</b>
FY86	103,787	107,703	103,185	39,027	<b>353,702</b>
FY87	105,173	130,414	72,730	4,240,391	<b>4,548,708</b>
FY88	92,751	119,698	45,236	3,028,349	<b>3,286,034</b>
FY89	127,780	149,169	47,240	1,514,045	<b>1,838,234</b>
FY90	122,124	127,901	64,605	1,007,529	<b>1,322,159</b>
FY91	134,263	149,236	111,347	541,837	<b>936,683</b>
FY92	117,394	172,006	106,777	428,047	<b>824,224</b>
FY93	157,919	152,076	106,463	737,839	<b>1,154,297</b>
FY94	162,181	175,534	59,587	785,574	<b>1,182,876</b>
FY95	91,038	134,596	117,975	503,049	<b>846,658</b>
FY96	94,520	142,053	221,394	627,538	<b>1,085,505</b>
FY97	92,591	120,173	632,708	170,706	<b>1,016,178</b>
FY98	157,857	149,073	71,530	473,494	<b>851,954</b>
FY99	92,481	90,829	0	0	<b>183,310</b>
FY00	94,249	73,177	0	0	<b>167,426</b>
FY01	127,424	180,922	71,617	516,309	<b>896,272</b>
FY02	142,743	183,219	72,637	983,052	<b>1,381,651</b>
FY03	140,170	184,712	47,166	505,867	<b>877,915</b>
FY04	160,996	196,439	19,757	917,822	<b>1,295,014</b>
FY05	180,689	203,368	77,932	750,020	<b>1,212,009</b>
FY06	181,494	205,395	76,157	1,161,741	<b>1,624,788</b>
FY07	187,403	204,973	0	0	<b>392,376</b>

## **6. Amendments to the 1984 Land and Resource Management Plan**

### **6.1. Existing Amendments**

There are 31 amendments to the 1984 Plan as shown in Table 20. For several years following approval of the 1984 Plan, it was believed that changes in the timber harvest schedule had to be reflected as amendments. When court decisions clarifying the purposes of land and resource management plans established that this practice was not required, amendments of this nature were discontinued. The last 1984 Plan amendment was completed in August 2005.

<sup>9</sup> Note: Grassland revenues and payments are reported by calendar year rather than fiscal year.

<sup>10</sup> Note: Grassland revenues and payments are reported by calendar year rather than fiscal year.

**Table 20. Summary of amendments to the 1984 Plan**

<b>Amendment #</b>	<b>Date Approved</b>	<b>Summary</b>
1	09/23/85	Clarified intent of Plan implementation schedules (Appendices A, C & D) prepared as part of annual Forest Plan of Work. Rescinded by Amendment No. 9.
2	07/24/87	Corrected omission and indicated that bridge construction and reconstruction activities under Management Activity L16–L18 (Local Road Construction and Reconstruction) are included.
3	07/24/87	<i>Revised boundary of the Comanche Lesser Prairie Chicken Habitat Zoological Area (designated a Colorado Natural Area February 13, 1987).</i>
4	7/24/87	Included in the Plan assessment of suitability and capability of Quail Mountain for proposed ski area development. Rescinded October 5, 1987.
5	07/24/87	Incorporated in the Plan, modified stipulations and supplements contained in FSM 2800 5/86 Supplement No. 25 for leases and permits issued on National Forest System lands.
6	07/24/87	Replaced fire management Standards and Guidelines with Regional fire management requirements that had been changed to provide greater flexibility to land managers.
7	07/24/87	Corrected a Plan map error to more accurately reflect Management Area Prescription application and changed acreage totals in the Management Area Summary Table.
8	07/24/87	Corrected information in the Plan – Appendix B; fuelwood products are not a part of the Allowable Sale Quantity (ASQ).
9	07/24/87	Rescinds Forest Plan Amendment No 1.
10	07/24/87	Assigned Management Area Prescription 1D (Provided for Utility Corridors) for certain lands within the Comanche and changed Management Area Summary Table III-3 to show a change in the acreage of four Management Areas.
11	08/20/87	Replaced Appendix A (Ten-year Timber Sale Schedule) and established a three-year schedule of planned vegetation treatment projects.

<b>Amend ment #</b>	<b>Date Approved</b>	<b>Summary</b>
12	10/05/87	Replaced Appendix C (Ten-Year Road Construction and Reconstruction Schedule) and established a three-year schedule of planned road construction/reconstruction projects.
13	12/09/88	Recommended establishment of the 373-acre Hoosier Ridge Research Natural Area, South Park District.
14	12/09/88	Assigned Management Area Prescriptions 2B and 4B to 10,290 acres of the Cimarron River corridor on the Cimarron.
15	01/89	Amendment drafted but not finalized.
16	01/03/89	Established three-year Timber Sale and Road Construction/Reconstruction Scheduled (revised appendices A & C). (FSM 1920, R2 Supplement No. 8, 03/86 and FSH 1909.12, R2 Supplement No. 1, 08/88).
17	01/03/89	Assigned Management Area Prescription 5B to Babcock Hole, San Isabel (San Carlos District); 9,021 acres.
18	01/03/89	Assigned Management Area Prescription 1D to Methodist Mountain, San Isabel (Salida District); 53 acres.
19	03/02/89	Assigned Management Area Prescription 5B (Emphasis on Big Game Winter Range) in the Dry Union Gulch area, San Isabel (Leadville District) – change from a 7D Management Area Prescription; 5,114 acres.
20	12/06/89	Replaced three-year Timber Sale and Road Construction/Reconstruction Schedules (revised Appendices A & C). (FSM 1920, R2 Supplement No. 8, 03/86 and FSH 1909.12, R2 Supplement No. 1, 08/88).
21	06/11/90	Established Scenic Highway of Legends as a Scenic Byway on the San Carlos District. Incorporated new management direction for Scenic Byways in the Plan.
22	10/04/90	Replaced three-year Timber Sale and Road Construction/Reconstruction Schedules (revised Appendices A & C).
23	02/12/92	Oil & Gas Leasing – Incorporated decision made 02/92 to consent to oil and gas leasing. Reference Final EIS and Record of Decision (ROD).
24	04/09/92	Added Picket Wire Canyonlands per PL 101-501. Also established management area direction.

<b>Amend ment #</b>	<b>Date Approved</b>	<b>Summary</b>
25	09/21/94	Revised Plan map to establish a utility corridor for the Divide Power Line between Divide and Lake George.
26	03/00	Changes VQO within Ski Cooper permit area to Modification.
27	02/01	Establishes Stanley Canyon expansion to the Northfield Multi-User Communications Site.
28	08/01	Amends suitable timber base and certain standards and guidelines in the area of the Upper south Platte Watershed Protection and Restoration Project.
29	06/02	Amends the Forest Plan to establish the Dick's Peak Communication Site.
30	08/05	Amends the Forest Plan to establish an updated list of Management Indicator Species (MIS)
31	06/04	Amends the Forest Plan to establish a new management area along the South Platte River between Elevenmile Reservoir and Strontia Springs Reservoir, and along the North Fork of the South Platte River from below Bailey to the confluence with the South Platte River.

## **6.2. Identified Need for Changing the 1984 Plan through an Amendment or Revision**

### **6.2.1. Amendments to the 1984 Plan**

In FY 2007 there were no new amendments recommended to the 1984 Plan.

### **6.2.2. Revision of the 1984 Plan**

In FY 2007 two revisions to the 1984 Plan were underway: the development of a land management plan for the Cimarron and Comanche National Grasslands (Grasslands); a revision of the 1984 Plan for the Pike and San Isabel National Forests (Forests).

Work on the Grasslands Plan, originally prepared under the 2005 National Forest System Land Management Planning Rule (Planning Rule), was suspended following a court order enjoining the Forest Service from implementing the 2005 Planning Rule. This suspension began during the 30-day pre-decisional review and objection period conducted by the PSICC in March 2007.

The revised Forests Plan pre-work was initiated in 2005, and revision efforts continued until these activities were also suspended by the same court order described above. Prior to suspension, a series of eight public workshops was held in various locations. The purpose of these workshops was to gather information regarding Forests resources and resource management and what does and does not need to change. The scheduled completion for the final Forests Plan was changed to September 2010.

For more details, see the Web site at

[http://www.fs.fed.us/r2/psicc/projects/forest\\_revision/index.shtml](http://www.fs.fed.us/r2/psicc/projects/forest_revision/index.shtml).

## **7. Information Sources for the Annual Monitoring Report**

The information in this FY 2007 annual monitoring report is based on the PSICC Management Attainment Reports, Final Budget Documents, INFRA (Infrastructure) database, SILVA (silviculture) reports, NVUM (recreation uses), Regional Revenue and 25% Payments to Counties reports, individual program accomplishment reports, and other miscellaneous documents. All referenced documents are available for review at the PSICC Supervisor's Office located at:

Pike and San Isabel National Forests  
Cimarron and Comanche National Grasslands  
Supervisor's Office  
2840 Kachina Drive  
Pueblo, CO 81008

Additional copies of this report are available by writing to or visiting the address above, by calling 719-553-1400, or on the Web at <http://www.fs.fed.us/r2/psicc>.

## **8. Summary Evaluation and Conclusions**

### **8.1. Are the 1984 Plan's goals and objectives being met?**

Although the goals and objectives of the 1984 Plan are being pursued to some degree, the rate of accomplishment is different than predicted in 1984. The ambitiousness of the overall program has proven to exceed the available funding levels during the years of implementing the 1984 Plan. In addition, the economic conditions and social demands for goods and services have also changed.

### **8.2. Are the 1984 Plan standards and guidelines being followed?**

Decision documents signed by responsible officials certify that projects are designed to be consistent with the 1984 Plan, as amended. Monitoring results support those findings.

## **9. References**

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## **10. List of Preparers**

This annual monitoring report was prepared and reviewed by staff and resource specialists on the PSICC (Table 21).

**Table 21. List of preparers, by program.**

<b>Program(s)</b>	<b>Program manager or specialist</b>
Aquatic and riparian resources	Brian Cox
Budget and finance	Joe Douglass
Fire and fuels	Aaron Ortega
Heritage	Al Kane
Hydrology, soils	Dana Butler
Land management planning	Barb Masinton
Minerals and Energy Resources	Wyoma Hansen
Range	Scott Woodall
Recreation, scenery, wilderness, visual resource management	Neal Weierbach
Timber	Gary Roper
Transportation	Jerry Stevenson
Water rights	Misty DeSalvo
Wildlife, fisheries, and rare plants, threatened, endangered, and sensitive species	Brian Cox

## Appendix A

### Timber Harvest History, 1987 through 1998

Table A-1. Timber harvest history, 1987 through 1998 (cutting method and acres harvested).

	Cover type and cutting method	87	88	89	90	91	92	93	94	95	96	97	98	Total acres
Ponderosa pine														
	Selection	0	0	0	0	0	0	0	0	0	0	0	0	0
	Intermediate cut, sanitation/salvage, commercial thin	170	92	243	243	364	1,312	1,459	1,105	27	0	448	89	5,552
	Clearcut	11	15	27	0	0	0	0	0	0	0	0	0	53
	Preparatory cut (shelterwood)	0	26	0	0	0	0	0	0	0	0	0	0	26
	Seed cut (shelterwood)	83	251	378	428	0	80	113	0	0	0	0	26	1,359
	Removal cut (shelterwood)	47	38	176	67	0	0	0	0	0	0	0	0	328
Aspen														
	Clearcut	40	101	81	85	140	69	73	49	13	7	9	0	968
	Sanitation/salvage	0	0	0	0	0	0	0	5	9	0	0	37	51
Lodgepole pine														
	Clearcut	57	151	43	38	176	47	156	102	54	0	130	14	993
	Seed cut	0	0	0	0	66	107	12	0	0	0	0	0	185
	Removal cut	0	0	0	0	0	0	13	0	0	16	0	0	29
	Commercial thin	0	0	0	0	0	0	0	0	50	0	0	0	50
	Sanitation/salvage	0	0	0	0	0	0	8	0	0	0	0	0	8
Engleman spruce/fir														
	Clearcut	2	64	57	0	150	64	44	0	0	0	0	0	381
	Preparatory cut (shelterwood)	0	255	0	54	30	0	27	0	108	0	0	0	474
	Seed cut (shelterwood)	0	0	34	0	553	0	175	430	0	0	88	88	1,368
	Removal cut (shelterwood)	0	7	0	0	82	0	72	0	0	0	0	23	184

	<b>Cover type and cutting method</b>	<b>87</b>	<b>88</b>	<b>89</b>	<b>90</b>	<b>91</b>	<b>92</b>	<b>93</b>	<b>94</b>	<b>95</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>Total acres</b>
	Selection (uneven-aged mgmt)	0	286	164	150	27	152	0	0	0	41	65	7	892
	Sanitation/salvage	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Mixed conifer (Douglas-fir)</b>														
	Intermediate cut, salvage, commercial thin	0	15	1,689	229	47	416	232	232	278	0	208	0	3,346
	Clearcut	0	10	0	0	31	13	4	0	0	0	0	0	58
	Preparatory cut (shelterwood)	0	386	0	0	0	0	0	0	0	0	0	0	386
	Seed cut (shelterwood)	0	0	0	0	56	389	51	0	0	0	0	0	496
	Removal cut (shelterwood)	0	0	59	79	261	0	0	0	0	0	0	0	399
<b>Other species</b>														
	Sanitation salvage, special cut, selection, Christmas trees	0	0	0	0	0		93	16	0	0	0	0	109
<b>Total acres cut</b>		<b>410</b>	<b>1,697</b>	<b>2,951</b>	<b>1,373</b>	<b>1,983</b>	<b>2,649</b>	<b>2,532</b>	<b>1,939</b>	<b>539</b>	<b>64</b>	<b>948</b>	<b>284</b>	<b>12,076</b>

## Appendix A (cont'd).

### Timber Harvest History, 1999 through 2007

Table A-2. Timber harvest history, 1999 through 2007 (cutting method and acres harvested).

	Cover type and cutting method	99	00	01	02	03	04	05	06	07	Total acres
Ponderosa pine											
	Selection		0	0	337	80	0	0	0	0	417
	Intermediate cut, sanitation/salvage, commercial thin	75	0	180	1,429	1,228	3,150	3,674	1,359	983	12,078
	Clearcut		0	0	0	0	0	0	0	0	0
	Preparatory cut (shelterwood)		0	0	0	0	0	0	0	0	0
	Seed cut (shelterwood)		0	0	0	0	0	0	0	0	0
	Removal cut (shelterwood)	300	0	0	83	0	0	0	0	0	383
Aspen											
	Clearcut		0	0	0	0	0	0	0	0	0
	Sanitation/salvage		0	0	21	10	0	0	0	0	31
Lodgepole pine											
	Clearcut	25	0	0	7	5	0	0	0	0	37
	Seed cut		0	0	53	0	0	0	0	0	53
	Removal cut		0	0	0	0	0	0	0	0	0
	Commercial thin		0	0	5	55	0	0	0	0	60
	Sanitation/salvage		0	0	220	15	0	191	88	78	592
Engleman spruce/fir											
	Clearcut		0	0	36	0	0	0	0	0	36
	Preparatory cut (shelterwood)		0	0	108	0	0	37	36	0	181
	Seed cut (shelterwood)		0	0	0	0	0	0	0	0	0
	Removal cut		0	0	0	0	0	0	0	0	0

	<b>Cover type and cutting method</b>	<b>99</b>	<b>00</b>	<b>01</b>	<b>02</b>	<b>03</b>	<b>04</b>	<b>05</b>	<b>06</b>	<b>07</b>	<b>Total acres</b>
	(shelterwood)										
	Selection (uneven-aged mgmt)		0	0	0	0	0	0	0	0	0
	Sanitation/salvage	0	0	0	0	0	0	0	0	204	204
<b>Mixed conifer (Douglas-fir)</b>											
	Intermediate cut, salvage, commercial thin	290	0	0	59	0	0	434	1,329	148	2,260
	Clearcut		0	0	0	0	0	0	0	0	0
	Preparatory cut (shelterwood)		0	0	0	0	0	0	0	0	0
	Seed cut (shelterwood)		0	0	0	0	0	0	0	0	0
	Removal cut (shelterwood)		0	0	0	0	0	0	0	0	0
<b>Other species</b>											
	Sanitation salvage, special cut, selection, Christmas trees		0	10	0	0	0				10
<b>Total acres cut</b>		<b>690</b>	<b>0</b>	<b>190</b>	<b>2,358</b>	<b>1,393</b>	<b>3,150</b>	<b>1,410</b>	<b>2,812</b>	<b>1,413</b>	<b>16,342</b>

## Appendix A (cont'd).

### Timber Harvest History, 1987 through 2007

Table A-3. Timber harvest history, 1999 through 2007 (cutting method and acres harvested).

	Cover type and cutting method	Total acres 1987–1998 <sup>11</sup>	Total acres 1999–2007 <sup>12</sup>	Total acres 1987–2007
Ponderosa pine				
	Selection	0	417	417
	Intermediate cut, sanitation/salvage, commercial thin	5,552	12,078	17,630
	Clearcut	53	0	53
	Preparatory cut (shelterwood)	26	0	26
	Seed cut (shelterwood)	1,359	0	1,359
	Removal cut (shelterwood)	328	383	711
Aspen				
	Clearcut	968	0	968
	Sanitation/salvage	51	31	82
Lodgepole pine				
	Clearcut	993	37	1,030
	Seed cut	185	53	238
	Removal cut	29	0	29
	Commercial thin	50	60	110
	Sanitation/salvage	8	592	600
Engleman spruce/fir				
	Clearcut	381	36	417
	Preparatory cut (shelterwood)	474	181	492
	Seed cut (shelterwood)	1,368	0	1,368
	Removal cut (shelterwood)	184	0	184
	Selection (uneven-aged mgmt)	892	0	892

<sup>11</sup> Acres taken from Table A-1.

<sup>12</sup> Acres taken from table A-2.

	<b>Cover type and cutting method</b>	<b>Total acres 1987–1998<sup>11</sup></b>	<b>Total acres 1999–2007<sup>12</sup></b>	<b>Total acres 1987–2007</b>
	Sanitation/salvage	0	204	204
<b>Mixed conifer (Douglas-fir)</b>				
	Intermediate cut, salvage, commercial thin	3,346	2,260	5,606
	Clearcut	58	0	58
	Preparatory cut (shelterwood)	386	0	386
	Seed cut (shelterwood)	496	0	496
	Removal cut (shelterwood)	399	0	399
<b>Other species</b>				
	Sanitation salvage, special cut, selection, Christmas trees	109	10	119
<b>Total acres cut</b>		<b>12,076</b>	<b>16,342</b>	<b>28,418</b>

## **APPENDIX B PSICC Revenues 1985 to Present**

**Table B-1. PSICC Revenues 1985 to Present**

FY	National Forest Funds (\$)						Trust Funds (\$)					
	Timber sales	Special uses /2	Mineral leases 3/	Recreation revenue	Grazing fees	Power	K-V funds	Salvage funds	Purchaser credit	Timber Purchase	Special road const.	Total \$
85	76,701	245,505	774,346	301,619	159,918		211,209	0	80,604			1,849,902
86	77,242	232,052	514,733	323,447	93,933		140,503	0	32,897			1,414,807
87	95,106	286,770	17,167,292	323,091	92,629		188,588	0	41,358			18,194,834
88	20,132	272,773	12,222,776	342,096	107,098		110,467	548	68,248			13,144,138
89	67,031	269,855	6,151,595	512,328	154,048		132,262	26,860	38,958			7,352,937
90	56,798	280,321	4,206,179	371,214	129,094		106,459	80,790	57,778			5,288,633
91	66,923	332,516	2,476,165	377,950	173,307		115,195	119,780	84,895			3,746,731
92	32,070	447,066	1,976,099	436,734	207,661		79,496	99,305	18,460			3,296,891
23	153,532	492,503	3,218,247	269,658	195,529		80,045	142,544	65,128			4,617,186
94	112,635	113,258	3,296,673	667,833	119,670		191,398	102,199	127,836			4,731,502
95	108,042	148,345	2,438,829	468,555	60,429		84,106	49,530	28,790			3,386,626
96	179,015	65,642	3,295,406	498,421	73,460		109,114	40,175	0			4,261,233
97	86,869	161,507	3,131,603	490,425	81,569		53,260	59,482	0			4,064,715
98	67,571	483,854	2,118,483	570,171	69,018		54,299	44,418	0			3,407,814
99	33,442	149,670	157	427,176	27,384		68,213	27,197	0			733,239
00	78,324	327,975	203,661	138,361	48,044	26,416	63,402	16,083	0	0	0	902,266
01	73,083	468,512	4,133,042	242,038	66,276	27,979	102,839	20,462	0	403	2,7000	5,137,334
02	60,338	516,540	4,189,001	185,654	68,160	30,993	116,416	47,634	0	13,696	0	5,228,432
03	66,442	281,719	2,168,132	69,321	18,104	21,078	12,264	76,737	0	0	0	2,713,797
04	25,077	476,212	22,159	189,276	20,903	42,627	38,357	106,214	0	0	0	920,825
05	38,539	489,468	29,222	198,937	33,020	40,512	35,762	49,794	0	0	0	915,254
06	22,779	551,960	4,806	7,034	27,021	41,560	44,958	65,927	0	0	0	766,045
07	26,737	645,646	35,432	3,748	24,016	43,187	62,142	62,223	0	0	45,690	948,820

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## **Certification**

The PSICC Land and Resource Management Plan, as currently written, is sufficient to guide implementation for the next year. There are several improvements that can be made to the Plan, but they are not required to meet the goals and objectives of the Plan.

Currently two revisions to the 1984 Plan are underway: the development of a land management plan for the Cimarron and Comanche National Grasslands (Grasslands); a revision of the 1984 Plan for the Pike and San Isabel National Forests (Forests). The Grasslands Plan was prepared under the 2005 National Forest System Land Management Planning Rule. The draft (proposed) Grasslands Plan was released in December 2005; the pre-decisional review version was released in March 2007. The pre-work phase for the revised Forests Plan was initiated in 2005 and the first round of public meetings was held in early 2007.

/s/ Robert J. Leaverton  
Robert J. Leaverton  
Forest Supervisor

September 26, 2008  
Date