DRAFT-WORKING

Four-Forest Restoration Coconino and Kaibab NF Environmental Analysis (EIS) Cumulative Effects Analysis Baseline

Introduction

Past human activities and natural disturbance processes have influenced the current condition of the project area. Management activities and natural processes that have affected, or continue to affect, vegetation structure, spatial arrangement and pattern, composition and diversity, natural processes (such as fire), and movement towards increased forest resiliency and function are particularly relevant. Specialists used the following information (tables X to X and figures X to X) to develop a cumulative effects analysis area that is specific to their resource. Information was gathered from historic timber data records, NEPA project records, each forest's Schedule of Proposed Action (SOPA), each forest's accomplishment (FACTS) database, each forest's fire history and activities database, range monitoring reports, forest subject matter specialists, and cited literature and studies. Some data was incomplete. Projects located outside of the project area can be found in table X. Specialists will determine whether to include these projects in their cumulative effects analysis. Projects that were considered but eliminated from cumulative effects due to a lack of information can be found in table X. Where data was conflicting or incomplete, the best available data used was the NEPA project record and decision.

Grazing

Livestock (sheep and cattle) grazing can be traced back to the 1800's when roads within the forests were used to drive herds between New Mexico and California. The arrival of railroads in the early 1880's caused livestock numbers across most of Arizona to rapidly increase (Scurlock and Finch 1997). By the early 1890's, overgrazing had resulted in changes to understory vegetation by reducing grasses and forbs. This interrupted the role fire played on the forests. When cattle removed forage, it was not available to spread a fire until the plants had regrown (Covington and Moore 1994; Cooper 1960; Arnold 1950). Without fire, understory seedlings in pine and mixed conifer forests had unprecedented survival rates. White fir, Douglas-fir, and even Engelmann spruce seedlings became established under ponderosa pine stands. Juniper and pinyon seedlings invaded former grassland savannahs (Kaibab NF ESR 2008). The increase in tree density and buildup of woody fuels increased the potential for large and severe wildfires, insect outbreaks, and reduced vegetation biodiversity (Friederici 2004). Livestock effects to understory vegetation follow the history of livestock management within the project area. Unregulated grazing from the 1860's to the 1920's led to declines in grass, forb, and shrubs and an increase in trees.

Livestock numbers on the Coconino and Kaibab National Forest have generally declined over time since the 1890's. One exception to this general trend was during the WWII (1940's) when numbers were temporary increased. By the 1970's, the forests had assigned livestock numbers to allotments and rangeland improvements had been put in place to improve livestock distribution to avoid over-utilization on sensitive areas (such as riparian). In 1987 and 1988, forest land management plans were put in place. The plans required grazing use to be balanced with land capacity and applied restrictions and mitigation to reduce impacts to understory conditions.

Grazing management practices have evolved through time to limit overgrazing by livestock and to match conservative livestock utilization with forage production. With the improvement in grazing management, trends in understory vegetation have generally improved in areas where tree density does not limit recovery. Tree density limits the amount of understory vegetation; as tree densities increase, the

understory vegetation declines. The direct relationship between tree basal area and understory production has been widely studied (Moore et al 2004, Arnold 1950, Cooper 1960, Pearson and Jameson 1967). In these studies, the direct relationship between tree density and understory vegetation was observed regardless of whether the study area was grazed by livestock, or whether the study area was excluded from livestock grazing.

Currently, authorized livestock grazing occurs on approximately 790,985 acres, or 80 percent of the project area. After over 20 years of managing grazing and conducting vegetation projects that return fire to the landscape, there is little to no residual impact on vegetation structure and pattern. Fire is able to play its role within ponderosa pine (see chapter 3, range, vegetation, and fire specialist reports) because grazing is not removing all fuels. When seedlings do become re-established, prescribed fire removes seedlings and saplings that would otherwise contribute to excessive tree density. The primary factor affecting understory trend is climate. Reviews of historic range monitoring data (Brewer 2011) indicate cool season species increased through the 1990's in response to an increase in cool season moisture. In the last 10+ years, decreased cool season moisture and increased warm season moisture has increased warm season species like blue grama. Today, excessive tree density (related to past land management practices) is causing a plant conversion to more shade tolerant species (such as bromes and mountain muhly).

Vegetation Management

Past timber harvest practices have influenced vegetation structure, pattern, and composition on about X percent of the project area. In the 1880’s, lumbering was a primary industry on the two forests. Early logging efforts were small in scale, utilizing portable sawmills adjacent to the timber to meet local needs (USDA 1993). Localized mills transitioned into large scale lumber mills with the arrival of the Atlantic and Pacific Railroad. From the late 1880’s to the 1940’s, logging that faciliated the construction of the railroads was condcuted by several lumber and timber companies in the Flagstaff and Williams area (USDA 1993). During this time, these industries clearcut the land on which they held timber rights. Cuts on these lands generally removed 70 to 80 percent of the merchantable volume. Some areas were laid waste, and huge amounts of slash accumulated which lead to some high severity fires (Schubert 1974).

By 1910, after the establishment of the National Forests, the concept of sustained yield was applied. There were requirements to leave mature trees in order to promote forest regeneration and leave young trees to stock the harvested lands. The objective during this period was to cut groups of old trees that were located near trees that had seedlings and saplings regenerating. Timber companies were also required to clear logging slash after their operations were completed in order to reduce the fire hazard (USDA 1993). By 1940, the railroads had removed all the profitable lumber that could be easily accessed. In terms of vegetation structure, pattern, and composition, the largest and oldest tree sizes (VSS 5 and VSS 6) were removed from the project area (and across the forests in general). The pattern on the landscape no longer resembled the historic condition with historic tree groups and/patch sizes ranging from 0.1 to 0.75 acres in size and with 2 to 40 or more trees (White 1985). The herbaceous understory fueled frequent fires started by lightning, and thinned and/or eliminated thickets of small trees keeping the forest open and park-like (Allen et al. 2002). This created a mosaic of grass, forbs, shrubs and trees best characterized as areas with smaller (younger) trees with extensive regeneration with no large trees interspersed within the younger age classes.

From the 1950s through the 1970s, management within the project area focused on cutting (using sanitation/salvage mehtods) trees that were expected to die in the near future and trees that were diseased or damaged. During this time, up to 200,000 acres of timber was harvested from the Kaibab NF under the Colorado Plateau Pulpwood contract (Holmes, unpublished data 2011). This contract focused on cutting out almost or all of the smaller diameter trees. On the Coconino NF, details on specific projects from the 1950’s could not be located. However, timber harvest records indicate that about 594,424 million board feet (MBF) of timber was sold during this time. The records also show that the volume cut incrementally

increased from the 1950's through the 1980's. The volume of timber cut/sold on the Coconino NF in the 1950's increased from 594,424 million board feet (MBF) to 874,078 MBF in the 1980's. This roughly translates to treating up to 175,000 acres.

Coconino NF timber sales in the 1960's produced about 666,241 MBF. This roughly equates to treating about 133,000 acres. Projects within the project area included Fernow (6,500 acres, 1967), East Pocket (8,960 acres, 1968), and Walker Hill (8,700 acres, 1969). Timber sales on the Coconino NF in the 1970s produced about 701,175 MBF (equates to treating about 140,000 acres). Some of the larger Coconino NF sales within the project area included Saddle (14,700 acres, 1970), Kendrick (14,000, 1973), and, Antelope (11,520, 1972), Youngs (7,200 acres, 1973), Weimer (10,900 acres, 1974), and Fulton (10,240 acres, 1978) (Coconino NF Timber Files 1946-1989, Neubauer, 2012).

From the early 1980's through the early-to-mid 1990's, vegetation projects on both forests focused on even-aged forest management (shelterwood silviculture system). Although MBF values were not found for the Kaibab NF, at least 18,748 acres were cut during the 1980's with treatments including sanitation/salvage, even-aged thinning, and regeneration cuts (Kaibab NF FACTS timber database, McCusker 2012). A large timber sale (TS) implemented on the Kaibab NF (and within the project area) in the 1980's on include the Moritz TS (11,500 acres, 1987). Between 1984 and 1995, at least 33,499 acres (2,561 acres of sanitation/salvage, 25,492 acres of even-aged thin, 5,446 acres of regeneration cut) on the Kaibab NF were coded in the FACTS database as even-aged thinning and regeneration cuts and about 2,029 acres of treatment were specifically designed to benefit wildlife habitat.

The Coconino NF's FACTS database indicates almost 200,000 acres from 1985 to 1995 were treated using even-aged management techniques (14,312 acres of sanitation/salvage, 129,708 acres of even-aged thin, and 54,489 acres of regeneration cut). During this time, about 839 acres were coded as being wildlife habitat improvement projects. Some of the larger sales on the Coconino NF (and within the project area) include Mooney TS (9,600 acres, 1981), Harding TS (10,200 acres, 1983), Kelly TS (14,500 acres, 1980) and Hoxworth TS (7,800 acres, 1985). Overall, about 874,078 MBF was cut on the Coconino NF in the 1980's (Coconino NF Timber Files 1946-1989, Neubauer, 2012) (Flagstaff District Timber Atlas Files, Fleishman, 2012). Forest structure, pattern, and composition continued to be affected during this time. Where mature trees dominated, regeneration treatments (shelterwood seed-cuts) focused on removing most overstory trees and retained a low density of scattered seed trees. These removal and regeneration treatments yielded sawtimber. Where sapling or mid-aged trees dominated, treatments focused on thinning to manage stand density. Much of these thinning treatments yielded pulpwood products. These type of treatments coupled with even-aged management resulted in additional losses of old, large trees (trees in the VSS 5 and VSS 6 classes).

Timber production reached its height on both forests during the mid 1990's. During this time, individual stand treatments continued to focus on the overstory removals of mature trees when younger age class trees were present. Early 1990 projects on the Kaibab NF include the El Paso TS (9,700 acres, 1991), the Parks TS (1992), and the Government TS (2,220 acre, 1992).

Until the early-to-mid 1990's, most projects did not protect key habitat features. Specialist reports from the 49er Timber Sale (1971-1976) on the Kaibab NF indicate only goshawk nest-bearing trees and tassel-eared squirrels nest tree groups that had nests (that appeared to be recent) were protected. Habitat protection/improvement for other species such as turkey, were not addressed. Although project records could not be located on the Coconino, it is likely the design of timber sales was similar to the Kaibab NF.

Other habitat components, such as snags, were treated much differently than they are today as cutting of all snags being a common practice. The forests had a policy to fell all snags (to reduce fire risk). Trees with signs of rot (dead tops, lightening strikes) and those that appeared to be faders (trees that might die

within the next 5 to 10 years) were specifically selected for removal. A review of past wildlife analyses indicates these treatments contributed to the loss of squirrel and cavity-dependent mammals (birds and mammals) habitat on portions of the Kaibab NF. In addition to projects, the fuelwood policy on the Kaibab NF prior to 1992 encouraged the cutting all snags. How treatment-created slash was disposed of further reduced the abundance of snags (and snag habitat) across the landscape. Most timber-related slash was machine piled and burned. Fire was commonly allowed to creep beyond the piles. This resulted in many previously uncut snags and trees with rot near the ground to be consumed or hollowed and hardened. This reduced the value to cavity nesting and roosting animals. (Brannigan EA, XXX). The practices contributed to the current condition of having fewer snags than desired within the project area. Vegetation pattern and structure, which provides for ecological diversity, was reduced or removed with few-to-no old trees, and few-to-no old, dead trees.

Until the early-to-mid-1990's, pinyon-juniper woodland and Gambel oak were treated much differently than they are today. Today, these vegetation types are seen as important ecological components to the forests. In the past, a common practice designed to increase forage production involved "pushing" large tracts of pinyon and juniper trees over with bulldozers. In many projects, treatments included the cutting of all Gambel oak with dbh less than 5 inches or less than 8 inches depending on the project. One wildlife analysis on the Kaibab NF found this to be harmful to the large group of birds and mammals which benefit from food and cover provided by oaks (Brannigan EA, XXX). These past practices affected vegetation structure and composition in that indiscriminately removed old and young trees alike and reduced the vegetation diversity in the pinyon-juniper. Anderson Mesa on the Coconino NF (outside of, but adjacent to, the project area) is an example of even-aged (lack of structural diversity) pinyon-juniper vegetation that resulted from past treatments. These practices began to evolve by 1992and changes were underway with limits established forest-wide on snag harvesting and how Gambel oak was managed.

In summary, past timber sales within the project area such as the 49'er sale, El Paso (1991), and Moritz (1985), all implemented prior to the 1996 Forest Plan amendment, targeted the harvest of medium and large diameter trees. In some cases, all trees over 12 inches in diameter were removed. This created conditions for the current number of pre-settlement trees that currently exist across the landscape. At the landscape scale, they are rare within the project area. The focus on even-aged forest management continued until the mid-1990s, leaving the legacy of current forest conditions. Approximately 50 percent of the project area that received some type of regeneration or shelterwood harvest has regenerated. Many stands are even-aged, dense, and lack age class diversity. Today, at least 83 percent of goshawk non-PFA habitat vegetation structural stage 3(young-aged forest) and 4 (mid-aged forest) is even-aged. Approximately 74 percent of the project area is classified as having moderately closed to closed tree canopies (4FRI Proposed Action 2011).

Vegetation treatments conducted with the implementation of the 1996 Amendment of 11 Forest Plans significantly changed how treatments were designed in Mexican spotted owl and northern goshawk habitat, including providing for old growth across the landscape. After the 1996 amendment, vegetation objectives moved from even-aged to uneven-aged management. A review of the FACTS timber database indicates that treatments designed to promote uneven-aged management began being recorded in 1991 on the Kaibab and as early as 1987 on the Coconino. However, acres treated in this category were small in comparison to even-aged methods until about 2005. For example, in 1991, the Kaibab recorded 71 acres of uneven-aged management and 3,015 acres of even-aged treatment. In 1991, the Coconino recorded 72 acres of uneven-aged management and 22,793 acres of even-aged treatments. By 2005, the acres in the uneven-aged category on both forests were significantly higher on the Kaibab NF. In 2005, the Kaibab NF recorded 3,640 acres of uneven-aged treatment with 222 acres attributed to even-aged treatment. The FACTS database for the Coconino NF doesn't readily display a significant increase in un-even-aged practices. What the database does display is a decrease in the acres cut using even-aged management

practices. When compared to acres cut in 2005 (849 acres using even-aged treatment methods) to acres cut in 1991 (22,793 acres using even-aged treatment methods), there is a decrease of about 96 percent.

After 1996, the objective of most vegetation projects in the project area was to reduce the risk of high severity fire and/or improve forest health, stand and tree resilience and vigor, and improve understory diversity. Retention of snags and managing for course woody debris was further enhanced with the 1996 amendment and made part of project requirements. The amendment also changed treatments in Gambel oak and the species was recognized for its role in managing for ecological diversity and high quality wildlife habitat. From 1996 to 2000 (table X), at least 7 projects (Spring Valley WUI, Upper Basin, Marteen, Ten X and Red Horse Mudderbach, Elk Lee, Beacon, and Parks) totaling 30,000 acres on the Kaibab NF, were treated with objectives including reduced fire risk, savanna and meadow restoration, oak improvement, improved age class structure and diversity and maintain industry. On the Coconino, at least 68,800 acres were planned for treatment for similar purposes (Fire Data, Vic, 2011) (FY 96 to FY99). Large projects on the Coconino that addressed fire risk included Mint Spring (7,778 acres of thin and 12,000 acres of prescribed burning, 1998), and the A-1 project (14,500 acres with thinning and broadcast prescribed burning, 2000).

With the exception of those projects that removed large, old trees and promoted even-aged management, most vegetation projects that contributed to the current condition within the project area are from about 2000 to 2010 (or 2011 if data was available). Since 2000, most vegetation project objectives have included reducing fire risk to communities, improving wildlife habitat in sagebrush (Tusayan district, Kaibab NF) and grasslands, improving winter range wildlife habitat, and improving forest health and diversity (moving towards a balance of age classes, reducing mistletoe infection, promoting growth in old, large ponderosa pine, promoting aspen, and restoring ponderosa pine savanna conditions).

On the Coconino NF, projects designed primarily to address fire risk in the project area include Rocky Park Fuels Reduction (13,651 acres, 2001), Kachina Village (11,029 acres, 2003), Mormon Lake Fuels Reduction (2,388 acres, 2005). Similar projects on the Kaibab NF include Williams High Risk Pre-Commercial Thin (756 acres 2001), Dogtown Fuels Reduction (8,209 acres, 2004), and Pineaire Fuels Reduction (650 acres, 2004).

Since 2000, at least 6,149 acres have been mechanically treated and prescribed burned on the Kaibab NF to improve wildlife habitat and 2,485 acres treated to improve/restore grasslands. Wildlife habitat improvement projects included Potato Hill Habitat Improvement Project (1,275 acres, 2003), Upper Basin Project (1,884 acres, 2000), and Moqui Antelope Habitat Improvement Project (2,990 acres, 2006). Grassland restoration projects include Garland Prairie (500 acres, 2005), Ida Grassland Restoration (1,800 acres, 2008), and Community Tank Grassland Restoration (185 acres, 2011). On the Coconino NF, almost 7,000 acres have been treated to directly improve wildlife habitat (habitat improvement was the treatment objective). Some of the larger projects (within the project area) on the Coconino NF designed to restore grasslands, woodlands, and wildlife habitats include Hart Prairie Fuels Reduction (9,815 acres, 2010), Elk Park Fuels Reduction (11,100 acres, 2007), and the Slate Mountain pronghorn project (2,250 acres, 2010). Projects adjacent to, but outside of, the project area include the Anderson Mesa project.

Since 2000, over 13,829 acres of treatment on the Kaibab NF have focused on forest health and diversity objectives. Projects include Frenchy (9,319 acres of thinning that include savanna and meadow restoration and prescribed burning, 2003) On the Coconino, projects that addressed fire risk but also included restoration objectives such as meadow, riparian, and grassland restoration include Fort Valley (1,700 acres, 2000), Apache Maid Grass (54,528 acres, 2004) and Woody Ridge (8,599 acres, 2004).

However, even some of the most recent thinning projects (2000 to present) have focused thousands of acres of treatment on the removal of the smallest trees. Some of these treatments were limited in order to

comply with the forest plans when treating in Mexican spotted owl protected and restricted habitats. This has produced results similar to treatments conducted in the 1980's – rapid regeneration and high tree density. Projects that focused on removing only the smallest trees (usually up to 9 inch dbh) were primarily focused on reducing fire risk adjacent to public areas such as residential areas and campgrounds. Available data was reviewed and assumptions were made on some projects where data was incomplete.

From 2000 to 2010, the Kaibab NF treated at least 6,514 acres of vegetation up to 9 inch dbh. Projects include Williams High Risk (756 acres, 2001), Pineaire Fuels Reduction Project (650 acres, 2004), City Project (2,366 acres, 2005), Ten X Pre-Commercial Thinning Project (1,780 acres, 2004), Topeka Fuels Reduction (1,100 acres, 2004), and Scott (421 acres, 2001). On the Coconino NF, project include Rocky Park Fuels Reduction (5,561 acres thinned up to 12" dbh, 2001), Eastside Fuels Reduction (3,404 acres thinned up to 12" dbh, 2006), and East Clear Creek Watershed Health Project (1,645 acres thinned up to 9" dbh, 2006). Overall, about 3 percent of the project area (596,000 acres proposed for treatment) has been treated in a manner that has resulted in a high regeneration of small trees that have increased in size over time.

On both forests, many vegetation projects have included treatments designed to close or decommission roads and restore springs. This information does not include those roads that have been opened on a temporary basis to facilitate treatment and closed once treatment was completed. Since 2000, approximately117 miles on the Kaibab NF and 44 miles on the Coconino NF have been closed and/or obliterated.

Table X. Summary of Past Vegetation and Prescribed Fire project acres (1996 to 2010)

Row No.	Years	Treatment Type	Acres Treated by Forest	
			Coconino	Kaibab
1	1996-2000	Mechanical Thinning	15,607	21,819
		Prescribed Fire /Pile Burning	21,240	23,491
2	1996-2010*	Thinning up to 9" dbh	5,802	12,515
3	1996-2010*	Thinning for grassland restoration and/or maintenance	3,052	8,059
4	1996-2010*	Thinning for savanna/meadow restoration and/or maintenance	200	3,717
5	1996-2010*	Thinning for dwarf mistletoe reduction (sanitation)	0	2,036
6	1996-2010*	Thinning and prescribed burning (specifically designed)for wildlife habitat improvement**	6,891	6,149
7	2001-2010	Mechanical Thinning	96,317	44,297
		Prescribed Fire/Pile Burning	71,201	48,550

*Projects from 1996 to 2010 were consolidated into one category given the low number of projects on the Kaibab NF and the lack of project-specific information on the Coconino NF. Rows 2 to 5 include 1996 to 2000 treatment acres identified in row 1.

**The acreage totals do not include other vegetation treatments that benefit wildlife habitat (such as grassland or meadow restoration). The objective of the treatment had to state it was for wildlife habitat improvement for it to be included in this category.

Table X. Summary of Past Vegetation and Prescribed Fire project acres (2000 to 2010)

Project Name	Year (NEPA decision)	Treatment Type	Acres* Thin/Burn	Forest/District	
				Coconino	Kaibab
Williams High Risk	2001	thin and pile burn	756/756		Williams
Potato Hill	2003	thin, lop and scatter	1,275/0		Williams
Frenchy	2003	thin and prescribe burn	9,319/9,319		Williams
Dogtown	2004	thin and prescribe burn	6,509/6,509		Williams
Clover High	2004	thin and pile burn	385/385		Williams
Pineaire	2004	thin and prescribe, pile burn	650/650		Williams
Williams Follow-Up Mistletoe	2004	thin and pile burn	368/368		Williams
Government Mountain/Coleman	2005	thin	75		Williams
Garland Prairie	2005	thin and lop, pile burn	500/47		Williams
City	2005	Thin and pile burn/prescribe burn	8,667/12,400		Williams
Kendrick	2005	thin and prescribe burn			Williams
Flag Tank	2007	thin and prescribe burn	22/36		Williams
IDA Grassland	2008	thin and pile burn	1,800/1,800		Williams
Bill Williams Cap	2009	thin and prescribe burn	10/10		Williams
Community Tank	2011	thin and prescribe burn	185/185		Williams
Upper Basin	2000	prescribe burn	1,884		Tusayan
Tusayan West	2001**	thin and prescribe burn	549/850		Tusayan
TusayanSouth/Boggy Tank	2000-2002	thin and prescribe burn	2,948/2,948		Tusayan
Ten X	2004	thin and	1,780/700		Tusayan

Project Name	Year (NEPA decision)	Treatment Type	Acres* Thin/Burn	Forest/District	
				Coconino	Kaibab
		prescribe burn			
Topeka	2004	thin and prescribe burn	1,100/1,100		Tusayan
Moqui Antelope	2006	thin	2,990/2,990		Tusayan
Scott	2001	thin, pile, and prescribe burn	721/9,434		Tusayan
X Fire	2009	thin	140		Tusayan
O'Connell	< 2009	thin	500		Tusayan
Arboretum WUI	2000	thin and prescribe burn	602/602	Flagstaff	
Fort Valley	2000	thin	1,700	Mogollon Rim/Flagstaff	
A-1 East, West	2000	thin, pile, and prescribe burn	5,517/8,638	Flagstaff	
Rocky Park	2001	thin and prescribe burn	5,651/8,000	Flagstaff	
Lake Mary	2005	thin and prescribe burn	1,845/3,245	Flagstaff	
APS Hazard Tree	2003	prescribe burn	315	Flagstaff	
APS Powerline	2007	Thin	167	Flagstaff	
Blue Ridge 69kV	2005	Thin and prescribe burn	50/1,300	Mogollon Rim	
Doney Park 69kV	2007	Thin	9	Flagstaff	
Kachina Village	2003	thin and prescribe burn	3,801/2,147	Flagstaff	
Apache Maid Grass	2004	thin	54,528/0	Mogollon Rim	
Woody Ridge	2004	thin and prescribe burn	7,987/11,184	Flagstaff	
Mormon Lake	2005	thin and prescribe burn	2,388/2,388	Flagstaff	
Skunk Canyon	2005	prescribe burn	831	Flagstaff	
Elden	2006	thin	193	Flagstaff	
Eastside	2006	thin and prescribe burn	7,819/20,197	Flagstaff	

Project Name	Year (NEPA decision)	Treatment Type	Acres* Thin/Burn	Forest/District	
				Coconino	Kaibab
East Clear Creek	2006	thin and prescribe burn	83/14,500	Mogollon Rim	
Elk Park	2007	thin and prescribe burn	1,800/3,500	Flagstaff	
Little Draw Aspen	2009	thin	107	Flagstaff	
Munds Park	2009	thin and prescribe burn	990/2,950	Flagstaff	
Slate Mountain	2010	thin	2,250	Flagstaff	
Schultz Fire BAER	2010	thin (snag removal)	150 snags removed	Flagstaff	
Total					

*Some projects are still in the implementation phase. Acres included here only include acres that have been implemented. See table X, current and ongoing projects for those projects that are not complete.
** The decision for Tusayan West was 1998 and implementation was 2001.

Fire

Most of the vegetation types on the Kaibab and Coconino NF are adapted to the frequent, low intensity fire that occurred periodically prior to Euro-American settlement. In fire adapted vegetation types, ecosystem function is dependent on this regular disturbance. However, ceasing all fires was common practice, dating back to the late 1800's and mid 1900's. Early foresters were convinced that any wildfires were detrimental to the forest (Pyne 1982). During this time, extensive livestock grazing consumed the abundant grasses with Forest Reserve management plans often urging heavy grazing to eliminate the herbaceous fuels that allowed surface fires to sweep across the land (Drake 1910). In additon to this, early settlers also suppressed fire to protect their livelihood and homes. Organized fire suppression efforts by the Forest Service date back to the first decade of the twentieth century, largely in response to unacceptable fire effects due to heavy slash loads left by railroad logging, In 1935 the Forest Service further instituted a policy that all fires were to be extinguished by 10 A.M. of the day following their detection (Pyne 1982). Throughout most of the twentieth century, foresters continued to extinguish all fires regardless of ignition cause, intensity, or degree of danger to human safety or property. Widespread fire suppression efforts continue and a high percentage of federal resources are focused on suppression (Covington 2003).

As noted in the vegetation management section, without fire, understory seedlings in pine and mixed conifer forests had unprecedented survival rates. White fir, Douglas-fir, and even Engelmann spruce seedlings became established under ponderosa pine stands. Juniper and pinyon seedlings invaded former grassland savannahs. The increase in tree density and resulting buildup of woody fuels led to unnaturally large and severe wildfires, insect outbreaks, and reduced biodiversity (Friederici 2004).

Data on past wildfires that occurred within or around the project area dates back to the 1950's. Wildfire occurred on about 81, 569 acres on the Coconino NF from 1951 to 2000 (Covington 2003). Table X displays individual fire names and acres. During that same time, X acres of wildfire occurred on the Kaibab NF. Is there any residual impact to structure, composition, and pattern from these fires?

In the recent past, 2000 to 2010, at least 40,925 acres were affected by wildfire on the Kaibab NF. Of this total, there were 3 fires ranging in size from 5,550 to 8,759 acres (Trick, Wildhorse, and Pumpkin). On the Coconino, over 28,924 acres of wildfire occurred from 2000 to 2010 with the largest fire being the Shultz Fire, which burned over 15,000 acres within and adjacent to the project area.

On the Kaibab NF, data (Kaibab NF activities database) indicates that the Williams and Tusayan districts allowed approximately thirty-nine wildfires totaling 61,389 acres to burn for a period of time. Fires in this category are typically low-severity fires not subject to having extensive acres of tree mortality. Data from the Coconino NF from 2001 to 2008 (Lata, Fire-Final Numbers CNF-KNF unpublished data, 2011) did not calculate acre numbers for this category. Any acres burned are reflected in wildfire acres.

Overall, wildfire has influenced X percent of the project area. Of this percent, about X percent resulted in mixed to severe effects to resources. These fires affected structure, pattern, composition, and function by creating an even-aged plantation-type tree structure with grass and brush that are no longer contributing to a forested structure. The remaining X percent of fires were low to mixed severity fires that provided beneficial impacts? These events affected structure, pattern, composition, and function by returning fire, a natural process, to the ponderosa pine system. Table X displays those projects were data from project records were located.

As noted above, thousands of acres in and adjacent to the project area have (or are currently) been treated to reduce hazardous fuels. Vegetation was thinned and residual slash reduced/removed through various methods including machine pile and burn, hand pile and burn, chipping, lop and scatter, mastication and mowing. See above for project examples. Since 2000 to 2010, at least 56,146 acres of Williams and Tusayan district have been treated to reduce hazardous fuels. On the Coconino NF, at least XXX acres have been treated within the project area to address hazardous fuels.

Table X. Summary of wildfire acres by time period within the project area

Time Period	Fire Names (as available)	Acres Affected by Forest	
		Coconino	Kaibab
1940-1960	Fort Valley, A-1, Hostetter, Belle, Kelly, Kendrick	10,139*	No data available
1961-1970	Whitehorse, Hostetter	1,090*	No data available
1971-1980	Kelly, Burnt, Wild Bill, Radio, Wallace, Kendrick, Curley	25,497*	No data available
1981-1990	Dude Fire (Tonto NF)	24,000 (Adjacent to the Coconino on the Tonto NF)	No data available
1991-2000	Coconino: (Bear Jaw, Trick, Hockderffer, Slate, Horsehoe, Side, Pipe, Power, Pumpkin) Kaibab: Pumpkin	44,843*	See below
2001-2010	Leroux, Hardy, Eagle Rock,	19,713	

Time Period	Fire Names (as available)	Acres Affected by Forest	
		Coconino	Kaibab
	Schultz		
2000 to 2010	Buck, Government, Griffen, Owl, Pronghorn, Rain, Ranger, Rosilda, Spitz, Welch, Winter, Woodbridge, Wash, Government Prairie, Indian, Twin, Juniper, Scott, X, Ruby, Rae, Miller, Anderson, Hobble, Pumpkin, Trick, Wildhorse		40,925

*Fires greater than 200 acres in size

Table X. Summary of wildfire acres managed for resource benefits

Time Period	Fire Names (if available)	Acres Affected by Forest	
		Coconino	Kaibab
2000-2010	To DO	N/A	61,389

Table X. Acres of wildfire by severity rating and forest within the project area

Years	Type	Acres Affected by Forest	
		Coconino	Kaibab
1996-2010	High Severity Wildfire		
1996-2010	Low-to-Mixed Severity Wildfire*		
Total			

*This category includes fires classified as wildfire managed for resource benefits.

Other Natural Processes - Insect and Disease

The Coconino NF experienced significant bark beetle outbreaks in the mid-1920s, late 1930s, mid-1960s, late 1970s through early 1980s, and late 1990s through the mid-2000s. The 1950s and 2000s outbreaks appear to be more extensive than other outbreaks, damaging at least 200,000 and 72,000 ac, respectively. Ponderosa pine needleminer defoliated over 9,000 ac of ponderosa pine on the Coconino N.F. in 1999, (USDA Forest Service 2000).

On the southern Kaibab NF., western pine beetle activity was reported in late 1970's and early 1980's. The contemporary (2000s) bark beetle outbreak is probably more severe than past outbreaks. Ponderosa pine mortality approached 100% in some stands (Gitlin et al. 2006), but averaged only 3.4 percent in a limited number of plots distributed across Williams Ranger District (R.D.) and Tusayan R.D. (Negrón et al. 2009).

Southwestern dwarf mistletoe is dispersed throughout the project area where 2 to 31 percent of the commercial ponderosa pine type was infected in the 1980s on the northern half of the Coconino NF and 25 to 38 percent of the commercial ponderosa pine type was infected on the Williams R.D (Hessburg and Beatty 1985). Annual aerial surveys on the Coconino and Kaibab in the summer of 2010 detected ponderosa pine mortality associated with bark beetles on approximately 6,500 acres within the project area. This mortality is most likely associated with the Ips beetle (2010 R3 I&D Conditions Report). This survey indicates a 10 fold increase in beetle mortality from the 2008 and 2009 surveys although bark beetle activity in ponderosa pine is currently considered to be at endemic levels. Preliminary results of the 2011 survey indicate a minor reduction in ponderosa pine mortality from 2010. In pinon-juniper woodlands, both localized and widespread mortality events have occurred over time in the piñon-juniper woodlands on the Coconino and south Kaibab national forests. These events have typically been pinyon ips outbreaks associated with periods of drought, such as occurred in the 1950s, and more recently in the mid-1990s and 2001-2003.

Juniper mortality from wood borers and Phloeosinus beetles has occurred in areas of poor site within the project area during the recent drought (Mueller et al. 2005; USDA Forest Service 2002, 2003). Juniper mortality averaged 3.3 percent within an 80 km radius of Flagstaff, with greater mortality on grassland vs. non-grassland sites (Gitlin et al. 2006).

In aspen, mortality has been attributed to the severity of the 1999 frost damage, severe drought conditions, and western tent caterpillar defoliation in 2004 and 2005. Although dying trees sprouted, survival has been very low due to browsing by elk. Mortality has been greatest in the low-elevation range. During the past 5 years, more than 50 percent of surveyed aspen sites below 7,500 feet elevation experienced 97 percent mortality (Fairweather et al, 2008).

In summary (table X), as agents of change, forest insects and diseases have a significant role in forest ecosystem dynamics. Forest insect and disease-driven change alters forest ecological processes, forest structure and composition. At one time or another, all of the vegetation types within the project area have incurred extensive damage by one or more agents. The transitory agents causing the most extensive and severe damage have been piñon ips in pinyon pine, Ips bark beetle species in ponderosa pine, and multiple biotic and abiotic agents in aspen. Each of the vegetation types shows distinct periods of increased insect damage that can be associated with droughts. The most extensive and damaging persistent agent is southwestern dwarf mistletoe in ponderosa pine. More detailed information can be found in Lynch et al. 2008a and 2008b).

Table X. Acres affected by insect and disease outbreaks by forest (within project area)

Time Period	Insect/Disease Type	Acres (ac.) or Percent (%) of Forest Affected	
		Coconino	Kaibab

Time Period	Insect/Disease Type	Acres (ac.) or Percent (%) of Forest Affected	
		Coconino	**Kaibab**
1950's	Bark beetle (ponderosa pine) damage	200,000 ac.	N/A
1950's	Wood borers and Phloeosinus beetle (juniper woodland) mortality	Un-quantified – described as extensive	
1970's to 1980's	Western bark beetle (ponderosa pine)	N/A	Un-quantified
1980's	Southwestern dwarf mistletoe (ponderosa pine) infection	19,773 to 306,489 (2% to 31%)	247,169 to 375,696 acres (25% to 38%)
1999	Needleminer (ponderosa pine)	9,000 ac.	N/A
2000's	Bark beetle (ponderosa pine) damage	72,000 ac.	N/A
2000's	Bark beetle (ponderosa pine) mortality	100% mortality in select stands	29,660 acres (3%)
2002-2005	Wood borers and Phloeosinus beetle (juniper woodland) mortality	3% mortality within 50 mile radius around Flagstaff*	Extensive
2005-2008	1999 Frost and 2004-2005western tent caterpillar defoliation (aspen) mortality	97% mortality in >50 percent of surveyed aspen sites below 7,500 feet (Fairweather et al, 2008).	
2010	Bark Beetle (ponderosa pine) mortality	6,500 ac.	

*Accurate acreage number not feasible with the amount of non-FS lands included in the 50 mile radius.

Private Property, State, and Other Agency Activities

On the Kaibab NF, from 2001 to 2004, the Rural Communities Fuels Management Partnership thinned over 200 acres of trees on private property in the Parks, Sherwood Forest Estates, Williams, and Sherwood Forest Estates communities to reduce the risk of wildland fire and improve forest (KNF news release, August 2004).

The Camp Navajo Army Depot borders both the Kaibab and Coconino NF and is within the project area. Camp Navajo implemented thinning on 350 acres in 2011to address post-tornado recovery. Additionally treating 349 acres is foreseeable in 2012 (Camp Navajo 2012 data).

Approximately 78,184 acres of fuels reduction treatments were conducted on state and/or private lands from 2000 to 2010 through the Greater Flagstaff Forest Partnership and Arizona State Forestry Division cost-share program (GFFP 2010 Report). Projects are conducted within the 180,000-acre GFFP boundary that is within the project area. Examples of projects include NAU (1,893 acres), Sunset Crater (316 acres), Arizona Department of Game and Fish (54,988 acres), and Flagstaff Fire Department (9,203 acres). Treatments were designed for the wildland urban interface (WUI). Current projects include vegetation thinning and prescribed fire on approximately 100 acres of private property made up of 20 parcels within the GFFP boundary in 2012.

Foreseeable fuels reduction treatment include treating (thinning/prescribed burning) 245 acres (5 private land parcels) in 2013, 190 acres (4 to 10 parcels) in 2014, and 100 acres of prescribed burning through 2014 (personal communication with P. Summerfelt, FMO, FFD, February 24, 2012).

Table X. Past Treatments on private, state, and other federally-managed lands

Years	Agency/Organization	Acres Treated
2000-2004	Rural Communities Fuels Management Partnership	200
2000-2010	Greater Flagstaff Forest Partnership (GFFP)	78,184
2011	Camp Navajo Army Depot	350

Summary of current and ongoing projects

The ongoing and current projects category focuses on those projects that have the potential to affect vegetation (structure, pattern, and composition), natural processes (such as fire), and movement towards increased forest resiliency and function. Specialists will evaluate whether additional projects (not included in this list) are relative to their cumulative effects analysis. This category includes vegetation and prescribed burning projects that still have acres remaining for implementation. The Forests have been annually implementing a portion of the total acres specified in the NEPA decision. It is typical for vegetation and prescribed burning projects to be implemented over a course of 1 to 10 years, depending on size and complexity. Only those acres that remain to be implemented are reflected in this category. Projects that included periodic (maintenance) prescribed burns are included in this category. The assumption for other projects such as powerline maintenance conducted by partners and special use permit holders is that the vegetation within the entire right-of-way could be maintained annually.

Table X. Current and Ongoing Vegetation and Prescribed Fire Projects

Project Name	Treatment Type	Acres	Forest/District		Project Objective
			Coconino	Kaibab	
Pomeroy	thinning and prescribed fire	1,740	-	Williams	
KA	thinning and prescribed fire	1,050	-	Williams	
Russell	thinning and prescribed fire	5,000	-	Tusayan	
Community Tank	thinning and prescribed fire	865	-	Williams	
Bill Williams Cap	thinning and prescribed fire	10	-	Williams	
Ten X	prescribed fire	700	-	Tusayan	
Airport	prescribed fire	602	-	Tusayan	
South Williams	prescribed fire	290	-	Williams	
Long Jim	prescribed fire	1,300		Tusayan	
Dogtown	thinning and prescribed fire	1,700		Williams	
Twin	prescribed fire	1,400		Williams	
Frenchy	prescribed fire	6,529		Williams	
Tusayan South/Boggy Tank	prescribed fire	2,948		Tusayan	
Tusayan East	prescribed fire	2,600		Tusayan	
Arboretum	prescribed fire	602	Flagstaff		
Woody Ridge	prescribed fire	11,184	Flagstaff		
Post-Tornado	thinning (tree removal)	18,756	Flagstaff and Mogollon Rim		
Hart Prairie	thinning and prescribed fire	9,815	Flagstaff		
Munds Park	prescribed fire	2,950	Flagstaff		
A-1 East and	prescribed fire	8,274.	Flagstaff		

Project Name	Treatment Type	Acres	Forest/District		Project Objective
			Coconino	Kaibab	
West					
East Clear Creek	thinning and prescribed fire	6,262	Flagstaff (1,562 ac.thin, 4,700 ac. burn)		
Mormon Lake	prescribed fire	2,388	Flagstaff		
Skunk Canyon	prescribed fire	831	Flagstaff		
Eastside	prescribed burn	20,197	Flagstaff		
Flagstaff APS Line	Thinning and prescribed fire	Need this	Flagstaff		
APS East Line	thinning and prescribed fire	Need this	Flagstaff		
APS Flagstaff to Happy Jack powerline	thinning and prescribed fire	167	Flagstaff and Mogollon Rim		
Blue Ridge 69kV poweline	prescribed fire	1,300	Mogollon Rim		
Doney Park 69kV poweline	thinning and prescribed fire	8.48	Flagstaff		
APS Sandvig Young 69kV powerline	thinning and prescribed fire	78 (10.7 miles)	Flagstaff		
Bobs (part of Woody Vegetation project)	thinning and prescribed fire	2,000	Flagstaff		
Clark's (part of Elk Park project)	thinning and prescribed fire	1,600	Flagstaff		
Elk Park Fuels	thinning and prescribed fire	2,900.	Flagstaff		
Jack Smith-Schultz	thinning and	2,000	Flagstaff		

Project Name	Treatment Type	Acres	Forest/District		Project Objective
			Coconino	Kaibab	
	prescribed fire				
Weatherford (part of Jack Smith Schultz and Eastside)	thinning and prescribed fire	1,000	Flagstaff		
Railroad	thinning and prescribed fire	250	Flagstaff		
Total: 55,202 acres vegetation thinning **Total: XXXXXXxxxx acres prescribed fire**					
Other Projects					
Treatment of Noxious Weeds-3 Forests	direction incorporated into forest plans	Encompasses project area	forest-wide	forest-wide	
Fuelwood collection	forest-wide policy	Encompasses project area	forest-wide	Williams and Tusayan	
Tusayan Travel Management	forest-wide policy	Encompasses project area	-	Tusayan	
Williams Travel Management	forest-wide policy	Encompasses project area	-	Williams	
Coconino NF Travel Management	forest-wide policy	Encompasses project area	forest-wide	-	
Grazing	Continuation of authorized livestock grazing	790,985 ac./ 80 %of project area	47 active allotments within project area, see table X for list of allotments within project area		
Wildlife waters	Maintenance	24 water developments		Tusayan	
Little Draw	Aspen exclosure	107 ac.	Flagstaff		

Project Name	Treatment Type	Acres	Forest/District		Project Objective
			Coconino	Kaibab	
	maintenance				

Summary of Reasonably Foreseeable Projects

Reasonably foreseeable projects for this analysis are defined as those Forest Service projects that have been listed in the forest's Schedule of Proposed Actions (SOPA), have a recent NEPA decision and are poised for implementation; or, are non-Forest Service projects with information provided by other agencies and organizations as being foreseeable. The reasonably foreseeable category mostly focuses on those projects that have the potential to affect vegetation (structure, pattern, and composition) natural processes, such as fire, and movement towards increased resiliency and function. Some project, such as the rock pits analysis, would not affect vegetation structure, composition. This project has been included as it may affect how road proposals (and their associated costs) are analyzed and implemented. Specialists will also evaluate whether additional projects (not included in this list) will be included in their cumulative effects analysis. Approximately 108,059 acres of vegetation treatments/thinning and 148, 014 acres of prescribed fire and maintenance burning would be implemented by the forests in the foreseeable future (within five years). Approximately 18,552 acres of vegetation treatments/thinning and 19,082 acres of prescribed fire and maintenance burning is expected to be implemented on state, private, and other federally managed lands within the foreseeable future (within 5 years).

Table X. Reasonably Foreseeable projects within the project area

Project Name	Treatment Type	Metric	Forest/District		Project objective summary and status
			Coconino	Kaibab	
Forest Service Projects					
Aspen Restoration Project	thinning and prescribed fire	402 ac.(thin) 402 ac. (prescribed fire)	-	Williams	promote aspen by removing conifer encroachment, using prescribed fire, and protecting with fencing Status: analysis underway, decision likely in 2012
McCracken	thinning and	15,262 ac.	-	Williams	move towards uneven-aged

Project Name	Treatment Type	Metric	Forest/District		Project objective summary and status
			Coconino	Kaibab	
Project	prescribed fire	(thin), 17,337 ac. (prescribed fire)			forest structure, reduce mistletoe, restore meadows, savanna, and woodlands Status: decision likely in 2012
Ten X Fire Planting	post-fire planting and fencing	12 ac.		Tusayan	restore vegetation within 815-acre high severity burn Status: analysis underway
Bill Williams Mountain Restoration	Thinning, (11,650 ac.) prescribed fire (15,200 ac.),road obliteration (28 miles)	11,650 ac.(thin), 15,200 ac. (prescribed fire)	-	Williams	reintroduce fire, reduce stand densities and fire potential, move towards balanced age classes, improve understory composition and (productivity Status: analysis underway, decision likely in 2012
Rock Pit Development	39 pits - existing pit expansion and new pit development	229 ac. (new disturbance)	forest-wide	forest-wide	create source of road materials that can be used across both forests for road maintenance and management purposes Status: analysis underway, decision likely in 2012
Marshall Fuels Reduction	thinning and prescribed fire	10,800 ac. (thin), 6,260 ac.	Flagstaff	-	ponderosa pine, grassland, meadow, and water fowl habitat restoration, reduction of fire risk (note: includes

Project Name	Treatment Type	Metric	Forest/District		Project objective summary and status
			Coconino	Kaibab	
		(prescribe burn)			900 acres of thinning up to 9" dbh in MSO habitat) Status: decision made, implementation in 2012
Turkey/Barney Pasture Forest Health Restoration	thinning and prescribed fire	XXX-acre project boundary	Flagstaff	-	reduce dwarf mistletoe, tornado salvage, improve MSO habitat Status: analysis underway, decision likely in 2012
Mahan-Landmark Forest Restoration	thinning and prescribed fire	33,747 (thin) 33,747 (prescribed burn)	Mogollon Rim		movement towards pre-settlement conditions, reduce crown fire potential, move towards desired FRCC Status: analysis underway, decision likely in 2012
Upper Beaver Watershed Fuels Reduction	thinning and prescribed fire	15,807 ac. (thin) 31,162 acres (prescribed fire) 43,906 acres maintenance burning			Reduce fire risk to people and resources within and outside of WUI Status: 2,000 acres scheduled for 2013 implementation, decision enjoined
Western Area Power Administration	thinning	4,584 ac.	Flagstaff (check GIS)		remove trees that may impinge on power line

Project Name	Treatment Type	Metric	Forest/District		Project objective summary and status
			Coconino	Kaibab	
(WAPA)					(acres treated includes 1,770 acres ponderosa pine, 8 acres of aspen, 10 acres of cottonwood/willow riparian, 25 acres of wetland cienega, 35 acres montane/subalpine grass, 175 acres semi-desert grass, 810 acres pinyon-juniper evergreen shrub, 1,280 acres p/j woodland) Status: Analysis underway, decision likely in 2012
Wing Mountain	Thin and prescribe burn	10,190 ac. (thin) 10,767 ac. (prescribe burn)	Flagstaff		Restoration in ponderosa pine, mountain grassland, pine savanna, aspen and spring r(Maxwell and Big Leroux), 8 miles of road decommission
Fort Valley	Thin and prescribe burn	953 ac. (thin) 706 ac. (prescribe burn)	Mogollon Rim		Restore natural fire regime and forest structure Status: Analysis underway, decision likely in 2012
Total: 119,202 acres (vegetation treatments/thinning) **Total: 159,487 acres (prescribed fire and maintenance burning)**					
Other agency and private lands					
Department of Defense Camp Navajo Westside Thinning and	thinning and prescribed fire	968 ac. (thinning) 968 ac.	Flagstaff district (Coconino) and Williams district (Kaibab)		Improve forest health, reduce fire risk Status: 2013 implementation

Project Name	Treatment Type	Metric	Forest/District		Project objective summary and status
			Coconino	Kaibab	
Prescribed Fire Project		prescribed fire) 530 ac. (burn-only)			
Department of Defense AZARNG Thin and Burn	thinning and prescribed fire	17,049 ac. (thin) 17,049 ac. (prescribed fire)			ponderosa pine, pine-oak, and grasslands restoration to mitigate fire risk, provide diversity in forest conditions, improve ecosystem health, reduce tree density in 5”dbh to 18” dbh
Greater Flagstaff Forest Partnership (GFFP)	thinning and prescribed fire	535 ac. (thin) 535 ac. (prescribe burn)	Flagstaff		Reduce fire risk on private property Status: Implement in 2013 and 2014
Total: 18,552 acres (vegetation treatments/thinning) **Total:** 19,082 acres (prescribed fire and maintenance burning					
Foreseeable Projects Outside the Project Area					
Upper Basin Thinning	Thinning	3,000 ac.		Tusayan	Woodland, grassland, and savanna restoration

Table 15. Kaibab NF Past, Present, and Reasonably Foreseeable Actions and Events Considered for Cumulative Effects by RU

Restoration Unit (RU)	Forest (K) (C)	Project	Year	Planned Treatments by Type and Size (acres)	Project Objective
PAST					
Past Vegetation and Fuels Reduction Projects that occurred after the issuance of the 1996 11 Forest Plan Amendment FEIS/ROD for northern goshawk, Mexican spotted owl and old growth)					
Kaibab - Williams Ranger District					
	K-Williams	Parks Thin	1996	9 stands – 276 acres total: irregular thin, remove all misteltoe trees, residual basal area range 0 to 90-100 BA 250 board feet – est. volume Slash – lopped and scattered	Objective: create regeneration areas, increase horizontal diversity, increase growth rates and crown development of small diameter trees, reduce misteltoe – Decision includes compliance with 1996 Plan Amendment and notes that large trees were removed during the Parks Timber Sale that had a 1988 DN/FONSI See cumulatiive effects for wildlife for Brannigan (cum effects introduction) as Parks treatments affected sensitive and MIS habitat Categorized as past due to decision date
	K-Williams	Elk-Lee	1997 (decision)	Total acres: 4,369 acres of vegetation treatments, 8,152 acres of broadcast burn implemented 2004 to	No map in DN/FONSI – legal is T20NR3E, Secs. 8-

				2009 405 acres of regeneration treatments 1,378 ac. Group selection 1,281 acres – irregular thinnig 240 ac. Sanitation thinning 748 acres meadow restoration 21 acres of shelterwood 14 acres of oak release 129 acres of oak thinning 153 acres of precommercial thinning and large tree release 2,193 acres of post harvest precommercial thinning and sanitation cuts 8,152 acres of broadcast burning 138 acres of pine regeneration 22 miles of road closed/obliterated at entrance 6 tanks constructed Water catchement rebuilt Culvert installtion into Perkins tank, parking site built at Elk tank	10, 15-17, 21-23, 25-28, 33-36 and T19N R3DE Sec. 2-4 Objective: improve ecosystem condition: develop big game cover around grasslands, reduce tree density – improve forest health, provide wood fiber to meet demand, implement goshawk guidelines Categorized as past due to date and scope of decision
	K-Williams	Beacon Vegetative Management Project	1997 (decision)	Total acres: 3,656 acres mechanical,1,996 acres of broadcast burn implemented 2000 to 2006 2,258 acres:commercial thin 1,398 acres Irregular thinning 2 – 1 to 2 acre wetland exclosures 138 acres of fuelwood gathering areas 4 miles of road construction 12.5 miles of reconstruction 1,996 acres of slash treatments including lopping, crushing, piling 1,966 acres of broadcast burning	No map –legal is T21N, R3E, Sec.1, T21N, R4E, Sec.6, T22N, R2E, Sec. 25-26, 35-36, T22N, R3E, Sec. 21, 22, 25, 26, 28-36, T22N, R4E, Sec. 29-33 Categorized as past – implemented in 2000 to 2006 and does not mention maintenance burns
	K-Williams	Marteen Fuels Reduction Project	1998 (decision)	Total acres: 3,858 within Marteen Assessment Area Prescribe burn 3,858 acres	Objective: Reduce risk of wildfire, improve forage production, plant vigor, habitat diversity
	K-Williams	Spring Valley Urban/Wildlland Interface Fuels Reduction Project	1999 decision/ 2002 supp.	Total acres: 8,300 Commercial harvest – 4,500 acres up to 13,700 CF from pulpwood up to 8.9” dbh and 7,900 MBF	Objective: Reduce fire to a moderate rating within all urban interface intensive management

				sawtimber from 9" dbh and larger: Up to 710 acres of precommercial thin Up to 3,630 acres of commercial irregular thin 5" to 16" dbh with 50 to 70 trees/acre 330 acres of sanitation treatment 310 acres of openings on 31 sites ½ to 2 acre size 135 acres of grassland/savannah restoration 105 acres of aspen release 8,125 acres of prescribed fire and slash treatment 30.5 miles of road closure and obliterate entrance No yellow pine would be cut	areas (within 1/8 mile of private land), enhance aspen, restore grasslands Supplemental EA and DN FONSI issued to reduce threshold for mortality in old ponderosa pine to 5% by changing fire design features Categorized as past due to decision date and no mention of maintenance burns
	K-Williams	Williams High Risk Pre Commerical Thin	2001 (decision)	Activities database shows 756 acres thinned, machine piled and burned in 2002 to 2003	No project records could be located
	K-Williams	Potato Hill Habitat Improvement	2003 (decision)	Total acres: 1,275 Mechanically remove juniper and pinyon on 1,275 acres that range up to 6" drc or 12" dbh Slash offered as firewood with only lop and scatter occuring for 300 feet along FR 144	Objective: improve wildlife habitat Categorized as past due to decision date and scope of project
	K-Williams	Frenchy	2003 (decision)	Total Mechanical: 9,319 - Total Fire: 9,319 acres 6,529 acres implemented to date Total commercial treatments – 8,227 acres Non-commercial - 1,092 acres Commercial: Intermediate thin – 2,878 acres Croup Selection – 1,876 acres Savannah/Meadow restoration – 2,125 acres Sanitation – 43 acres Individual tree selection – 53 acres Non Commercial: 256 acres of intermediate thin, 473 acres of savannah/meadow restoration, 405 acres of large oak/juniper/yellow pine release, 78 acres of sanitation Broadcast burning over entire EMU over time,	Objective: Restore forest health, reduce fuel accumulations, improve wildlife habitat diversity, increase large, old trees Note: Decision states: This alternative proposes over 800 additional acres of full restoration treatments between Moose Ranch and Garland Prairie. <u>This area would be managed for an average canopy cover of less than 40 percent over time – no plan</u>

				12.9 miles of road obliteration, 17.3 miles of road closures, forest plan amendment (remove timber suitability), seeding of native grasses in areas wh ere soil was disturbed and tree density is below moderate	amendment was included Categorized as on-going – DN/FONSI in hard copy files has decision date of 1990 See Pomeroy and KA – on-going thin and prescribed burn – broadcast burn (6,529 acres accounts for removing KA and Pomeroy acres) categorized as ongoing due to restoration emphasis of the project
Assumed 4,385 acres mechanical/RX burn complete and 1,700 acres mechanical/RX burn yet to complete (shelfstock)	K- Williams	Dogtown Fuels Reduction Project	2004 (decision)	Total Acres: 8,209, implementation began in 2004 – 6,509 acres implemented with 1,700 acres left to implement in 2013 Treatments: (1) 3,105 acres – irregular/sanitation thinning (1,307 ac. Is for misteltoe), (2) 300 acres – group selection, (3) 480 acres – grassland maintenance/fuels reduction, (4) 6,085 acres – prescribed burning, (5) 3,912 – slash treatments, (6) 344 acres – deferred from treatment, (7) 18 miles – road closed	Objective: reduce hazardous fuels and associated fire risk Categorized as both past (6,509 acres implemented) and on-going due to 1,700 acres being part of shelf stock (2013)
	K-Williams	Clover High Fuels Reduction	2004	385 acres implemented by 2004 -thin, machine pile, burn	No project records could be located
	K-Williams	Pineaire Fuels Reduction	2004 (decision)	Total acres: 650 acres of treatments, implemented 2004 to 2009 (1) 302 acre of commerical low thinning, (2) 91 acres of non-commercial low thinning 9”dbh, (3) 56 acres low thinning, (4) 150 acres of whole tree skidding, (4) 645 acres of broadcast burn (post pile/burn), (5) 169 acres of pile/burn (0 miles of road proposed for closure or decommission)	Objective: reduce fuel hazards around communities Categorized as past due to decision
	K-Williams	Williams Follow-up Mistletoe Treatment Project	2004 (decision)	Total Acres: 368 Non commericial misteltoe sanitation on 368 acres within 13 separate sites Slash piles burned	Objective: forest health Categorized as past due to date of decision and scope of project]

For spatial tallied up aspen on Govt – couldn't find Coleman	K-Williams	Government Mountain/Coleman Aspen Restoration	2005 (decision)	Total acres: 75 75 acres of conifer removal within aspen stands up to 16" dbh Construct wire fencing totaling 3,000 feet around 11 acres of (of 51 total acres of aspen) aspen sprouts	Encourage and promote aspen and protect from heavy browse Categorized as past due to date of decision and scope of project (75 acres)
	K - Williams	Garland Prairie Grassland Restoration	2005 (decision)	Total acres: 500 Mehcanical – 500 acres Lop, pile, burn – 47 acres Treatment: Cut encroaching ponderosa pine and juniper trees. Treats 500 acres of 14,000-acre total Garland Prairie. Lop and scatter fuels to address visual concerns (Overland Trail and TH, I-40, Sycamore Rim Trail)(0 miles of road proposed for closure or decommission)	Objective: improve wildlife habitat including pronhorn fawning, nursing, movement, migration,and sighting distance and elk winter and summer range Categorized as past due to date of decision and scope of project
	K- Williams	City Project	2005 (decision)	Total acres: 12,400, implemented 2006 to 2010 with 600 acres left to implement in 2014 **Acres of mechanical: 8667** **Thinning:** (1) commercial - sawtimber 9" dbh + – 4,918 acre (19,672 CCF), (2) commercial Roundwood 5-9" dbh – 1,339 acres (16,093 CCF), (3) noncommercial thinning – 2,366 acres, (4) Savannah Restoration – 41 acres, (5) Aspen Restoration – 3 acres, wood product total: 35,765 CCF (0 miles of road proposed for closure or decommission) **Prescribed Burning** – entire project including initial underburning with no mechanical – 2,300 acres, burning with non-commerical thin post fire – 963 acres **Slash piling and burning** – 3,000 acres (= 9,400 acres of prescribed fire, and 3,000 acres of pile/burning)	Objective: Reduce tree densities and hazardous fuels to improve forest health and sustainabiliy, reduce potential for high intensity fire into the City of Williams and its watershed, provide for public and firefighter safety Addresses 12,400 acres of high priority treatmetn area identified in the Greater Williams CWPP Categorized as past as DN/FONSI does not reference maintenance burning and ongoing as 600 mechanical acres (= 600 acres of prescribed fire) planned to be implemented in 2014

	K-Williams	Kendrick Prescribed Burning	2005-2006 (implementation)	Total Acres: Unknown – need data from Kaibab	
	K – Williams	Flag Tank Aspen Restoration	2007 (decision)	Total acres: 36 22 acres – mechanical 36 ares - prescribed fire Treatments: Cut conifers up to 20" dbh and fence three aspen stands on approximately 22 acres: (1) no yellow pines cut, (2) all trees cut by hand, no commericial sales	Objective: prevent futher loss of aspen Categorized as past given date of decision and total acres to be treated
	K-Williams	Ida Grassland Maintenance Project	2008 (decision)	Total Acres: 1,800 Treatments: (1) Thin juniper and ponderosa pine less than 12" dbh on encroached grasslands with agra-axe and chainsaws, (2) Pile and burn residual slash within 3 years of treatment (0 miles of road proposed for closure or decommission)	Categorized as past – Kaibab web information states project was implemented in 2010 GIS for 4 FRI depicts project boundary
	K-Williams	Bill Williams Cap Fuels Reduction	2009 (decision)	Total acres: 10 Thinning trees up to 12" dbh and removal of 17 to 25 trees > 10" dbh near structures: remove approx. 175 trees per acre < 5" dbh and 20 trees/acre between 5 and 12" dbh, predominantly douglas and white fir – thin to overall basal area of 170 to 140 sq. ft per acre Hand piling/burning of 80% of slash, prescribed fire in northern portion of project area, and maintenance burns (0 miles of road proposed for closure or decommission)	Objective: Reduce hazardous fuels on 10 acres at the top of Bill Williams Mountain to protect electronic site Implemented in 2010 Categorized as both past and on-going due to maintenance burns
	K-Williams	Community Tank Grassland Restoration Project	2011 (decision)	Acres implemented: 185 thinning/burning Treatments: Restore grassland condition in meadow and ponderosa pine savanna – 1,050 acres, Prescribe Burn 1,400 acres with re-entry burns over 20 year period, Remove 1 miles of fence (pronghorn), Obliterate 2.2 miles of road	Part of shelf stock – 865 acres left to implement in 2013 – 185 acres categorized as past Retains all yellow pines, uses evidence-based approach for old trees

					Categorized as on-going/current project due to maintenance burns
Tusayan Ranger District					
GIS shapes files were unclear – merged 2 units into one (rehorse-mudersbach and redhorse prescribed burn) to provide maximum project area	K-Tusayan	Ten X and Red Horse Mudersbach Timber Sale	1998 (decision)	Total Mechanical Treatment Acres: 324 acres Total Prescribed Fire: 3,500 acres Treatments: 41 acres of natural reforestation to increase age class distribution 10 miles of road obliterated for watershed conditions Guzzler construction (9,000 gal tank) – improve distributation of reliable water 85 acres of pinyon juniper thinned – improve cliffrose understory to increase browse 198 acres of thinning to remove encroaching pinyon juniper from ponderosa pine to improve growth 3,500 acres of prescribed burn – reduce haz fuels, imrove forage and plant vigior	Objective: forest health (vigor, distribution, understory and forage), reduce hazardous fuels, improve water sources and watershed No information available via hard copy or electronic project records – gathered information from PALS and GIS shape files Categorized as past due to date and decision does not mention maintenance burns
	K-Tusayan	Upper Basin Project	2000 (decision)	Total acres: 1,884 1,884 acres of sagebrush and grassland prescribed burning	Objective: Improve and maintain grassland and winter range habitat Categorized as past due to decision date and no mention of maintenance burning
	K-Tusayan	Tusayan West	1998-2001	850 acres total: (1) 549 acres of thinning, (2) 850 acres of prescribed burning, (3) 75 miles of road obliteration	No project record located – found in airport fuels cum effects
	K-Tusayan	Tusayan South/Boggy Tank	2000-2002	Tusayan South – 1,100 acres of fuel reduction, Boggy Tank – 1,848 acres of fuels reduction	No project record – found in airport fuels

				2000 – 2,948 acres completed in 2000 and 2012 is ongoing (2,948) no information could be located in terms of road decommission or road closure	cum effects categorized as on-going in Airport Fuels cum effects
	K-Tusayan	Anita project	2002	100 miles of road obliteration	No project record located – found in airport fuels cum effects
	K-Tusayan	Ten X Pre-Commercial Thinning Project	2004 (decision)	Total Acres implemented 2,761 acres Total Treatment Acres: 2,761 Mechanical = 1, 780 acres 909 acres – thin ponderosa pine that has dense stocking up to 9" dbh with 60 to 70 residual trees/acre of which there are 20 to 35 larger trees, fuels lopped and scattered 871 acres – thinning of ponderosa pine that has extreme stocking up to 9" dbh with 60 to 70 residual trees/acre of which there are 20 to 35 larger trees, fuels lopped and scattered 700 acres of underburning only, 1,700 acres of thining and burning and 250 acres of burn-thin-burn, maintenance burns to occur several years after initial burning (0 miles of road proposed for closure or decommission)	Objective: improve forest health, stand and tree resilience and vigor, improve understory diversity 2,761 acres Categorized as past due to decision date and 700 acres categorized as ongoingdue to maintenance burns
	K-Tusayan	Topeka Fuels Reduction Project	2004 (decision)	Total acres: 1,100 Non-commercial mechanical thinning and prescribed burning on 1,100 acres with fuelwood collection and slash treatments: (1) Burn Only – 702 acres in low to moderately dense pinyon-juniper woodland with some ponderosa pine, (2) ThinBurn to 75 to 100 trees/acre – 1,095 acres in pinyon pine and juniper (9 to 12" dbh), ponderosa pine (9" dbh and less) and Gambel oak , Slash lopped and scattered and slash piles burned (0 miles of road proposed for closure or decommission)	Objective: Reduce fuels within the urban interface areas around Tusayan and adjacent to the Grand Canyon NP Categorized as past due to date of decision and scope of project
	K-Tusayan	Moqui Antelope Habitat Improvement Project	2006 (decision)	Total Acres: 1,300 Moqui, 1,690 Red Butte 2,990 total thin/burn	Objective: antelope habitat and watershed

				Remove encroaching trees on 2,990 acres of grassland/woodland	improvement Categorized as past project due to date of decision, scope of project, and estiamted date for implementation (08/2006)
	K-Tusayan	Scott	2001-2007 (implementation)	From 2002 to 2004 – 421 acres of pre-commercial thin and 300 acres machine piled and burned 2002 to 2007 – 9,434 acres broadcast burned	No project records could be found other than shape files
	K- Tusayan	X-Fire Hazard Tree Removal	2009 (decision)	Total acres: 140: Treatments: Remove hazard trees that have 80 percent of greater total crown damage, are tall enough to impact a road/fence, and pose a threat to falling towards a road/fence on 140 acres along FR 302, 303, 688, 835 and 2709, Charlie Trick Tank Road and ½ mile of fence south of 835 road, along 1 mile of private along 302 road	Categorized as past due to scope and date of decision
	K-Tusayan	O'Connell	Pre-2009	500 acres of grassland improvement, sagebrush mowing	No project record found in airport fuels cum effects
	K-Tusayan	Tusayan Wildlife Waters Project	2008 (decision) 2008-2010 Imp	24 water developments constructed Sites include 255-259, 372-373, 391, 972, 1019, 3 waters along old Highway 64 (ADOT assist), and 1186 (see GIS) Four waters developed in the Triangle (see GIS data) 6 of 24 had new pipeline constructed Data per Colby Walton, ADGF Wildlife Manager and John DeLuca Note: More waters developed than displayed on map	Digitized points Objective: provide for water needs for wildlife, reduce hauling costs, improve elk habitat use patterns to reduce impacts to vegetation and soil resources around existing water developmetns Relevant to this project in terms of ungulate dispersal per Bill

Coconino NF – Past Projects Post 1996 Amendment					
	C-Flagstaff	Mint Spring	1998	2,589 acres of thinning 5" dbh and greater 1,305 acres thinning 5"dbh to 23.9" dbh 3,894 acres of precommercial thin (<5" dbh) 12,000 acres of broadcast burn over 5 to 10 years 21.3 miles of road obliteration, 9 miles of road closure Pile burn or lop activity slash	Categorized as past due to date
	C-Flagstaff	Arboretum WUI	2000	602 acres total: 62 acres – UEA 38 acres – 9" dbh and less 100 acres of hand felling, bunchers, or machines 612 acres of prescribed burning 602 acres of thin/burn – past and 602 acres of maintenance burn – ongoing	Objective: reduce fuel loading, fuel ladders, and overall fire hazards within the WUI and reduce fire potential to The Arboretum and Dry Lake Caldera Cateogirzed as both past (602 acres of thin/burn) and ongoing (602 acres of burn)
	C-Mogollon rim – Peaks RD	Fort Valley	2000	1,700 acres of thinning less than 16" dbh Road closures Trail relocation Retore meadow and riparian habitat EA and DN so convoluted that it is impossible to figure out how many miles of road were proposed for closure	Categorized as past due to volume and year' There have been numerous Fort Valley projects from 1999 to present
	C-Flagstaff	A-1 MultiProduct Timber Sale (in PALS) East M-P, A-1 West, A-1 East	2000-2002	Three projects totaling 14,155 acres of which 8,274 acres is broadcast burn, 364 acres is pile burn and 5,517 acres is thinning (no details available) Insufficient details to provide information on road decommission or closures	13,463 acre-boundary found in GIS, acreage is from GFFP 2010 data summary Assume 14,155 acres implemented (past) and 8,274 acres is ongoing maintenance burning
	C-Flagstaff	Rocky Park Fuels Reduction	2001	Total acres thinned: 5,651 acres Total acres burned – 8,000 acres 2,196 acres – thin up to 12" dbh ponderosa pine 800 acres – thin up to 12" dbh with openings	Objective: recduce fire potential Categorized as past as no mention of maintenance

				averaging 1 acre in size – turkey and eagle 700 acres – thin up to 12" dbh –yellow pine competition reduction 700 acres – thin up to 12" dbh with openings averaging 1 acre – for turkey winter habitat 700 acres- thin up to 12"dbh with openings between 2-5 acres for turkey summer habitat 225 acres – thin up to 9" dbh – MSO protected 330 acres- thin up to 12" dbh - MSO restricted 8,000 acres- burn only 200 acres- meadow restoration Noxious weeds No roads proposed for closure or decommission	burns
	C-Flagstaff	Lake Mary Fuels Reduction (PALS : Lake Mary Meadows Tow Fuel Reduction)	2005	2 projects including 3,245 acres of prescribed burning and 1,845 acres of thinning: 1,616 acres of broadcast burning, 1,824 acres of thinning (no details) and 1,629 acres of broadcast burning – No information on whether road closure or decommission was part of the decision	Only shape files could be retreived from corporate data, numbers are from GFFP data PALS project description: **Meadow restoration and fuels reduction to be accomplished by removing pine encroachment on grassland soils.**
	C-Flagstaff	APS Hazard Tree Removal	2003	315 acres broadcast burn	Data from GFFP data
	C-Flagstaff	APS Powerline	2007 (decision)	Flagstaff to Happy Jack - construction of 46 miles of 12kV distribution powerline including vegetation clearing on 167 acres (30 feet in width) Past: 46 miles of construction/167 acres of clearing Ongoing: 167 acres of vegetation clearing maintenance	See project details - assume construction and vegetetion clearing is complete due to date of decision and that maintenance on 167 acres is ongoing
	C-Mogollon Rim	Blue Ridge 69 Kv Transmission Line	2005 (decision)	11 miles of powerline with 2-acre substation 50 acres of tree removal and 1,300 acres of prescribed burn and maintenance burning every 5 to 7 years Past: 50 acres thin and 1,300 acres burn Ongoing: 1,300 acres maintenance burning	See spatial data Categorized as on-going due to powerline maintenance and maintenance burns in DN/FONSI

	C-Flagstaff	Doney Park	2007 decision	1.75 miles of 69 kV line from US Highway 89 to existing 69 Kv line - 8.48 acres Past – 8.48 acres vegetation clearing Ongoing – maintenance (8.48 acre)	Categorized as both past and ongoing due to maintenance (8.48 acre)
	C-Flagstaff	Kachina Village	2003	Thin 4,800 acres (3,801 acres implemented) broadcast and maintenance burn 6,229 acres (2,147 acres of burning implemented) No road closure or decomission included	Implementation acres data from GFFP report – project objective: improve declining forest health and reduce wildfire potential
	C-Mogollon Rim	Apache Maid Grass CE	2004	54,528 acres of hand cutting (lop and scatter) invasive pine and juniper trees within pastures of the Apache Maid Allotment No road clsoure or road decommission included	Objective: grassland maintenance
	C-Flagstaff	Woody Ridge Forest Restoration Project	2004	Total acres of maintenance prescribed (broadcast) burning: 11,184 acres. Mechanical RX: 7,987 ac. (completed) Fire RX: 11,184 acres (completed) 1,286 –thin/burn for antelope 2,945 – burn only MSO PAC thin/burn – 71 acres PFA thin/burn – 228 acres MSO target thin/burn – 252 acres Turkey thin/burn – 660 acres Fire Risk Reduction thin/burn – 3,494 Wildlife movement thin/burn – 89 UEA thin/burn – 2,519 No road closure or decomission included 14.5 miles of new non-motorized trail constructed and 3 miles of social trail obliterated	Objective: reduce fire risk and improve forest health, restore travelways for antelope and bear Maintenance burning every 3 to 10 years Categorized as both past (7,897 ac. thin and 11,184 burn) and ongoing due to maintenance burns (11,184 ac)
	C-Flagstaff	Mormon Lake Fuels Reduction	2005	2,388 acres thinned and prescribed (broadcast) burned – confusing descption of acres to be treated Past: 2,388 acres thin/burn Ongoing: 2,388 acres burn No road closure or decommission included but system and non-system road segments converted	Objective: fuels reduction Categorized as both past and ongoing due to maintenance burns

				to non-motorized trails	
	C-Flagstaff	Skunk Canyon Prescribed Burn Fuel Reduction	2005 decision	831 acres of low intensity groundfire in 50 to 200 acre blocks – maintain with burning every 5 to 9 years in up to 400-acre blocks Past: 831 acres burn Ongoing: 831 acres maintenance burn No road closure or decommission included	Objective: Reduce fuel loading and fire hazard within WUI Categorized as past and ongoing due to maintenance burning
	Coconino/ GFFP	Elden	2006	193 acres of fuels reduction – cooperatively thinned Categorized as past due to small volume No road closure or decomission included	No project record located – project referenced in Eastside Fuels DN
	Coconino/ Flagstaff (GFFP)	Eastside Fuels Reduction and Forest Health	2006	Total thin/burn acres: 7,819 acres thin and 20,197 acre burn: 3,819 acres of UEA, 3,404 acres up to 12" dbh, 377 acres fuelbreaks, 220 acres of grassland restoration, 20,197 acres of prescribed burning, some grassland and aspen restoration Past: 7,819 acres thin and 20,197 acres burn Ongoing: 20,197 acres of maintenance burning No road closure or decommission included	Objective: fuels reduction (WUI) with some restoration Categorize as past **and ongoing** due to maintenance burns
	C-Mogollon Rim	East Clear Creek Watershed Heatlh Improvement	2006	Total project acres: 16,228: 1,645 acres of thinning less than 9" dbh 83 acres of thinnig less than 16 inch dbh-implemented 14,500 acres of prescribed and maintenance burning – implemented and ongoing Decommmission 30 miles of road and 14 miles of previously closed road – implemented Past:83 acres thin, 14,500 burn **4,700 acres planned for thin (1,562) and burn (4,700) in 2013**	Objective: restore understory and overstory health and diversity, reduce potential for stand-replacing fire and road impacts on watershed and riparian habitat Categorized as both past and ongoing due to mainentenace burns Check for accuracy 83 acres thinned, 14,500 burned

					Ongoing: 1,562 thin, 4,700 burn
	C-Flagstaff	Elk Park Fuels Reduction and Forest Health	2007	4,700 acres of UEA in ponderosa pine 6,400 acres of prescribed burning Hoxworth Spring crossing improvement and 0.80 mile of road construction/relocation out of meadow Past: 1,800 ac. thining completed and 3,500 ac. burning Ongoing: 2,900 acres planned (2012) thin and burn	No mention of maintenance burning in DN/FONSI
	C-Flagstaff	Little Draw Aspen	2009	53 aspen exclosures on 107 acres w/fencing No road closure or decomission included	Implemented 2010
	C-Flagstaff	Munds Park Fuels Reduction	2009 (decision)	Thin 990 acres of ponderosa pine - complete 2,950 acres of initial and maintenance prescribed burns – initial burn complete No road closure or decomission included	Reduce fire risk Categorized as both past and ongoing due to maintenance burns
NEW!! Not in summary tables – do not add to tables, 2009 project replaced the CE	C-Flagstaff	Munds Park CE	2007 (decision)	Thin 990 acres Intital and maintenance burns on 2,950 acres No road closure or decomission included	Objective: reduce fire hazard rating in WUI
	C-Flagstaff	Slate Mountain Pronghorn Habitat Restoration Phase III	2010	2,250 acres of grassland restoration – hand cut encroaching ponderosa pine and juniper No road closure or decomission included	Categorized as past due to date of decision
	C-Flagstaff	Shultz Fire BAER	2010-2011	150 snags removed within 100 feet of road on 17.5 miles of road - Waterline Road 22 snags removed in Weatherford PAC 29 snags removed in Pipeline PAC 2 acres of disturbance within MSO habitat – reconstruction activities – 0.525 acres lost in Pipeline PAC and 0.435 acres lost in Weatherford PAC, 0.75 acres lost in restricted habitat	Categorized as past

Coconino Past (Post 1996) Projects With Incomplete Data					
Incomplete information	C	Side Fire Salvage	1997	- information indicates commercial timber sale	Project data not availlable – spatially mapped
Incomplete information	C	Saddle Toe Salvage	1998	- information indicates commercial timber sale	Project data not availlable- spatially mapped
Incomplete information	C-Flagstaff	Kendrick Fire Salvage	1998	- information indicates commercial timber sale	Project data not availlable- spatially mapped
Incomplete information	C	Baker 2	2001	No data could be located	
Incomplete information	C	Airport Extension	2001	No date could be located	
Incomplete information	C	Pumpkin Fire Logs	2001	No data other than Pumpkin Fire and timber volume sold could be located (FACTS)	Pumpkin Fire boundary used to delineate project boundary
Incomplete information	C	Ritter 2 and Ritter PU 5	2000	2 projects - information indicates commercial timber sale	10,424 acres in GIS boundary – no other data found (no nepa documents), do have timber volume sold
Incomplete information	C	Pumphouse 3 Sales	1999-2000	Timber sales volulme information indicates commercial timber sale	
Incomplete information	C	Frank	?	2,206 acres broadcast burned – per GFFP data	
Past Projects Outside of Project Area – projects for specialists to review and determine relevancy					
Outside	RRRD	Oak Creek Canyon Fuels	2007		May need to be moved to ongoing project status
Outside	MR	Victorine WUI	2006		May need to be moved to ongoing project status
Outside	C-Mogollon Rim	Huffer Stand Improvement	2003	180 acres- sanitation cut dwarf misteltoe 393 acres- thin from below ponderosa pine 561 acres – log and scatter 12 acres – hand pile and chip	Project objective: remove dwarf misteltoe and protect young regeneration

				0.4 mile – road realignment out of non-riparian streamcourse	Categorized as past due to volume and year
Outside	C-Flagstaff	Anderson Mesa	2002-2003	800 acres of prescribed fire	May need to be moved to ongoing status
Outside	C-RRRD	Pine Flat Beetle	2003		
Outside	C-MR	Pack Rat Salvage	2003		
Outside		Huffer Stand Improvement	2003		
Outside	C-Mogollon Rim	Blue Ridge WUI	2001	Pre-commercial thinning (up to 9" dbh and with 15 feet between tees boles and/or at least 3 fet between crown edges) and slash treatmetn (bucking, lopping, chipping, hand-piling) on 7,500 acres Pruning all trees up to 9" dbh within 132 feet of private property Prescribe burn on 10,549 acres	Locate spatially, analysis is likely outside project area but within cum effects area for fire Categorized as past due to volume and type of thinning
Outside		Pocket #2	2001		
Outside		Baker #1	2000		
PAST -Vegetation and Fuels Reduction Projects – Pre 1996 Amendment of 11 Forest Plans FEIS/ROD for northern goshawk, Mexican spotted owl and old growth					
No spatial data	K-Williams	49'er Timber Sale	1971-1976 (implementation)	13,000 acres harvested through sanitation/salvage prescriptions – occurred over most of the Branigan Assessment Area only goshawk nest bearing trees were protected and only tassel-eared squirrels nest tree groups in which the nest appeared to be recent Few if any turkey roost tree groups were protected and most were opened to an excessive spacing for use as roosts Trees with signs of rot (dead tops, lightening strikes) and those that appeared to be faders (might die within the next 5 to 10 years) were	Objective: unknown Information from Brannigan EA 1992 wildlife cumulative effects

				specifically selected for removal – snag cutting was encouraged. These treatments are part of the reason for the loss of squirrels and cavity-dependent mammals (birds and mammals) Slash treatments (Parks, 49'er) was mostly machine piling and burning piles that allowed fire to creep beyond the piles- this resulted in many previously uncut snags and trees with rot near the ground to be consumed or hollowed and hardened which reduced the value to cavity nesting and roosting animals. This also resulted in steady decrease in organic matter in the soils which reduced soil productivity and thereby forest productivity.	
	K-Williams	Various Pre-Commercial Thinning	1975-1981	Precommercial thinning on about 3,445 acres. Prescriptions had narrower spacing between remaining trees that benefitted tassel-eared squirrels and sharp-shinned hawks because the remaining trees within 10 to 15 years grew interlocking crowns suitable for nest tree groups. Many prescriptions called for the cutting of all Gambel oak with dh less than 5" or less than 8" depending on the author. This was harmful to the large group of birds and mammals which benefit from food and cover provided by oaks.	Objective: unknown Information from Brannigan EA 1992 wildlife cumulative effects
No spatial data available	K-Chalender	Parks Timber Sale	1989- 1990 (Implementation)	No snags intentionally removed. Select healthy trees, faders and those with sign of rot were retained to provide for future snags. Squirrel nest sites not specifically retained, however, all such groups were retained on the untreated acres which amounted to 2/3 of the assessment area. Turkey groups were identified and retained. Slash treatments was mostly machine piling and burning piles that allowed fire to creep beyond the piles- this resulted in many previously uncut snags and trees with rot near the ground to be consumed	Objective: unknown Information from Brannigan EA 1992 wildlife cumulative effects

				or hollowed and hardened which reduced the value to cavity nesting and roosting animals. This also resulted in steady decrease in organic matter in the soils which reduced soil productivity and thereby forest productivity.	
		Forest-wide fuelwood policy	up to 1992	Cutting of all snags was encouraged, all dead attached limbs could be removed, the public was encouraged to remove all non-valuable materials live or dead that was not ponderosa pine, and encouraged to remove any and all dead material on the ground. This resulted in heavy fuelwood harvesting during this century and the continued depletion of organic materials from the soil resource.	Information from Brannigan EA 1992 wildlife cumulative effects
	Forestwide	Forest-wide fuelwood policy	Post 1992	After 1992, limits were established on snag harvesting with pinyon having to be smaller than 9 inch drc, oaks smaller than 8" dbh, aspen smaller than 12" dbh and ponderosa pine less than 12" dbh or less than 15' in height, the cutting of dead limbs and removal of dead and down of any size was still permitted	Information from Brannigan EA 1992 wildlife cumulative effects
	K-Chalender	Government Vegtation Treatment Project	1992 (decision)	2,220 acres of treatment: Mechanical Acres: use decision acres Fire: only 290 acres clearly identified (1) 67 acres – shelterwood, (2) 1,186 acres - intermediate thin, (3) 592 acres – individual selction uneven-age, (4) 9 acres – aspen release, (5) 314 acres- old growth treatment, (6) 1,020 – misteltoe infection treatment , (7) 796 acres- old growth allocation, 1,234 acres of cover allocated, 3,076 acres of snag recruitment areas, (8) 120 acres of removing 18"dbh > misteltoe infected trees to create snags, (9) 290 acres – underburning and seeding, (1o) 220 acres- mechanical prep and seeding, (11) construct 2 guzzlers, (12) close and/or obliterate 23.8 miles of road, (13) 586 acres of machine piling/burning, (14) 1,437 acres of lopping	Objective: Implement forest plan and move Government Assessment Area towards desired future conditions

				and 443 acres of lopping for free wood, (15) 185 acres – site prep for natural regeneration, (16) off road closure on 7,930 acres – govt prairie, (17) 246 acres of savannah maintenance	
	K-Chalender	Marteen Vegetative Treatment Project	1994 (decision)	Total acre: 3,217 Total mechanical acres: 2,544 acres Fire: 1,542 acres 300 acres – intermediate thin with regeneration openings 1,840 acres intermediate thin without regeneration openings 9 acres –sanitation thin 395 acres – pinyon-juniper "special" thinning 100 acres – repetitive broadcast burning for rabbitbrush 4.7 miles road construction 9.2 miles road reconstruction 12.1 miles road closure 4.0 miles of obliteration 67 acres – seedling regeneration 694 acres – fuelwood gathering Fuels – 22 acres of 100% machine piling, 273 acres of partial machine piling, 1,034 acres of lopping, 786 acres lopping/crushing, 295 acres- pile burning, 334 acres broadcast burning of lopped, 813 acres of broadcast burning	Objective: Implement forest plan, move towards desired conditions
	K-Chalender	Spring Valley Knolls Aspen Enhancement	1995 (decision)	9 acres of removing all commercial ponderosa pine > 5" and less than 18" dbh, felling of non-commercial pine, fence construction to protect from browse, log and scatter slash to 2 feet Estimated volume: 57,000 bf	Objective: maintain and improve wildlife habitat and general biological diversity Categorized as past due to decision date and scope of project
May not be relevent – wildilfe call	K-Williams	Little Aso Habitat Diversity and Watershed Improvement Project	1995 (decision)	Total acres: 934 Total Mechanical: 934 acres Total Fire: 934 acres 177 acres – grassland maintenance by cutting all	Objective: No purpose and need included in DM Categorized as past due to decision date and scope of project and no

				encroaching juniper less than 12" drc (20 tree/acre average cut) 108 acres – cut all pinyon and jujniper trees encroaching on cliffrose shrubland, leave all old trees that predate introduction of livestock grazing 137 acres- savannah restoration – cut pinyon juniper to 1 tree per acre and leave deer hiding/travel corridor that averages 1 chain wide 512 acres woodland restoration – cut all pinyon and juniper to residual density of 10 trees > 10" drc epr acre, create mosaic of irregularly shaped open area intermixed with trees and leave hiding/travel corridor ½ to 1 chain wide Broadcast burn all treatment areas 2 years post-treatment	mention of maintenance burning
2003-2011 Wildfire Use – See GIS and Handout					
Past-Wildfire and Other Disturbances – see spatial maps for general location					
	Coconino NF	Wildfire	1940-1960	Fort Valley: 2,058 acres (1948) A-1: 1,002 acres (1950) Hostetter: 1,077 acres (1950) Belle: 1,128 acres (1951) Kelly: 4,582 acres (1954) Kendrick: 292 acres (1956)	1940 – 1960 total acres (fires greater than 200 acres): 10, 139
	Coconino NF	Wildfire	1961-1970	White Horse: 865 acres (1967) Hostetter: 225 acres (1968)	1961 – 1970 total acres (fires greater than 200 acres): 1,090 acres
	Coconino NF	Wildfire	1971-1980	Kelly: 2,732 acres (1971) Burnt: 7,316 acres (1971) Wild Bill: 7,814 acres (1973) Radio: 4,600 acres (1977) Wallace: 327 acres (1979) Kendrick: 185 acres (1980) – excluded from totals Curley: 2,708 acres (1980)	1971-1980 total acres (fires greater than 200 acres): 25,497 acres

	Coconino NF	Wildfire	1981-1990	N/A on Coconino Adjacent Forest: Dude Fire: 24,000 acres (1990, Tonto NF, Payson RD)	1981 – 1990 total acres (fires greater than 200 acres): 0
	Coconino NF	Wildfire	1991-2000	Bear Jaw: 780 acres (1991) Trick: 344 acres (1993) Hochderffer: 16,400 acres (1996) Slate: 379 acres (1996) Horseshoe: 8,650 acres (1996) Side: 320 acres (1996) Pipe: 664 acres (2000) Power: 1,527 acres (2000) Pumpkin: 15,779 acres (2000) – also on Kaibab (8,759 acres on Kaibab, 7020 on the Coconino)	1991 – 2000 total acres (fires greater than 200 acres): 44,843 acres
	Coconino NF	Wildfire	2001-2010	Leroux: 1,113 acres (2001) Hardy: 200 acres (2010) Eagle Rock: 3,400 acres (2010) Schultz: 15,000 acres (2010)	
	Kabiab NF		2000-2010, Class A to D	Class A – numberous,unamed fires totaling 75 acres Class B – numberous, unnamed fires totaling 265 acres Class C – 305 acres (Buck, Government, Griffen, Owl, Pronghorn, Rain, Ranger, Rosilda, Spitz, Welch, Winter, Woodbridge) Class D – 198 acres – Wash	
	Kaibab NF		2000-2010 Class E	Government Prairie – 751 acres (2001) Indian – 107 acres (2009) Twin – 1,617 acres (2009) Juniper- 470 acres (2010) Scott – 492 acres (2010)	
	Kaibab NF		2000-2010 Class F	X – 2,030 acres (2008) Ruby – 4,671 (2009) Rae – 1,392 acres (2009) Miller – 3,160 acres (2009) Anderson – 1,238 acres (2009) Hobble – 2,395 acres (2010)	
			2000-2010 Class G	Pumpkin – 8,759 acres (2000) Trick – 5,5550 acres (2002) Wildhorse – 7, 450 acres (2009)	
Past – Private Property, Other State and Federal Lands					
Applies to	Department	Camp Navajo	2003-2010	1,636 acres of broadcast burning	Camp Navajo Data, no

both Kaibab NF and Coconino NF	of Defense				data available prior to 2003
Applies to both Kaibab NF and Coconino NF	Department of Defense	Camp Navajo Westside Buffer Thinning and Prescribed Fire Project	2006-2011	1,045 acres of mechanical thin and broadcast burn	retain trees > 18"dbh, removed excess density of trees between 5" to 18"dbh to an average stand basal area of 50
Applies to both Kaibab NF and Coconino NF	Department of Defense	Camp Navajo Tornado Fuels Reduction Project	2012	854 acres – removed storm damaged trees	Data from Camp Navajo
	GFFP/State Forestry	AZ State Forestry	2000 to 2010	1,310 acres of private land thinned through State Forestry grants Past due to need to implement during funding window	Data from AZ State Forestry
Current/Ongoing Projects wtihin the Project Area					
Williams Ranger District					
	K-Williams	Pomeroy – part of Frenchy (2003)	2012	1,740 acres to be implemented - mechanical and prescribed fire	Part of shelf stock -
	K-Williams	KA – part of Frenchy (2003)	2012	1,050 acres to be implemented – mechanical and prescribe fire	Part of shelf stock
	K-Tusayan	Russell Vegetation Management Project	2011 (decision)	Planned Treatments: 5,000 acres non-commericial thinning (less than 9" dbh) and 8,000 acres of prescribed fire	Objective: vegetation improvement, fuels Categorized as ongoing/current project due to 4th quarter 2011 decision date
	K-Williams	Community Tank Grassland Restoration Project	2011 (decision)	Treatments: Restore grassland condition in meadow and ponderosa pine savanna – 1,050 acres, Prescribe Burn 1,400 acres with re-entry burns over 20 year period, Remove 1 miles of fence (pronghorn), Obliterate 2.2 miles of road	Part of shelf stock – 865 acres left to implement in 2013 – 185 acres categorized as past Retains all yellow pines, uses evidence-based approach for old trees Categorized as on-

					going/current project due to maintenance burns
	K-Williams	Bill Williams Cap Fuels Reduction	2009 (decision)	Total Acres: 10 Thinning trees up to 12" dbh and removal of 17 to 25 trees > 10" dbh near structures: remove approx. 175 trees per acre < 5" dbh and 20 trees/acre between 5 and 12" dbh, predominantly douglas and white fir – thin to overall basal area of 170 to 140 sq. ft per acre Hand piling/burning of 80% of slash, prescribed fire in northern portion of project area, and maintenance burns	Objective: Reduce hazardous fuels on 10 acres at the top of Bill Williams Mountain to protect electronic site Vegetation and fire implemented in 2010 Categorized as both past and on-going due to maintenance burns
	K-Tusayan	Ten X Pre-Commercial Thinning Project	2004 (decision)	Ongoing Acres: 700 acres of burn Total Treatment Acres: 2,761 Mechanical = 1, 780 acres 909 acres – thin ponderosa pine that has dense stocking up to 9" dbh with 60 to 70 residual trees/acre of which there are 20 to 35 larger trees, fuels lopped and scattered 871 acres – thinning of ponderosa pine that has extreme stocking up to 9" dbh with 60 to 70 residual trees/acre of which there are 20 to 35 larger trees, fuels lopped and scattered 700 acres of underburning only, 1,700 acres of thining and burning and 250 acres of burn-thin-burn, maintenance burns to occur several years after initial burning	Objective: improve forest health, stand and tree resilience and vigor, improve understory diversity Categorized as past (2,761 acres of mechanical and burning) and ongoingdue to maintenance burns (700 acres)
Assumption is that project is underway given acres and date of decision	K- Tusayan	Airport Fuels Reduction Project	01/2009 (decision)	Total mechanical is 2,961 **Total Burn: 2,961** Thin from below 2,225 acres of pinyon-juniper and retain large, older trees, Slash disposal – lopped, scattered, piled/burned, prescribe fire with first and second entry 602 acres of ponderosa pine: prescribe burn, thin	Objective: pinon/juniper: recreate stand condtions created by mixed fire severity to create contiguous patches alternativing between stand replacement and no fire effects

				from below, prescribe burn with a third burn being a broadcast and jackpot ignition 134 acres of sagebrush-grassland: thin, regain all pre-settlement trees using evidence-based approach, jackpot burning to create small openings In all project area, managing for less than 5 percent mortality in pipo and large diameter oak Maintenance burns scheduled on a 5 to 15-year cycle	Categorized as on-going due to maintenance burns
Need shape files	K-Williams	South Williams Prescribed Burn #51	2005 (decision)	Prescribed burning within grassland openings on 290 acres to remove small diameter ponderosa pine and pinyon/juniper tree encroachment with small dozer line constructed along the west and east boundaries of the Coleman Lake Site and on a portion of the Whiting site boundary. First burn occuring in 2006 and maintenance burns would occur every 5 to 10 years	Objective: Improve and maintain grassland species, stimulate decadent grass, forbs and browse plants, restore periodice burning into the ecosytem Categorized as on-going due to use of fire to maintain grassland openings
	K-Tusayan	Long Jim Fuels Reduction	2005 (decision)	Total acres: 1,300 Burn Only – 462 acres –light stocking of small diameter pinyon, juniper and pockets of ponderosa pine Mechanically thin up to 12" dbh and burn – 713 acres in ponderosa pine, pinyon pine, juniper and Gambel oak Agra-axe or Agra-mow trees up to 12" dbh and burn – 200 acres – scattered ponderosa pine, pinyon pine, juniper, and Gambel oak and sagebrush openings on flatter terrain Post mechanical treatment broadcast burn with maintenance burning occuring	Objective – improve ecosystem health and sustainabiliyt and reduce risk of intense stand replacement fire to private property , Tusayan and Grand Canyon NP, addresses priority in Tusayan CWPP Categorized as on-going due to to inclusino of maintenance burning in CE
	K- Williams	Dogtown Fuels Reduction Project	2004 (decision)	Total Acres: 8,209, implementation began in 2004 – 6,509 acres implemented with 1,700 acres left to	Objective: reduce hazardous fuels and

				implement in 2013 Treatments: (1) 3,105 acres – irregular/sanitation thinning (1,307 ac. Is for misteltoe), (2) 300 acres – group selection, (3) 480 acres – grassland maintenance/fuels reduction, (4) 6,085 acres – prescribed burning, (5) 3,912 – slash treatments, (6) 344 acres – deferred from treatment, (7) 18 miles – road closed	associated fire risk Categorized as both past (6,509 acres implemented) and on-going due to 1,700 acres being part of shelf stock (2013)
	K-Williams	Twin	2005 (decision)	Total acres: 1,400 acres Treatments: 1,400 acres of prescribed burning to reduce fire risk in the Greater Williams Area CWPP: (1) Thin, Prune, Pile Burn Firelines, Reburn areas previously treated up to 2001, mortality in yellow pipo not to exceed 5 percent of the project area, mortality of black-bark pipo greater than 12" dbh not to exceed 10 percent, gambel oak mortality greater than 5" drc not to exceed 15 percent – part of the Hat Allotment Mtn Plan EA?? Per information in Twin project record (project description is not consistent with files on hand at the district that are dated in the 1990s)	Objectives: firefighter and public safety; reduce the potential for wildland fire to enter private property from the forest; reduce the risk for uncharacteristically intense stand-replacement wildland fires by creating openings in the forest canopy, reducing forest fuel loads (dead and down woody debris), reducing ladder fuels (includes increasing the distance from the ground to lower live tree branches), and lowering tree densities; protect watershed condition and soil productivity; and prevent the spread of high-intensity wildland fire into the City of Williams watershed. DN-FONSI not specific on whether maintenance burns would occur 200 Categorized as on-going due to assumption that maintenance burns within a CWPP would be

					needed
	K- KNF	Treament of Noxious Weeds – 3 forests	2004 (decision)	Incorporated into forest plan direction	NEPA Completed in 2004 Categorized as on-going
	K-Williams	Frenchy	2003 (decision)	Total Mechanical: 9,319 - Total Fire: 9,319 acres 6,529 acres implemented to date Total commercial treatments – 8,227 acres Non-commercial - 1,092 acres Commercial: Intermediate thin – 2,878 acres Croup Selection – 1,876 acres Savannah/Meadow restoration – 2,125 acres Sanitation – 43 acres Individual tree selection – 53 acres Non Commercial: 256 acres of intermediate thin, 473 acres of savannah/meadow restoration, 405 acres of large oak/juniper/yellow pine release, 78 acres of sanitation Broadcast burning over entire EMU over time, 12.9 miles of road obliteration, 17.3 miles of road closures, forest plan amendment (remove timber suitability), seeding of native grasses in areas wh ere soil was disturbed and tree density is below moderate	Objective: Restore forest health, reduce fuel accumulations, improve wildlife habitat diversity, increase large, old trees Note: Decision states: This alternative proposes over 800 additional acres of full restoration treatments between Moose Ranch and Garland Prairie. <u>This area would be managed for an average canopy cover of less than 40 percent over time – no plan amendment was included</u> Categorized as on-going – DN/FONSI in hard copy files has decision date of 1990 See Pomeroy and KA – on-going thin and prescribed burn – broadcast burn (6,529 acres accounts for removing KA and Pomeroy acres) categorized as ongoing due to restoration emphasis of the project
		Williams and Tusayan fuelwood policy	2011 (current)	Cross-country motorized use not permitted Dead limbs may not be removed from live trees Ponderosa Pine – Only dead, standing trees less than 12 inches in diameter (38 inches in	

				circumference) or less than 15 feet in height may be removed Pinyon Pine – Only dead, standing trees less than 10 inches in diameter (32 inches in circumference) or less than 12 feet in height may be removed. Gambel Oak – Only dead, standing trees less than 8 inches in diameter (25 inches in circumference) or less than 12 feet in height may be removed. In addition, dead, standing oak may only be removed between June 1 and September 30. Juniper – Only dead, standing trees less than 20 inches in diameter (68½ inches in circumference) or less than 15 feet in height may be removed. Aspen – Only dead, standing trees less than 12 inches in diameter (38 inches in circumference) or less than 12 feet in height may be removed. In addition, dead, standing aspen may only be removed between June 1 and September 30. Green Juniper – diameter size limits apply by specific area	
	K-Tusayan	Tusayan Travel Management	2011 (decision)	566 miles of open road: Changes: (1) 143 miles of open road become admin, (2) 15 miles of spur roads added, (3) game retrieval within one mile of all desginated roads,	Relevant to this project
	K–Williams	Williams Travel Management	2011 (decision)	Close 380 miles of open road, add 16 miles of spur roads that includes 8 miles of closed road and unauthorized user created routes, add 18 miles of spur roads, allow big game retrieval within 1 mile of open roads	Categorized as current/ongoing due to decision date
	K-Williams	Radio Hill Road Obliteration	2005 (decision)	Close 50 miles of road, decommission or obliterate 67.3 miles of road	Objective: Improve wildlife habitat, protect heritage resources, maintain serviceable road system Categorized as on-going

					due to miles of road and date of decision
	C-Flagstaff	A-1 East M-P, A-1 West, A-1 East	2000-2002	Three projects totaling 14,155 acres of which 8,274 acres is broadcast burn, 364 acres is pile burn and 5,517 acres is thinning (no details available)	13,463 acre-boundary found in GIS, acreage is from GFFP 2010 data summary Assume 14,155 acres implemented (past) and 8,274 acres is ongoing maintenance burning
	K-Tusayan	Tusayan South/Boggy Tank	2000-2002	Tusayan South – 1,100 acres of fuel reduction, Boggy Tank – 1,848 acres of fuels reduction 2000 – 2,948 acres completed in 2000 and 2012 is ongoing (2,948 acres)	No project record – found in airport fuels cum effects categorized as on-going in Airport Fuels cum effects 2,948 acres completed in 2000 and 2012 is ongoing (2,948 acres)
	K-Tusayan	Tusayan East	2002	2,600 acres of fuels reduction	No project record – shape files in O drive – found in airport fuels cum effects categorized as on-going in Airport Fuels cum effects
	K-Forest-wide	Grazing Allotments	Current	28 grazing allotments authorizing 340,394 acres of livestock (cattle, sheep, horse) grazing wtihin project area – see spatial data for allotment location. Allotments managed for 30 to 40 percent maximum forage utilization Grazing systems range from rest rotation to deferred rotation Forest-wide there are 38 grazing allotments covering 1,414,000 or 92 percent of the forest.	Anita, Bellemont, Big Springs, Cameron, Chalender, Crova, Cowboy Tank, Davenport Lake, Elk Springs, Government Mtn, Government Prairie, Hat, Homestead, Juan Tank, Kendrick Mountain, Mooney Mtn, Mortiz Lake, Pine Creek, Pomeroy, Rain Tank, Seven C Bar, Sitgreaves, Smoot Lake, Spitz Hill, Squaw Mtn, Tule, Twin

					Tanks, Garland Prairie
Give update to Mark - put in past and ongoing	Coconino/GFFP	Arboretum Fuels Reduction	2000	602 acres cooperatively thinned and prescribed burned: 62 acres UEA, 38 acres 9" dbh and less, hand felling, bunchers, tractor systems – 100 acres, 602 acres prescribed burning Categorize as 602 acres past thin/burn and 602 acres of ongoing maintenance burns	Objective: reduce fuel loading, fuel ladders, and overall fire hazards within the WUI and reduce fire potential to The Arboretum and Dry Lake Caldera – GFFP data shows 61 acres of thin and 763 acres of broadcast burn implemented
	C-Flagstaff	Woody Ridge Forest Restoration Project	2004	Total acres of maintenance prescribed (broadcast) burning: 8,599 1,286 –thin/burn for antelope 2,945 – burn only MSO PAC thin/burn – 71 acres PFA thin/burn – 228 acres MSO target thin/burn – 252 acres Turkey thin/burn – 660 acres Fire Risk Reduction thin/burn – 3,494 Wildlife movement thin/burn – 89 UEA thin/burn – 2,519	Objective: reduce fire risk and improve forest health, restore travelways for antelope and bear Maintenance burning every 3 to 10 years Categorized as both past and ongoing
	C-Flagstaff and Mogollon RD	Post-Tornado Resource Protection and Recovery Project	Current (2011 decision)	Remove downed material from the tornado corridor on approximately 3,990 acres and treat within stands with evidence of bark beetle infestation on a maximum of approximately 14,766 acres adjacent to the tornado corridor on the Flagstaff and Mogollon Rim Ranger Districts. Total maximum acreage for treatment is 18,756 acres; however treatment in the buffer will only occur in areas showing signs of bark beetle infestation and therefore, the area treated may be much smaller.	Treatments could occur for approximately five years (see DN/FONSI) post-decision (2011 to 2016) dependent on bark beetle activity
	C - Flagstaff	Hart Prairie Fuels Reduction	2010 (decision)	9,815 acres thin/burn total 3,790 acres – ponderosa pine restoration – 2-40 trees/group, 0.7 acres in size, BA 50 sf or greater in VSS 4-6 – intital and maintenance burning 250 acres – mixed conifer restoration groups of	Objective – move towards historic natural conditions including fire regime

				trees up to 4 acres in size with BA of approx 50-120 sf – pile and broadcast burn 3,215 acres – aspen restoration with prescribed fire 30 acres- thin from below on steep slopes up to 9" dbh 1,515 acres – meadow restoration 965 acres – burn only 25 acres- slope stabilization 25 acres- Bebbs willow restoration Spirng exclosures, water tank/catchmetn relocatino	Categorized as ongoing due to date of decision, size of project, and maintennace burning
	C-Flagstaff	Munds Park Fuels Reduction	2009 (decision)	2,950 acres of maintenance prescribed burns	Reduce fire risk Categorized as both past and ongoing due to maintenance burns
	C-Flagstaff	APS Powerline	2007 (decision)	Flagstaff to Happy Jack - construction of 46 miles of 12kV distribution powerline including vegetation clearing on 167 acres (30 feet in width) Past: 46 miles of construction/167 acres of clearing Ongoing: 167 acres of vegetation clearing maintenance	See project details - assume construction and vegetetion clearing is complete due to date of decision and that maintenance on 167 acres is ongoing
	C-Mogollon Rim	Blue Ridge 69 Kv Transmission Line	2005 (decision)	11 miles of powerline with 2-acre substation 50 acres of tree removal and 1,300 acres of prescribed burn and maintenance burning every 5 to 7 years	See spatial data Categorized as on-going due to powerline maintenance and maintenance burns in DN/FONSI
	C-Flagstaff	Doney Park	2007 decision	1.75 miles of 69 kV line from US Highway 89 to existing 69 Kv line - 8.48 acres Past – 8.48 acres vegetation clearing Ongoing – maintenance (8.48 acre)	Categorized as both past and ongoing due to maintenance (8.48 acre)
	C-Mogollon Rim	East Clear Creek Watershed Heatlh Improvement	2006	Total project acres: 16,228: 1,645 acres of thinning less than 9" dbh 83 acres of thinnig less than 16 inch dbh-implemented 14,500 acres of prescribed and maintenance burning – implemented and ongoing	Objective: restore understory and overstory health and diversity, reduce potential for stand-replacing fire and road impacts on watershed and riparian habitat

				Decommmission 30 miles of road and 14 miles of previously closed road – implemented Past:83 acres thin, 14,500 burn **4,700 acres planned for thin (1,562) and burn (4,700) in 2013**	Categorized as both past and ongoing due to mainentenace burns Check for accuracy 83 acres thinned, 14,500 burned Ongoing: 1,562 thin, 4,700 burn
	C-Flagstaff	Mormon Lake Fuels Reduction	2005	2,388 acres thinned and prescribed (broadcast) burned – confusing descption of acres to be treated Past: 2,388 acres thin/burn Ongoing: 2,388 acres burn	Objective: fuels reduction Categorized as both past and ongoing due to maintenance burns
	C-Flagstaff	Skunk Canyon Prescribed Burn Fuel Reduction	2005 decision	831 acres of low intensity groundfire in 50 to 200 acre blocks – maintain with burning every 5 to 9 years in up to 400-acre blocks Past: 831 acres burn Ongoing: 831 acres maintenance burn	Objective: Reduce fuel loading and fire hazard within WUI Categorized as past and ongoing due to maintenance burning
	Coconino/ Flagstaff (GFFP)	Eastside Fuels Reduction and Forest Health	2006	Total thin/burn acres: 7,819 acres thin and 20,197 acre burn 3,819 acres of UEA, 3,404 acres up to 12" dbh, 377 acres fuelbreaks, 220 acres of grassland restoration, 20,197 acres of prescribed burning, some grassland and aspen restoration Past: 7,819 acres thin and 20,197 acres burn Ongoing: 20,197 acres of maintenance burning	Objective: fuels reduction (WUI) with some restoration Categorize as past **and ongoing** due to maintenance burns
	C-Flagstaff	Flagstaff to Pinnacle Peak Transmission line	2012 – ongoing	Ongoing maintenance	Need location – question into lands
	C-Flagstaff	APS East Flagstaff	2007 (decision)	Ongoing maintenance	
	C-Flagstaff	APS Sandvig Young 69 KV	2011 (decision)	10.7 miles of 69kV sub-transmission line construction including vegeation removal within	See project details

				ROW on a 5 to 10 year cycle	
	C-Flagstaff	Munds Park Fuels Reduction	2009 (decision)	2,950 acres of maintenance prescribed burns	Reduce fire risk Categorized as both past and ongoing due to maintenance burns
	CNF	Travel Management	2011 decision	Travel Management for CNF	Designates 3,136 miles as open, and provides for motorized access for game retrieval on 991,793 acres, 43,313 acres open to motorized dispersed camping
	CNF	Bob's	??	2,000 acres planned for implementation in 2012	
	CNF	Clark's	??	1,600 acres planned for implementation in 2012	
	C-Flagstaff	Elk Park Fuels Reduction and Forest Health	2007	4,700 acres of UEA in ponderosa pine 6,400 acres of prescribed burning Hoxworth Spring crossing improvement and road construction/decommission Past: 1,800 ac. thining completed and 3,500 ac. burning Ongoing: 2,900 acres planned (2012) thin and burn	No mention of maintenance burning in DN/FONSI
	C-Flagstaff	Jack Smith Schultz		2,000 acres planned for implementation in 2012	
		Weatherford		1,000 acres planned for implementation in 2013	
		Railroad		250 acres planned for implementation in 2013	
	GFFP	GFFP	2012	100 acres of thinning and prescribed burning	100 acres of private property made up of 20 parcels within the GFFP boundary
Reasonably Foreseeable Projects within the Project Area					
RU	K- Williams	Aspen Restoration Project	2012 - NEPA in progress	Treat 402 acres of aspen within 69 stands and prescribed fire -	Objective: Thin conifers, fencing, jackstrawing, prescribed fire, and cutting diseased or dying aspen within stands to encourage regeneration

					Categorized as reasonably foreseeable project due to NEPA status
	K-Williams	McCracken Project	2012- NEPA in progress	Planned treatments: 3,597 acres – group selection, 2,049 acres – shelterwood, 17 acres – irregular thinning, 43 acres – sanitation, 87 acres – aspen release, 806 acres – meadow restoration, 3,551 acres – pine/woodland savannah, 1,053 acres – woodland thinning,4,049 acres – pre-commercial thinning Total thinning acres: 15,262 Total prescribed fire: 17,337	Paroject Objective: move towards uneven-aged forest structure, reduce mistletoe, restore meadows, savanna, and woodlands pa rt of shelf stock – 2014 implementation Categorized as reasonably foreseeable project due to NEPA status
	K-Tusayan	Ten X-Fire Planting	2010 (scoping) – NEPA on hold	Plant 12 acres of ponderosa pine seedlings with 15 plantations that range in from 0.3 to 2.5 acres. Construct 8' hog wire fence around plantations	Objective: restore vegetation in high severity burn area Planting within X-Fire perimeter within 815 acre high severity burn Categorized as reasonably foreseeable due to project status
	K-Williams	Bill Williams Mountain Restoration Project (EIS)	2012- In progress	11,650 acress of veg treatment, 15,200 acres of RX Burn: (1) 11,100 acres – treat up to 40 percent slopes, (2) treat 200 acres with specialized equipment helicopter, (3) treat 350 acres greater than 40 percent slopes, (4) 2,500 non-commericial thinning, (5) 15,200 acres of prescribed fire, (6) 23 miles of new road construction, (7) 16 miles of temporary road construction, (8) obliterate 28 miles of poorly located roads, (9) 1 mile of new trail and trailhead construction, (10) 3 plan amendments: remove 8,954 acres from timber suitability, treat greater than 40% slopes, deviate in goshawk PFA nest areas	Categorized as reasonably foreseeable due to NEPA status (underway)

	KNF/CNF	Rock Pit Development: Coconino and Kaibab National Forests	2012 forseeable)		Road maintenance – see GIS spatial data
	Department of Defense	Camp Navajo Westside Buffer Thinning and Prescribed Fire Project	2013	1,269 acres of mechanical thin 530 acres of broadcast burn 968 acres of mechanical thin and broadcast burn	
	Department of Defense	AZARNG Thinning, Burning	2013	17,049 acres – mechanical thin, hand thin, slash treatment and prescribed fire – reduce tree density in 5" dbh to 18" dbh	Ponderosa pine, pine0oak and grasslands to mitigate fire risk, provide diversity in forest conditions, ecosystem health
	GFFP Projects	GFFP	2013-2014	535 acres of vegetation thinning and prescribed fire on private land parcels	245 acres (5 private land parcels) in 2013, 190 acres (4 to 10 parcels) in 2014, and 100 acres of prescribed burning through 2014
	C-Flagstaff	Marshall Fuels Reduction	2011 (decision)	Total thinning acres: 10,800 ac. Total prescribed fire acres: 6,260 ac. 4,220 acres – ponderosa pine restoration -maintain approximately 40-50% canopy cover with groups of three to 20 trees in 0.1 to 1 acres patches and openings in between of up to one to four acres in size and retain and enhance existing groups of older, larger trees (typically 18" diameter at breast height [dbh] or greater 3,590 acres – grassland restoation – mechanical or hand thin of conifers, prescribed burning 2,000 acres – transition zone mehcanical and prescribed burning (pile, broadcast,maintenance burning up to 20 years) 700 acres - MSO PAC Fuels reduction – 9" dbh 200 acres – hand thinning up to 9" dbh – steep slopes 90 acres – meadow restoration – thin/pile burn, maintenance burn 350 acres – burn-only around wetlands and stands	Project objective: reduce the risk of uncharacteristic wildfire, improve forest health and associated habitats in the Marshall Project Area, according to Coconino National Forest Plan guidance. There is a need to move vegetation toward conditions that support natural and desirable fire behavior with healthy and sustainable forests, woodlands, meadows, and wetlands. Categorized as foreseeabe as appeal period is complete.

				with low tree densities 230 acres – waterfowl habiat restoration - burning	
	C-Flagstaff	Turkey/Barney Pasture Forest Health Restoration	2012	Thin in dwarf misteltoe Create Helispot Liberation Cut MSO PAC RX at least up to 9" dbh 8 acres- hand thinning around Turkey Butte 260 acres- tornado salvage	PA under development
		Mahan-Landmark Forest Restoration	2012	33,747-acre analysis area	Objectives: Adjust stand structure and stocking densities, in terms of trees and square feet of basal area per acre, to levels that more closely approximate pre-settlement conditions, Reduce crown fire potential across a majority of the project area, Increase the number of acres where the fire regime condition class (FRCC) is moving toward or achieving the desired condition for each vegetation type
	CNF	Western Area Power Administration	2012-Foreseeable	4,584 acres of vegetation thinning (equates to 9,572 total trees removed) to remove trees that may impinge on power line – of this 1,770 acres is within ponderosa pine, 8 acres of aspen, 10 acres of cottonwood/willow riparian, 25 acres of wetland cienega, 35 acres montane/subalpine grass, 175 acres semi-desert grass, 810 acres pinyon-juniper evergreen shrub, 1,280 acres p/j woodland - EA underway	See O drive spatial files ..\..\..\..\..\..\..\Coconino\Program\1900Planning\1950EnviroPolicyProcedures\SO\lands_projects\WAPA_powerline_Veg_Clearing\GIS_data
	C-MR	Upper Beaver Watershed Fuel Reduction	2010 (decision)	2,000 acres planned for 2013 Vegetation treatments by a variety of prescriptions on about 15,807 acres (about 5,897 acres are within the WUI), Prescribed burning on about 31,162 acres (about 10,870 acres are within the WUI), Maintenance burning on about 43,906 acres	reduce the areas at risk to stand-replacement wildfire that threatens people, private property and natural resource values within the WUI.

				(about 15, 024 acres are within the WUI)	
	C-Flagstaff	Wing Mountain Fuels Reduction and Forest Health	2012 (under analysis)	Total acres thinning: 10,190 acres Total acres pile/burn and prescribe burn: 10,767 acres Pondeosa pine thin and pile/prescribe/maintenance burn – 7,079 acres Pondeosa pine thin and pile/prescribe/maintenance burn in goshawk PFA – 959 acres and 456 acres = 1,415 acres Aspen thin/burn – 1,422 acres Thin from below and burn – 352 acres MSO habitat thin/burn: 542 acres Grassland thin/burn: 629 acres Grassland/pine savanna thin/burn – 173 acres Presribe-burn only – 577 acres Spring restoration – Maxwell and Big Leroux (fencing)	Restoration in ponderosa pine, mountain grassland, pine savanna, aspen and spring r(Maxwell and Big Leroux), road decommission
	C-Mogollon Rim	Fort Valley	2012 analysis in progress	953 ac. (thin) 706 ac. (prescribe burn)	Restore natural fire regime and forest structure Status: Analysis underway, decision likely in 2012
Foreseeable Projects Outside the project area					
	C-Mogollon Rim	Clints Well	2012 analysis in progress		

	C-Mogollon Rim	69kV Winslow-BlueRidge	2012 analysis in progress		
		Grapevine Canyon Wind Project	2012 analysis in progress		
	C-RRRD	Fossil Creek CRMP	2012 analysis in progress		
		Cinch Hook Rock Pit	2012 analysis in progress		
	C-RRRD	Pronghorn Habitat	2012 analysis in progress		
Foreseeable Projects Eliminated Due to Insufficient Information					
	Coconino NF and Kaibab NF	Centennial West Multi-State Utility Corridor	2012 Pre-NEPA	"The proposed Project is for a high-voltage (HV) (+/- 600 kilovolt [kV]) direct current (DC) transmission line that will gather and transmit energy from renewable energy generation sources in eastern New Mexico and surrounding areas to entities serving load in southern California… The Project would consist of the following major facilities and improvements: A +/- 600 kV HVDC transmission line, approximately 900 miles long depending on final route location, extending across public, private, and state lands in New Mexico, Arizona, California, and potentially Nevada New permanent and temporary ROW would be required for the Project. Centennial West requested a ROW (s) with an estimated width of 150 to 300 feet.."	Timing: This project is still in the pre-NEPA stage, and therefore is not even reasonably foreseeable in the context of cumulative effects for forest plan revision; however the project is expected to be scoped in calendar year 2012, which would then make it reasonably foreseeable and ripe for cumulative effects discussion. How the FS is involved: NEPA on this project is being led by BLM, but the FS will be a cooperating agency in the project. For the FS, R3 will take the lead on coordination.
Forest Restoration	Unknown at this time	Unknown at this time		The scope of treatments and acres associated with treatments are unknown. Data collection on the	

Initiative on Coconino (Mogollon Rim), Tonto, and Apache Sitgreaves				forests will occur in 2012-2013. A project boundary has not been determined.	