Uinta-Wasatch-Cache National Forest

State of the Forest Report
For The
Uinta National Forest Planning Area
Fiscal Year 2003-2010

September 2011

Introduction and Purpose

On April 7, 2003, Intermountain Regional Forester Jack Troyer signed the *Record of Decision* approving the *Uinta National Forest's 2003 Land and Resource Management Plan* (2003 Forest Plan). The 2003 Forest Plan has been amended 4 times and corrected 7 times since it was approved:

2003 Uinta Forest Plan Amendments		
#	**Title**	Date
1	Winter Motor Vehicle Use Opportunities	August 10, 2007
2	Wild and Scenic River Suitability	February 14, 2009
3	West-Wide Energy Corridor	February 14, 2009
4	Oil and Gas Leasing	February 11, 2011
2003 Uinta Forest Plan Errata/Corrections		
1	Standard ROS-2 (Clarify that a Site-Specific Analysis Is Required Prior to Changing Travel Routes for ROS implementation)	November 12, 2004
2	Rangeland Capability Water Criterion	November 27, 2006
3	Standard M&E-1 (Withdrawal of Developed Recreation and Administrative Sites From Mineral Entry)	November 27, 2006
4	Guideline WL&F-6 (Sage Grouse Habitat Protection Dates)	November 27, 2006
5	Objective-3-2 (Allowable Sale Quantity)	June 28, 2010
6	Standard Timber-15 (maximum harvest opening size)	June 28, 2010
7	Class III RHCA criteria	September 10, 2010

The *State of the Forest Report* is intended to help National Forest managers, other agency managers, and the public evaluate environmental conditions and trends, and the effects of Uinta National Forest land management activities and supporting programs.

Note: In March 2008 the Uinta National Forest and the Wasatch-Cache National Forest were combined into one administrative unit. Each of these Forests is still operating under individual Forest Plans approved in 2003. When the term *Uinta National Forest* is used it refers to the portion of the Uinta-Wasatch-Cache National Forest covered by the2003 Forest Plan referenced above.

The Forest Plan identifies the Desired Future Condition (DFC) for the resources on the Forest, and establishes goals and objectives, standards and guidelines, and a Monitoring and Evaluation Plan. This *State of the Forest Report* reviews the questions in the Monitoring and Evaluation Plan (Chapter 6 in the Forest Plan) and summarizes the monitoring completed from the time the Forest Plan was approved thru Fiscal Year 2010 (4/7/2003 – 9/30/2010). This Report evaluates this data to determine if the Forest is making progress toward or meeting those goals and objectives, and/or appropriately applying Forest Plan direction. This report is made available to the public by posting on the Forest's web page.

Each indicator has a different monitoring and reporting frequency based on the characteristics of the indicator. The reporting frequency is in parentheses following the indicator. In some cases, interim data collected has been included in this report for information purposes. This data will be compiled and analyzed in its entirety at a later date.

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1. Are Forest management activities affecting **Management Indicator Species**, and what are the population trends and habitat relationships?

DFC: As required by the planning regulations, each National Forest, through its Land and Resource Management Plan (Forest Plan), must identify species to be used to evaluate and monitor management practices. These species serve as ecological indicators of the effects of management actions on communities. A description of each of these species and the communities they represent is included with the monitoring data.

Indicator	Monitoring
Northern Goshawk: a. Goshawk territory activity (annually survey at least one third of known territories and post the results; evaluate trends/results every five years). b. Habitat conditions (every 5 years)	In addition to being a MIS, northern goshawk is also classified as sensitive by the Forest Service's Intermountain Region. This species is widely distributed throughout North America and Eurasia. Goshawks are typically permanent residents or short-distance migrants, and are widely distributed throughout the mountainous areas of Utah. Goshawks are broadly associated with forested vegetation types on the Forest; occurring in aspen, spruce/fir, Douglas-fir/white fir, and forested riparian types. Goshawks nest in relatively dense, mature stands, and forage in a variety of habitat types, including open habitats and early-seral vegetation types. They prey on a wide variety of birds and small mammals. Most common prey species include woodpeckers, jays, grouse, snowshoe hares, and red squirrels. Goshawk populations on the Forest are most likely to be potentially impacted by timber, fire, and vegetation management activities. In March of 2000 a Decision Notice (DN) for the *"Utah Northern Goshawk Project Environmental Assessment"* (EA) was approved. This EA was developed to respond to *"Conservation Strategy and Agreement for the Management of Northern Goshawk Habitat in Utah"* (USDAFS1998a). This DN amended the 1984 Uinta Forest Plan, and included monitoring territory occupancy as an indicator of goshawk population trends as percent territory occupancy is assumed to be positively correlated with goshawk population abundance. The direction relative to goshawk management and monitoring was carried forward and incorporated into the 2003 Forest Plan. Data collected after approval of the DN is used as a baseline. In 2010 it became clear that the terms *"active"* and *"occupied"* were being applied to both nests and territories. To eliminate the confusion between occupied territories and active nests, all datasheets were reviewed and the analyses corrected to reflect the differences between the two. **a.** Goshawk Territory Activity: *Subgoal-2-33 in the 2003 Forest Plan describes the desired intention for goshawk territory activity: "Maintain occupation and/or use of known active northern goshawk" … "nest sites during vegetation treatment project activities."* (pg. 2-10) *The Forest Plan also contains standards and guidelines (i.e., WL&F-8, WL&F-9, WL&F-10) designed to achieve this by protecting goshawks in critical areas/seasons. (pg. 3-11 thru 3-12)*

Indicator	Monitoring

For this monitoring item, the Forest Plan notes that projects in potential habitat are surveyed, and that known territories have been monitored for activity. The Forest Plan states that the monitoring frequency for this item is that at least 33% of known territories be monitored annually.(pg., 6-5)

FY2003 – FY2010:

The number of known territories has changed over time. New territories were identified and added in 2004 (D02T07), 2005 (D02T08), and 2008 (D53T11). Territories were removed from the list in 2008 (D08T04) and 2010 (D02T06) after monitoring indicated they had remained unoccupied for 7 consecutive years. As of 2010, there are 14 known territories on the Forest. Results of territory occupancy monitoring are summarized in the following table:

Goshawk Territory Occupancy Monitoring Results – Uinta National Forest

Year	2001[1/]	2002	2003	2004	2005	2006	2007	2008	2009	2010
Known Territories	12	13	13	14	15	15	15	15	15	14
Territories Monitored	11	12	12	13	14	14	12	14	14	11
Occupied Territories	6	8	4	6	9	4	5	5	6	6
% of Monitored Territories Occupied	55%	67%	33%	46%	64%	29%	42%	36%	43%	55%
Adjusted Occupied Territories	6.0	6.7	3.4	4.3	5.6	2.5	4.2	3.1	3.7	6.0

[1/] Adjusted Occupied Territories = [# territories occupied current year / # territories monitored current year] *[# territories monitored in 2001 / # territories monitored current year] * # territories monitored in 2001

Because the number and specific territories monitored each year has changed from year to year, territory occupancy was adjusted to 2001 occupied territories based on the difference in numbers of territories monitored. The baseline used was the 2001 territory occupancy of 6 known occupied territories. Adjusting to the 2001 occupied territories there has been as high as 6.7 occupied territories in 2002 and a low of 2.5 in 2006.

Goshawk territory occupancy has fluctuated over time (see the table above). As noted by Woodbridge et. al.[1/]: *"The ability of any particular survey method to determine territory occupancy or reproductive status is affected by the probability that a territory is occupied or by the probability of a territory having an active or successful nest. Work conducted to date indicates that northern goshawks exhibit high degrees of annual variation in reproduction" …" The proportion of territorial pairs with active nests varied from 22 to 86 percent on the Kaibab Plateau in Arizona during the 1990s." … "Annual variation in reproduction is associated with variation in prey and weather" … "Annual variation in reproduction can*

Indicator	Monitoring
	have a large impact on the outcome of surveys." Whether the population trend is a reflection of survey intensity, or if it truly reflects population trends changing in response to habitat conditions or other is unknown. After reviewing the territories and surrounding management actions, the exact cause could not be determined. *b.* Habitat Conditions: *The Forest Plan contains a Forest-wide goal (FW-Goal-2) to maintain or enhance biologically diverse, sustainable ecosystems for native flora and fauna… (pg. 2-1) In addition, the Forest Plan contains two subgoals (G-2-31 and G-2-32) to provide and maintain specific key goshawk habitats. (Forest Plan, pg. 2-10) The Forest Plan also contains several standards and guidelines (e.g., WL&F-8, WL&F-9, WL&F-10, Veg-8) for protection of these habitats. (pg., 3-13 and 3-19) The monitoring frequency for this item is every 5 years.(Forest Plan, pg., 6-5)* Changes in the amount of potential suitable habitat occurred over annually due to the effects of vegetation management activities, wildfire, and insect activity on the Forest. *"Goshawk populations are most likely to be potentially impacted by three of the primary management activities on the Forest: timber management, fire, and vegetation management."* (2003 Forest Plan FEIS. Pg. E-74) These activities should lead to increased prey for goshawk. Reproductive success and population levels of goshawks are typically correlated with levels of prey abundance. When the Forest Plan was prepared, GIS analysis indicated approximately 342,200 acres of the Uinta National Forest was occupied by vegetation cover types dominated by large trees potentially suitable for goshawk nesting habitat. Another 286,600 acres of pinyon-juniper, oak-maple and mountain brush stands potentially suitable for foraging areas occur on the UNF. (Forest Plan, pg 3-128 to 3-163) **FY2003 - FY2010**: Analysis of available GIS data (representing approximately 92% of the total vegetation reported as treated, or burned in wildfires) indicates about 8,720 acres (or about 2.6%) of the forest vegetation types on the Forest potentially suitable for goshawk nesting habitat were treated or burned during FY2003 thru FY2010. This analysis also indicates about 28,490 acres (or about 8.3%) of the pinyon-juniper, oak-maple and mountain brush stands potentially suitable for foraging areas on the Forest potentially suitable for goshawk foraging habitat were treated or burned during FY2003 thru FY2010. In 2007, a more detailed capability and suitability analysis for northern goshawk habitat on the Forest was conducted.[2/] This analysis indicated that for nesting habitat approximately 247,350 acres of the Forest was potentially capable, for post-fledgling area habitat about 290,750 acres was potentially

Indicator	Monitoring
	capable, and for foraging areas about 508,960 acres was potentially capable.[2/] [1/] Woodbridge, B. and Hargis., C.D. 2006. Northern goshawk inventory and moitoring technical guide. Washington, DC : USDA Forest Service. [2/] Forest Service, U.S. Department of Agriculture. 2007. Capability and suitability analysis, management indicator species -- northern goshawk -- Uinta National Forest. Provo, Utah : unpublished, 2007.
American beaver: Number of active beaver dams (at least 20% of sample streams/ watersheds measured and reported annually; evaluate population trends/results every five years)	Subgoal-2-40 in the 2003 Forest Plan describes the desired intention for beaver populations: *"Maintain active beaver colonies in at least 80 percent in the 6th level Hydrologic Unit Code (HUC) watersheds within each management area, except in the Vernon and West Sheeprock Management Areas on the Vernon Unit."* (pg. 2-11) The Forest Plan also contains numerous standards and guidelines to protect habitat utilized by beavers, but none of these are specific to beaver. Beaver were widely distributed across Alaska, Canada, and the continental U.S. prior to 1800. By the mid 1800s many beaver populations had been eliminated or dramatically reduced by trapping. Populations have reestablished throughout much of the U.S. and Canada and generally are increasing range-wide. Beaver are widely distributed across the Forest. They inhabit a broad variety of riparian habitats in drainages that are not too steep and have permanent stream flow and sufficient woody food resources. On the Forest, primary woody food resources are willow, aspen, and in lower-elevation riparian forests, cottonwood and alder. Beaver are trapped in Utah, but trapping pressure is not considered to be heavy enough to significantly impact overall population levels. Livestock grazing, fire, water uses, and vegetation management are the management activities on the Forest most likely to impact beaver. Livestock grazing impacts important food resources for beaver. Water use projects can result in inadequate stream flows to support beavers and their habitat. Many ecologists believe that fire suppression efforts that reduced the occurrence of wildfire during the past century are resulting in conifer encroachment and loss of aspen in many areas. Loss of aspen forest negatively affects beaver because aspen is such an important source of food and construction material for beavers. Prescribed burning and mechanical treatments designed to reduce conifer encroachment and increase areas of young aspen improve beaver habitat. The beaver is a useful indicator species because it is a riparian obligate species and forest management activities/ uses can impact riparian vegetation communities. Population trends for beaver provide an indication of how the Uinta National Forest is managing its important riparian communities. For this monitoring item, the Forest Plan notes that selected streams and watersheds have been

Indicator	Monitoring
	inventoried. The Forest Plan also states that at least 20% of sample streams/watersheds will be monitored annually, and a Forest-wide monitoring protocol will be developed. (pg. 6-5)

FY2003 – FY2010[1/]:

The Forest Plan states that a Forest-wide monitoring protocol for monitoring beavers will be developed (p.6-6). In 2003 a Forest-wide beaver monitoring protocol was developed. The protocol consisted of: (1) using GIS to randomly select 54 sections (only full 640-acre sections were selected) across the Forest; (2) determining if the selected sections contained potential beaver habitat (had intermittent or perennial stream reaches < 15% gradient); and (3) evaluating beaver colony activity (active = occupied by a beaver colony or family unit) using ground surveys. Colonies were considered active if there was the presence of fresh mud on dams or lodges, recent willow or aspen cuttings, beaver trails with sign of recent use, or if beavers were seen. This protocol was tested and implemented in FY2004.

Of the 54 survey sections, 26 were identified thru a map review (and subsequently field verified) as containing no suitable habitat. Of the remaining 28 sections, 27 were subsequently field reviewed to verify they contained suitable habitat. Three sections originally thought to contain suitable beaver habitat were found to be unsuitable. This left 25 sections with suitable habitat to be monitored.
These have been surveyed in various years since 2004. Results are summarized in the following table:

Uinta National Forest Beaver Monitoring Results, FY2004 – FY2010

Fiscal Year	Sections surveyed	Sections with ≥ 1 active colony (% of suitable sections)	Active Colonies Observed	Active Colonies per Section Surveyed	Active Colonies per Section	Miles of Perennial Stream Surveyed	Active Colonies/mile of Perennial Stream
2004	21	8 (38%)	21	1.00	0.42	24.2	0.87
2005	21	9 (43%)	22	1.05	0.44	24.8	0.89
2006	21	9 (43%)	18	0.86	0.36	24.4	0.74
2007	16	7 (43%)	17	1.06	0.38	24.5	0.69
2008	22	9 (41%)	18	0.81	0.35	26.7	0.67
2009	19	5(26%)	10	0.53	0.21	23.1	0.43
2010	25	4(16%)	5	0.20	0.09	28.9	0.17

Indicator	Monitoring
	From 2007 to 2010, the beaver populations appear to have declined. These declines occur for all metrics (colonies/section, colonies/mile, etc.) and exist across a wide area. A combination of factors such as high runoff in some years, an increase in trapping pressure from a higher price/pelt, and observer error together could potentially explain the trend. These factors are discussed below: High runoff may have affected the results in some years. For example, in 2010 higher than normal runoff may have destroyed some dams, or made beaver activity less detectible when surveys were conducted. The Uinta area had particularly high runoff in 2010 because of higher than normal snowpack combined with a rapid change from cool weather to hot weather. This resulted in several areas with flooding. We conducted most of our 2010 surveys in July, and many of the beaver colonies may not have had time to rebuild before our surveys. Thus we may not have detected some beaver activity in 2010. Failure of beaver dams has been documented due to several causes, including high runoff. In cases of failure due to runoff, beavers have been reported to rebuild dams by the following year. From 2005 and 2009, prices for beaver pelts averaged $17.19/pelt, which is $4.11 above the 28 year average of $13.08/pelt. The higher value for pelts may have affected results in 2010, especially where streams are easily available by road or trail. There may also be sampling error in some years. This may have resulted due to revisions in data collection/reporting, and surveyor error (particularly in 2007 which appears out of line with before and after years). In 2007, a capability and suitability analysis for beaver habitat on the Forest was conducted.[2/] GIS analysis using the Forest's mid-scale vegetation layer indicates approximately 31%, or 277,080 acres, of the 898,220 acres administered by the Uinta National Forest is occupied by water or by vegetation cover types (aspen, aspen-other species, herbaceous riparian, bottomland hardwood, willow/birch riparian, or wet meadow) that could provide habitat for beavers. GIS indicates there are about 810 miles of perennial and 2,030 miles of intermittent stream on the Forest that could potentially provide habitat within these lands. The 2007 capability and suitability analysis considered vegetative cover type, stream gradient, proximity to perennial water, and lake/reservoir size (larger water bodies excluded). Utilizing the above parameters, GIS analysis using the Forest's mid-scale vegetation layer, digital elevation model data, Forest Plan management prescription, and hydrology layers indicates that about 30,560 acres of land and 880 miles of stream are suitable for beaver habitat on the Forest.

Indicator	Monitoring
	Historically, willow eradication treatments, dam breaching, loss of aspen and willow cover due to conifer encroachment, and grazing and exclusion of fire were common. The loss of aspen and willow has negatively affected beaver habitat on the Forest. The 2003 Forest Plan contains several standards and guides designed to protect aquatic and riparian habitats, and willow eradication and dam breaching activities have virtually been stopped. The only exception to this is when dams have been removed to allow fish passage to their spawning grounds. These dams are in the lower reaches of Strawberry River and Indian Creek drainages, streams that are critical for spawning fish from Strawberry Reservoir. Through increased use of fire and mechanical treatments, aspen and willow on the Forest can be maintained or enhanced. Mature conifer species are currently experiencing a high level of mortality due to insect infestations. (see the following section of this Monitoring Report) This reduction in conifers will likely improve conditions for aspen, which should increase available habitat for beaver over the next 50 years. An important assumption of the population monitoring protocol is that surveyors will consistently identify active and inactive colonies. It is quite possible that this assumption was not met in 2007 and 2009. If this is the case our estimated population may have not been accurately represented the true population of beaver in those years. For this reason additional training will be implemented in the future prior to sampling. 1/ Forest Service, U.S. Department of Agriculture. Beaver monitoring report, 2010, Uinta Planning Area, Uinta-Wasatch-Cache National Forest. Provo, UT: Unpublished, 1/2010. 2/ Forest Service, U.S. Department of Agriculture. 2007. Capability and suitability analysis, management indicator species – American beaver -- Uinta National Forest. Provo, Utah : unpublished, July, 2007.
American three-toed woodpecker: a. Index of population abundance (Breeding Bird Surveys will be conducted and results reported annually). b. Habitat conditions (every 5 years).	In addition to being a MIS, the American three-toed woodpecker ('woodpeckers' or 'three-toed woodpeckers') is also classified as a 'priority species' by the Utah Partners in Flight, and as a 'sensitive species' by the Forest Service's Intermountain Region. This species is widely distributed throughout boreal and subalpine forests of North America. It occurs throughout mountainous areas of Utah, and is considered common in the Uinta Mountains but uncommon elsewhere in the state. Three-toed woodpeckers do not migrate, although periodic irruptions occur, presumably due to failure of the food supply. The three-toed woodpecker inhabits conifer forest types, and is most closely associated with the spruce/fir forest type. The woodpeckers excavate cavities in snags and dead portions of live trees. Most of their diet consists of wood-boring beetles and caterpillars that attack conifers. **a.** Population Abundance: *Subgoal-2-33 in the 2003 Forest Plan describes the desired intention for three-toed woodpecker nest protection: "Maintain occupation and/or use of known active" …"three-toed woodpecker nest sites during vegetation treatment project activities."* (pg. 2-10) *The Forest Plan also contains standard WL&F-7 requiring seasonal protection of three-toed woodpecker nest sites*

Indicator	Monitoring
	during vegetation management activities. (pg. 3-11) *For this monitoring item, the Forest Plan notes that projects in potential habitat are surveyed, three Breeding Bird Surveys (BBS) are conducted annually, and an additional Forest-wide monitoring protocol will be developed.* (pg. 6-6) Timber management and fire are the activities on the Forest most likely to affect three-toed woodpecker populations. The three-toed woodpecker is closely associated with old forest structural characteristics in spruce/fir forests, the forest type in which much of the timber harvesting on the Uinta National Forest occurs. Although population levels of three-toed woodpeckers are known to fluctuate considerably over short periods of time, its long-term population trend is likely to reflect changes in forest management practices on the Forest. **FY2003 – FY2010:** **Breeding Bird Surveys:** The three BBS routes located on the Uinta National Forest have been surveyed annually for many years (Beck 1990, Soapstone 1992, Heber Mountain 1996). Since surveys on these 3 routes were initiated, the total number of three-toed woodpeckers detected has never exceeded 3 birds. No three-toed woodpeckers have been detected on the Beck route since the survey started. Three-toed data from these surveys is summarized in the following table:

Three-toed Woodpeckers Detected on Breeding Bird Surveys on the Uinta NF, 2003-2010

Breed Bird Survey Route[1] (number)	Survey Fiscal Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Beck (#85174)	0	0	0	0	0	0	0	0
Soapstone (#85156)	0[2]	1	0	1	2	0	2	1
Heber Mountain (#85206)	0	1	0	0	1	0	1	2
Total	0	2	0	1	3	0	3	3

1/ This is the official data off the BBS website.

2/ The 2003 State of the Forest Report had 2 detections listed for 2003 on the Soapstone route but 0 detections are listed here. This is because the route was surveyed on three dates and 2 woodpeckers were detected on the third day. However, the official BBS website only reports the first survey's data and no woodpeckers were detected on the first survey.

Indicator	Monitoring
	Although three-toed woodpeckers are widely distributed, they occur at relatively low densities in most areas. Population trend analysis for three-toed woodpeckers was conducted using data published on the Breeding Bird Survey website (**http://www.mbr-pwrc.usgs.gov/bbs/trend/tf04.html**). Trend analysis was conducted at the spatial scale of the western BBS region because of the low densities of woodpeckers on the three BBS routes on the Uinta National Forest. During the past 20 years (1984 to 2004), the population trend estimate was 10.22, which was a non-significant (P = 0.18) increase in population trend. A review of the data and the analysis method was conducted in 2009. From the breeding bird surveys we could conclude that the population trend is up from 2003 when no birds were detected. In comparison with 2004 the numbers appear to be slightly up with two birds being detected in 2004 and three being found in 2009. Generally it appears like the population is slightly up with the recognition that we're only talking about an additional bird over the three 24.5 mile survey routes. It should be remembered that this is a passive survey where the observer is just listening to and recording their observations. **Project Surveys:** In the past, many areas have been surveyed to determine if three-toed woodpeckers occurred within the survey areas. Each detection represents a confirmed sighting of at least one three-toed woodpecker (1 to 4 three-toed woodpeckers were observed at each site). Three-toed woodpeckers were detected in spruce/fir, Douglas-fir, and lodgepole pine forest types, and were commonly detected in areas with spruce beetle activity. The additional (non- BBS survey or Forest-wide monitoring surveys) three-toed woodpecker detections reported each fiscal year are summarized in the following table. **Additional Woodpecker Detections Made thru Project Surveys or Incidental Detections** **Fiscal Year** / **2004** / **2005** / **2006** / **2007** / **2008** / **2009** / **2010** **Project Survey or Incidental Detections** / 17 / 45 / 7 / 7 / 0 / 0 / 0 The number of additional detections varies widely from year to year. This could reflect differences in the amount of primary habitat potentially being affected by proposed projects. Because of this, these sightings are not useful indicators of overall three-toed woodpecker populations, but are useful in identifying sites that need to be protected in accordance with Forest Plan direction.

Indicator	Monitoring
	Forest-wide Monitoring: The Forest Plan states that an additional Forest-wide monitoring protocol will be developed. In 2003, a more intensive three-toed woodpecker monitoring protocol was drafted and tested. A random sample of survey stations located across the Uinta National Forest was generated. The monitoring protocol is based on conducting broadcast surveys (playing a recording of three-toed woodpecker calls and drumming) at each survey station and determining the percentage of total survey stations at which three-toed woodpeckers respond.

FY2003:

Eleven stations were surveyed. Eight three-toed woodpeckers were detected at one station, and none were detected at the other 10 survey stations. Each detection represented a confirmed sighting of at least one three-toed woodpecker (1 to 4 three-toed woodpeckers were observed at each site). Three-toed woodpeckers were detected in spruce/fir, Douglas-fir, and lodgepole pine forest types, and were commonly detected in areas with spruce beetle activity.

FY2004 – FY2010:

Forest-wide monitoring was conducted in accordance with the monitoring protocol developed and tested in FY2003. Results are summarized in the following table.

Forest-Wide Three-Toed Monitoring Survey Results (FY2003 – FY2010)

FISCAL YEAR SURVEYED	2004	2005	2006	2007	2008	2009	2010
Survey Sites	42	42	42	42	37	33	40
Sites With Detections	14	17	15	15	6	8	12
Sites Surveyed With Detections	33%	40%	36%	36%	16%	24%	30%

Because of personnel and priority changes that have occurred over the years the number of survey sites surveyed and the number of overlapping sites have also changed. To better analyze the information, survey sites surveyed two years in a row were compared and the trends were developed as laid out in the table below. Generally the population shows a fluctuation of -20% drop in 2006-07 to a gain of 14% in 2008-09. The majority of the paired sites had no change in the number of sites with three-toed woodpeckers.

Indicator	Monitoring

Change from previous year's survey in occupied sites	Comparison Years (surveyed both Fiscal Years)					
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Birds Found	11	4	1	2	3	3
Birds Lost	8	6	4	2	0	5
No Change	23	32	10	5	19	15
Total Change	3	-2	-3	0	3	-2
Total Number of Overlapping Survey Sites	42	42	15	9	22	23
Proportion of overlapping surveys showing percentage in each category						
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Birds Found	26%	10%	7%	22%	14%	13%
Birds Lost	19%	14%	27%	22%	0%	22%
No Change	55%	76%	67%	56%	86%	65%
Percent change between number of sites where birds were found and lost.	7%	-5%	-20%	0%	14%	-9%

b. Habitat Conditions: *The Forest Plan contains a Forest-wide goal (FW-Goal-2) to maintain or enhance biologically diverse, sustainable ecosystems for native flora and fauna… (pg. 2-1) The monitoring frequency for this item is every 5 years.(Forest Plan, pg., 6-5)*

As described previously, three-toed woodpeckers are most closely associated with the spruce/fir forest type on the Uinta National Forest. The woodpeckers excavate cavities in snags and dead portions of live trees. Most of their diet consists of insects that attack conifers.

When the 2003 Forest Plan was prepared, it was estimated that 22%, or 196,900 acres, of the 897,390 acres administered by the Uinta National Forest was occupied by coniferous or aspen/conifer forest cover types. The approximate acreage occupied by major forest vegetation types is summarized in the following table.

Indicator	Monitoring

Acreages Potentially Capable for Three-Toed Woodpecker Habitat[1/]

Cover Type	Seral Aspen	Douglas-Fir/White Fir	Spruce-Fir	Lodgepole Pine	All
Area	98,640	20,710	77,050	500	196,900

FY2003 - FY2010:

The primary management activities likely to affect three-toed woodpecker habitat are timber management and fire and vegetation management. (2003 Forest Plan FEIS. Pg. E-78) Changes in the amount of potential suitable habitat have occurred since 2003 due to the effects of vegetation management activities, wildfire and insect activity on the Forest. Analysis of available GIS data (representing approximately 92% of the total vegetation reported as treated, or burned in wildfires) indicates about 2,030 acres (or about 1%) of the 196,900 acres of the acreage of vegetation types potentially capable for three-toed woodpecker habitat were treated or burned during FY2003 thru FY2010.

In 2006, a more detailed capability and suitability analysis for American three-toed woodpecker habitat on the Forest was conducted.[2/] This analysis considered stand density and elevation in addition to forest cover type, and consequently resulted in less capable habitat being identified, than was indicated in the 2003 Forest Plan FEIS. This analysis indicated that for nesting habitat approximately 67,110 acres of the Forest was potentially capable, for foraging habitat about 25,820 acres (a subset of the nesting habitat) was potentially capable. (USFS, 2006) Three-toed woodpeckers may or may not be utilizing any specific portion of this potential habitat at any point in time, and natural events (e.g., wildfire, windthrow, etc.) and/or forest management activities may result in temporary impacts to these habitats.

Up to 75 percent of the woodpeckers' diet consists of wood-boring beetles and caterpillars that attack dead or dying conifers, and densities of three-toed woodpeckers can increase dramatically in response to spruce beetle outbreaks. (Forest Plan FEIS, pg. E-77) Aerial surveys have been conducted most years over the last several years to identify areas infested and estimate infestation levels of various forest insect mortality agents. The following table summarizes information from these surveys. As can be seen, many coniferous trees have been, and continue to be killed by insects on the Uinta NF. This provides an abundant source of food for three-toed woodpeckers and an increasing number of snags.

Indicator	Monitoring

Conifer Insect Mortality Estimates By Year, Uinta National Forest

Species	Estimated Acres[1/] with Insect Mortality by Year[2/]							
	2003	2004	2005	2006	2007	2008	2009	2010
Spruce and Subalpine Fir	9,099	27,641	17,607	4,115	17,997	15,106	10,816	12,708
Douglas-Fir	1,488	3,536	6,802	974	3,995	1,461	777	661
Lodgepole Pine	20	862	2,484	458	4,728	6,921	3,143	1,669

Species	Estimated Trees with Insect Mortality by Year1/							
	2003	2004	2005	2006	2007	2008	2009	2010
Spruce and Subalpine Fir	23,798	169,552	32,472	7,033	29,802	30,007	15,544	28,969
Douglas-Fir	4,117	15,274	15,026	2,016	7,059	3,078	1,484	1,350
Lodgepole Pine	50	4,040	16,479	783	10,382	18,196	5,810	4,608

1/ Acres infested may overlap from year to year. Acres reported represent where trees of this species have been killed due to insects. The stands containing trees of the indicated species may not be of the same forest cover type (e.g., Lodgepole pine trees within a stand typed as aspen/conifer might have been killed).

2/ Based on USDA-FS, Forest Health Protection Aerial Survey Results.

Habitat conditions were reviewed in 2009 to evaluate the habitat changes and their affect to three-toed woodpecker numbers. Dead or dying conifers were present at many of the sites where three-toed woodpeckers were detected. Some of the areas where three-toed woodpeckers seemed to be most abundant were areas where spruce trees were being attacked by spruce beetles. Signs of woodpecker foraging activity (piles of spruce bark chips at the base of the trees) was common in these stands. Hairy woodpeckers (*Picoides villosus*) and downy woodpeckers (*Picoides pubescens*) also were commonly seen in these stands with spruce beetle activity. Overall, the areas of beetle-attacked conifers continue to increase in the Uinta Planning Area. It is anticipated that the number of three-toed woodpeckers will increase. We do not see a relationship between anthropogenic disturbances and three-toed woodpeckers with the information collected.

1/ (LRMP FEIS; page 3-128)

2/ Forest Service, U.S. Department of Agriculture. 2006. Capability and Suitability Analysis – American Three-toed Woodpecker, Uinta National Forest. Provo, Utah : unpublished, August 2006.

Indicator	Monitoring
Colorado River cutthroat trout: a. Population estimates (at least 33% of sample streams surveyed, and results reported annually; population trends will be evaluated and reported every 5 years) b. Habitat conditions (every 5 years)	In addition to being a MIS, Colorado River cutthroat trout (CRCT) is also classified as sensitive by the Forest Service's Intermountain Region. BCT is provided special protection by various government entities (e.g., USDA Forest Service, USDI Bureau of Land Management, and Utah Division of Wildlife Resources), and the species receives special management emphasis within the State of Utah.[4/] In addition, CRCT has been petitioned for listing under the Endangered Species Act, although found not warranted for listing.[2/] Conservation of CRCT depends on eliminating or reducing the impact of activities that threaten the species existence. Common problems and threats include the present or threatened destruction, modification, or curtailment of habitat or range; over-utilization for commercial, recreational, scientific, or educational purposes; disease, predation, competition, and hybridization; inadequate regulatory mechanisms; and other natural or human-induced factors affecting continued existence of the species.[3/] a. <u>Population Trends</u>: Subgoal-2-21 in the 2003 Forest Plan (pg. 2-8 thru 2-9) provides: *"Protect and maintain the following 14 conservation populations and one metapopulation of Colorado River cutthroat trout in the following subunits: <> Four populations in the White River/Price River drainages of the South Tavaputs Plateau Subunit of the Southeastern Geographic Management Unit (GMU)[1/], <> Nine populations in the South Slope Uinta Mountains portion of the Green River drainage of the South Slope Uinta Subunit of the Northeastern GMU[1/], <> One population in the Strawberry River drainage of the North Tavaputs Plateau Subunit of the Northeastern GMU[1/], and <> One metapopulation consisting of three waterbodies in the West Fork Duchesne River drainage of the South Slope Uinta Subunit of the Northeastern GMU."* The Forest Plan also contains several standards and guidelines to protect CRCT habitat (see part b. of this section of the document). Populations of Colorado River cutthroat trout and their habitat are monitored to determine the distribution, abundance, and health of this species. The 2003 Forest Plan calls for monitoring at least one-third of the sample streams to be monitored annually. The 2003 Forest Plan also notes that a more detailed monitoring protocol would be developed. (pg. 6-6) This protocol was completed in 2004.[5/] The FEIS for the 2003 Forest Plan provided that cutthroat trout would be monitored as a MIS in systems that contain designated conservation or persistence populations of CRCT. (pg. 3-222) These streams were known populations of CRCT within the Geographic Management Units. **<u>FY2003 – FY2010</u>:** In 2003, the Uinta National Forest identified 4 metapopulations/populations of Colorado River cutthroat trout, which included the 16 streams named in Table 2-2 of the Uinta Forest Plan (pg. 2-9). These streams have been monitored since that time. This monitoring was intense the first few years to establish a baseline of information (see the table below). In recent years, this sampling frequency has

Indicator	Monitoring
	declined since baseline has been established. From 0% to 100% of these streams have been surveyed each year since 2003, averaging 54% per year. On average, each year the Forest has collected fish and or habitat information on six additional streams within the Colorado River Basin over this same time frame (see the following tables). Since 2003 two fish migration barriers have been installed to prevent the spread of non-native species into native species habitat. These two barriers were on the West Fork of the Duchesne River and were installed to prevent the spread of whirling disease upstream into the drainage. The most upstream barrier prevents fish from Vat Creek from moving upstream into the rest of the West Fork of the Duchesne River. Downstream movement of fish can still occur. Sterile fish are also being used to supply sport fish needs in many Colorado Basin water bodies to prevent the spread and interbreeding with native cutthroat trout populations. For the Uinta Planning Area the overall trend for Colorado River cutthroat trout is stable. This is primarily due to the Duchesne and Currant Creek Drainage populations. In the Duchesne River Drainage, the Vat Creek Diversion has prevented the upstream migration of non-native fish into the West Fork of the Duchesne River. In 1998 an upstream fish migration barrier was installed above this diversion to prevent the spread of whirling disease into Currant Creek Reservoir. This effort was unsuccessful in that whirling disease was found in Currant Creek Reservoir in 2010. These barriers however secure much of this habitat from non-native fish which is a major threat to native cutthroat trout populations. Similar older barriers are also found in the Currant Creek drainage to limit upstream non-native fish movement out of Currant Creek Reservoir. Sterile fish are also being used to supply sport fish needs in many locations in the Colorado River basin to prevent the spread and interbreeding with native and non-native cutthroat trout populations.

Indicator	Monitoring

Colorado River Cutthroat Trout MIS Monitoring of Conservation Populations[d]

Meta-Population	Stream Sampled	Fiscal Year Monitored								Trend	Comments
		2003	2004	2005	2006	2007	2008	2009	2010		
White River	Left Fork White River	--	yes	yes	yes	--	--	--	--	Stable	Low populations numbers due to limited habitat.
	Middle Fork White River	nd[a]	--	--	yes	--	--	--	--		
	Right Fork White River	yes	yes	yes	yes	yes	--	yes	--		
	Tabbyune Creek	--	--	yes	yes	--	--	yes	--		
Ducwhesne River	West Fork Duchesne	yes[b]	yes	yes	yes	yes	--	yes	--	Down	Habitat is secure but the population numbers and biomass is down. No single cause has been identified for this trend.
	Little West Fork Duchesne #1 (2)	yes	yes	yes	yes	yes	--	yes	--		
	Vat Creek	yes	yes	yes	yes	--	yes	--	--		
Currant Creek	Jones Cabin Creek	--	yes	yes	yes	yes	--	--	--	Stable	Identified as a single meta-population, this area consists of a number of smaller populations that are fragmented because of culverts and historic fish migration barriers. Non-native fish also provide a sport fishery in Currant Creek Reservoir.
	Low Pass Creek	yes	yes	yes	yes	--	--	--	--		
	Right Fork Currant Creek	--	yes	yes	yes	--	--	yes	--		
	Left Fork Currant Creek[c]	--	yes	yes	yes	yes	--	yes	--		
	South Fork Left Fork Currant Creek[c]	--	yes	yes	yes	--	--	--	--		
	Tut Creek[c]	--	yes	yes	yes	--	--	--	--		
	Pass Creek	--	yes	yes	yes	yes	--	--	--		
	Race Track Creek	--	yes	yes	yes	yes	--	--	--		
Strawberry River	Willow Creek (Lower)	--	yes	yes	yes	yes	--	yes	--	Stable	
Total # of Streams Surveyed		7	14	15	16	8	1	7	0	--	-----

Indicator	Monitoring

Percent Surveyed (of the 16 Conservation Stream Populations Monitored)	44%	88%	94%	100%	50%	6%	44%	0%	--	-----

(a) Stream channel at the monitoring station was dry.

(b) This is different monitoring site (lower site) than was monitored other years.

(c) Grouped as "*Currant Creek Headwaters*" in Table 2-2 (pg. 2-9) in the 2003 Forest Plan.

(d) Streams listed in Table 2-2 (pg. 2-9) in the 2003 Forest Plan. All streams listed were identified as conservation populations (no persistence populations were identified).

Other Colorado River Cutthroat Trout Streams[(b)] Monitored

Meta-Population	Stream Sampled	Fiscal Year Monitored							
		2003	2004	2005	2006	2007	2008	2009	2010
Currant	Currant Creek	--	--	--	yes	--	yes	--	--
Strawberry River [(a)]	Trout Creek(3)	--	--	yes	yes	--	yes	--	--
	Clyde Creek	--	--	yes	yes	yes	--	yes	--
	Indian Creek	yes	yes	yes	yes	yes	--	yes	--
	Little Hobble Creek	--	yes	yes	yes	yes	--	yes	--
	Murdock Hollow	--	--	yes	yes	yes	--	yes	--
	North Fork Bryants Fork	yes	yes	yes	--	yes	--	yes	--
	South Fork Bryants Fork	--	--	yes	yes	--	--	--	--
	Strawberry River (upper)	yes	yes	yes	yes	--	--	yes	--
	Streeper	--	--	yes	yes	--	--	--	--
	Upper Willow Creek	yes	--	yes	yes	--	--	yes	--
Duchesne	Wolf Creek	--	--	--	yes	yes	--	yes	--
Total Additional Streams Sampled		4	4	10	11	6	2	8	0

Indicator	Monitoring
	(a) Strawberry Reservoirs and its tributaries were treated in the late 1980's to remove all fish. The drainage was then restocked with native Bonneville cutthroat trout from Bear Lake to help keep non-game fish. (b) Streams other than listed in Table 2-2 (pg. 2-9) in the 2003 Forest Plan and in the monitoring protocol.[6/] b. Habitat Conditions: The Forest Plan contains a Forest-wide goal (FW-Goal-2) *to maintain or enhance biologically diverse, sustainable ecosystems for native flora and fauna… (pg. 2-1) The monitoring frequency for this item is every 5 years.(pg., 6-5)* The Forest Plan also contains numerous standards and guidelines designed to protect fisheries habitat (e.g., Aqua-1 thru Aqua-8, pg 3-2 thru 3-3; MP-3.3-6, pg. 3-44; S&W-9 thru S&W-11, pg. 3-9 thru 3-10; WL&F-13 and WL&F-14, pg. 3-13; Fire-7, pg. 3-14). **FY2003 – FY2010:** In 2006, a Forest-wide GIS analysis was conducted to identify CRCT habitat on the Forest. All streams and lakes currently occupied by CRCT and within the Colorado River Basin were considered suitable for this species. Stream systems in which CRCT historically occurred but are no longer present are located in the upper Strawberry River drainage. Although CRCT historically occurred in this drainage, these streams are no longer suitable for CRCT because they are currently managed for the Bear Lake strain of Bonneville cutthroat trout by the UDWR. Based on this analysis, about 45 miles of stream and 290 acres of lake were found to contain suitable habitat.[6/] Fish management objective for the Strawberry River Drainage above Soldier Creek Dam is for sport fish. This system was chemically treated in the last 1980's and the native Colorado River cutthroat trout was replaced with the more piscivorous Bonneville cutthroat trout from Bear Lake. Many of the other populations/metapopulations are suspected of being impacted by non-native species either through direct competition or predation. Generally habitat conditions are good. Current habitat impacts are occurring from existing roads that are found adjacent to the stream. These roads often include stream crossing that fragment habitat into smaller blocks further splitting up small isolated populations. Recent efforts by the forest have been to reconnect these populations be replacing culverts that are fish migration barriers with fish passable culverts where passage benefits cutthroat trout populations. Livestock grazing also can have a direct and indirect affect of these populations and efforts are being made to improved protection through implementing the forest plan standards and guidelines. Recreational impacts also occur as forest visitors camp and recreate along and in streams. Few impacts are occurring from timber harvest where riparian buffer are generally prescribed.

Indicator	Monitoring
	1/ Utah Department of Natural Resources. Division of Wildlife Resources. 1997. *Conservation agreement and strategy for Colorado River cutthroat trout (Oncorhynchus clarki pleuriticus) in the state of Utah*. Prepared by Leo Lentsch and Yvette Converse. Publication number 97-20. March. 2/ Office of Federal Register. 2007. Federal Register, Vol. 72, Issue No. 113. Published 6/13/2007. Washington, DC. 3/ Fairchild, M. 2010. *Monitoring Report for Aquatic Management Indicator Species on the Uinta-Wasatch-Cache National Forest: Monitoring Years 2007, 2008, 2009*. Uinta-Wasatch-Cache National Forest, Provo, Utah. 55 pp. 4/ Colorado River Cutthroat Trout Task Force. 2001. *Conservation agreement and strategy for Colorado River cutthroat trout (Oncorhynchus clarki pleuriticus) in the States of Colorado, Utah, and Wyoming*. Colorado Division of Wildlife, Fort Collins. 87p. **5/** Smith, R.W. and C. Lyman. 2004. *Cutthroat Trout Monitoring Plan and Protocols for the Uinta National Forest*. Uinta National Forest. Provo, UT. 4 pp. 6/ Uinta National Forest. 2006. Capability and Suitability Analysis, Management Indicator Species – Colorado River Cutthroat Trout, Uinta National Forest. Uinta National Forest. Provo, UT. Unpublished report dated 9/21/2006. 47 pp.
Bonneville cutthroat trout: a. Population estimates (at least 33% of sample streams surveyed, and results reported annually; population trends will be evaluated and reported every 5 years) b. Habitat conditions (every 5 years)	In addition to being a MIS, Bonneville cutthroat trout (BCT) is also classified as sensitive by the Forest Service's Intermountain Region. BCT is provided special protection by various government entities (e.g., USDA Forest Service, USDI Bureau of Land Management, and Utah Division of Wildlife Resources), and the species receives special management emphasis within the State of Utah.[4/] In addition, BCT has been petitioned for listing under the Endangered Species Act, although found not warranted for listing.[2/] Conservation of BCT depends on eliminating or reducing the impact of activities that threaten the species existence. Common problems and threats include the present or threatened destruction, modification, or curtailment of habitat or range; over-utilization for commercial, recreational, scientific, or educational purposes; disease, predation, competition, and hybridization; inadequate regulatory mechanisms; and other natural or human-induced factors affecting continued existence of the species.[3/] a. <u>Population Trends</u>: Subgoal-2-20 in the 2003 Forest Plan provides the following direction: *"Protect and maintain 10 conservation populations, 12 persistence populations, and one meta-population (consisting of six water bodies in the Diamond Fork drainage)[1/] of Bonneville cutthroat trout within the Utah Lake/Provo River drainage of the Northern Bonneville Geographic Management Unit".* (pg. 2-7 to 2-8) The Forest Plan also contains several standards and guidelines to protect habitat utilized by BCT (see part b. of this section of the document). Populations of Bonneville cutthroat trout and their habitat are monitored to determine the distribution, abundance, and health of this species. The 2003 Forest Plan calls for monitoring at least one-third of the sample streams to be monitored annually. The 2003 Forest Plan also notes that a more detailed

Indicator	Monitoring
	monitoring protocol would be developed. (pg. 6-6) This protocol was completed in 2004.[6/] The FEIS for the 2003 Forest Plan provided that cutthroat trout would be monitored as a MIS in systems that contain designated conservation or persistence populations of BCT. (pg. 3-222) These streams were most of the known BCT populations across the Geographic Management Units on the Forest. **FY2003 – FY2010:** The 2003 Forest Plan (pg. 2-8) identified 8 meta-populations/populations of Bonneville cutthroat trout, which included the 22 named streams. These streams have been monitored since that time. From 9% to 100% of these streams have been surveyed each year since 2003, averaging 57% per year. On average, each year the Forest has collected fish and or habitat information on four additional streams within the Bonneville Basin over this same time frame (see the following tables). Since 2003 two fish migration barriers have been installed to prevent the spread of non-native species into native species habitat. These were the main stem Diamond Fork, and Dip Vat Creek in the Diamond Fork Drainage. Associated with this, non-native fish were removed and native fish restored in over 25 miles of stream. These structures have been modified periodically to improve their performance as fish migration barriers. Sterile fish are also being used to supply sport fish needs in most locations to prevent the spread and interbreeding with native cutthroat trout populations. The overall trend for Bonneville cutthroat trout on the Forest is stable. This is primarily due to the Diamond Fork Drainage where the Diamond Fork meta-population is protected from non-native fish through the use of an upstream fish migration barrier. The Dip Vat population is also protected from non-native fish through the use of an upstream fish migration barrier. Most of the other populations/meta-populations are known to be or are suspected of being impacted by non-native species either through direct competition, predation or genetic contamination through crossbreeding with rainbow trout. In addition to the monitoring described above, Bear Lake cutthroat trout populations have been monitored in several Strawberry Reservoir tributaries. The Bear Lake strain of Bonneville cutthroat trout is not native in the Strawberry River drainage and therefore, is not considered a MIS population.

Indicator	Monitoring

Bonneville Cutthroat Trout MIS Monitoring of Conservation and Persistence Populations[d]

Meta-Population	Stream Sampled	Fiscal Year Monitored								Trend	Comments
		2003	2004	2005	2006	2007	2008	2009	2010		
Diamond Fork	Chase Creek[c]	--	yes	yes	yes	yes	--	--	yes	up	A fish migration barrier was constructed in FY2007 to protect this population of BCT. The population is recovering from the treatment in 2007 when brown and brook trout were removed and Bonneville cutthroat trout were restocked in the drainage. The fish migration barrier was rebuilt in 2010 because brown trout were found and removed from above the barrier in 2009 and 2010. Many of these streams have seen cutthroat trout populations double since restocking in 2007.
	Cottonwood Creek[c]	--	yes	yes	yes	yes	--	yes	--		
	Fifth Water[c]	--	yes	yes	yes	yes	--	yes	--		
	Halls Fork[c]	--	yes	yes	yes	yes	--	yes	yes		
	Little Diamond Creek[c]	--	--	yes	yes	yes	--	yes	--		
	Shingle Mill[c]	--	yes	yes	yes	yes	--	--	yes		
	Sixth Water[c]	--	yes	yes	yes	--	--	--	--		
	Wanrhodes[p]	--	yes	yes	yes	yes	--	--	--		
Hobble	Right Fork Hobble Creek[p]	--	yes	yes	yes	--	--	--	yes	down	Replacement by non-native fish. No cutthroat trout were found in the survey reaches during 2010 samplings.
	Wardsworth Creek[p]	--	yes	yes	yes	--	--	--	yes		
Peteetneet	Peteetneet Creek[p]	--	yes	yes	yes	yes	--	--	yes	up	Population appears healthy. Rainbow trout were found in Peteetneet Creek for the first time in 2010. Overall cutthroat trout productivity has gone up.
	Wimmer Ranch Creek[p]	--	yes	yes	yes	yes	--	--	yes		

Indicator	Monitoring											
	Spanish Fork	Soldier Creek[p]	--	--	yes	yes	yes	--	--	yes[a]	up	Even though the 2010 site was only 0.5 miles downstream, cutthroat trout were collected at the new location. Brown trout continued to be found along with a large diversity of non-game fish including longnose dace, mountain sucker, sculpin and southern leatherside. No cutthroat trout were collected from Tie Fork in 2010.
		Tie Fork[c]	--	yes	yes	yes	yes	--	--	yes		
	Thistle	Nebo Creek[c]	yes	yes	yes	yes	yes	yes	--	--	stable	The likelihood of long term population persistence is low, despite the observed stability of the low density population of cutthroat trout. Holman Creek likely contributes to the few cutthroat found in Nebo Creek. The upper extent of Nebo Creek may also contain an intact cutthroat population.
		Holman Creek[c]	yes	yes	yes	yes	--	--	yes	--		
	Deer	South Fork Deer Creek[p]	--	--	yes	yes	--	--	--	--	down	The population may have responded negatively to the Cascade III Burn that burned out of prescription. Data from the 2010 sample was lost do to equipment failure.
	Upper Provo River	Little South Fork Provo[c]	--	yes	yes	yes	yes	--	yes	--	down	**South Fork Provo River** – We do not fully understand why this population is in decline. **Soapstone Creek** – Population contraction in this small watershed is a concern because we are unaware any risks or threats to this isolated population.
		Soapstone Creek[p]	--	yes	yes	yes	yes	yes	--	--		
		Bench Creek[p]	--	yes	yes	yes	--	--	yes	--		

Indicator	Monitoring

	Upper South Fork Provo[(p)]	--	yes	yes	yes	yes	--	--	--		
American Fork River	North Fork American Fork River[(p)]	yes	--	yes	yes	yes	--	yes	--	down	The long term viability of this population is in question because of interaction with non-native fish historically stocked in the drainage.
Total # of Streams Surveyed		3	18	22	22	16	2	8	9	--	-----
Percent Surveyed (of the 22 Streams)		14%	82%	100%	100%	73%	9%	36%	41%	--	-----

Yes = Fish sampling was conducted.
-- = No fish sampling was conducted.
(1) In 2010 the Soldier Creek survey site was relocated downstream onto National Forest Lands. Cutthroat trout were found at the new location.
(p) = Persistence Populations as identified in the Forest Plan (pg. 2-8)
(c) = Conservation Populations as identified in the Forest Plan (pg. 2-8)
(d) Streams listed in Table 2-1 (pg. 2-7 thru 2-8) in the 2003 Forest Plan.

Other Bonneville Cutthroat Trout Streams[(a)] Monitored

Meta-Population	Stream Sampled	Fiscal Year Monitored								Comments
		2003	2004	2005	2006	2007	2008	2009	2010	
Diamond Fork	Diamond Fork (lower reach)	--	yes	yes	yes	--	--	yes	--	
	Diamond Fork (middle reach)	--	yes	yes	yes	yes	yes	--	--	
	Diamond Fork (upper reach)	--	yes	yes	yes	--	--	--	--	A fish migration barrier was constructed in FY2007 to protect this population of BCT.
	Dip Vat	--	yes	yes	yes	yes	yes	--	--	A fish migration barrier was constructed in the fall of 2006 (FY2006-2007) to protect this population of BCT.

Indicator	Monitoring

	Sulfur Spring	--	yes	--	yes	--	--	--	--	
Vernon	Little Valley Creek	--	--	yes	yes	--	yes	--	--	
Vernon	Vernon Creek	--	--	yes	yes	--	yes	--	--	
Hobble	Left Fork Hobble	--	yes	yes	yes	--	--	--	yes	
Salt	Salt Creek	--	--	--	--	yes	--	--	--	
Summit	Summit Creek	--	--	--	--	--	--	--	yes	
Provo	Deer Creek	--	yes	yes	yes	--	--	--	yes	
Total Additional Streams Sampled		0	7	8	9	3	4	1	3	

Yes = Fish sampling or habitat data was conducted.
-- = No aquatic Management Indicator Species monitoring was conducted by the Forest Service on this stream this year.
(a) Streams other than listed in Table 2-1 (pg. 2-7 thru 2-8) in the 2003 Forest Plan and in the monitoring protocol.[6/]

b. Habitat Conditions: The Forest Plan contains a Forest-wide goal and numerous standards and guidelines for protection of fisheries habitat. See the previous discussion for Colorado River Cutthroat Trout, habitat conditions.

FY2003 – FY2010:

In 2006, a Forest-wide GIS analysis was conducted to identify BCT habitat on the Forest. All streams and lakes currently occupied by BCT and within the historic range of BCT are considered suitable for this species. Based on this analysis, about 146 miles of stream were found to contain suitable habitat. No lakes were identified as containing suitable habitat on the Forest.[7/]

Most of the other populations/metapopulations are suspected of being impacted by non-native species either through direct competition, predation or genetic contamination through crossbreeding with rainbow trout. Generally habitat conditions are good. Current habitat impacts are occurring from existing roads that are found adjacent to the stream. These roads often include stream crossing that fragment habitat into smaller blocks further splitting up small isolated populations. Recent efforts by the Forest have been to reconnect these populations be replacing culverts that are fish migration barriers

Indicator	Monitoring
	with fish passable culverts where passage benefits cutthroat trout populations. Livestock grazing also can have a direct and indirect affect of these populations and efforts are being made to improved protection through implementing the forest plan standards and guidelines. Recreational impacts also occur where the public camps and recreates along streams. Few impacts are occurring from timber harvest where riparian buffer are generally applied to protect aquatic resources. 1/ As defined in the glossary and in the Range-wide Conservation Agreement and Strategy for Bonneville Cutthroat Trout (*Oncorhynchus clarki utah*). Utah Division of Wildlife Resources. 2000. pp. 17-18. 2/ Office of Federal Register. 2008. Federal Register, Vol. 73, Issue No. 175. Published 9/9/2008. Washington, DC. 3/ Fairchild, M. 2010. *Monitoring Report for Aquatic Management Indicator Species on the Uinta-Wasatch-Cache National Forest: Monitoring Years 2007, 2008, 2009*. Uinta-Wasatch-Cache National Forest, Provo, Utah. 55 pp. 4/ BVCT State of Utah Conservation Team. 2008. *Conservation agreement for Bonneville cutthroat trout (Oncorhynchus clarki utah) in the State of Utah*. Utah Division of Wildlife Resources. Salt Lake City, Utah. 5/ Utah Department of Natural Resources. 1997. *Conservation agreement and strategy for Bonneville cutthroat trout (Oncorhynchus clarki utah) in the state of Utah.* Prepared by Leo Lentsch, Yvette Converse, and Jane Perkins. Publication number 97-19. March 1997. 73pp. 6/ Smith, R.W. and C.Lyman. 2004. *Cutthroat Trout Monitoring Plan and Protocols for the Uinta National Forest*. Uinta National Forest. Provo, UT. 4 pp. 7/ Uinta National Forest. 2006. *Capability and Suitability Analysis, Management Indicator Species – Bonneville Cutthroat Trout, Uinta National Forest*. Uinta National Forest. Provo, UT. Unpublished report dated 9/21/2006. 61 pp.

2. Is the Forest protecting **Federally-listed Threatened and Endangered Species** and their habitat while implementing the Forest Plan?

DFC: Known populations of all federally-listed threatened, endangered, proposed, or candidate species occurring on the Forest are maintained or increased.

Indicator	Monitoring
Bald eagle: Index of winter roosting activity on the Forest (annually)	In 2003 the bald eagle (*Haliaeetus leucocephalus*) was classified as threatened under the Endangered Species Act. The U.S. Fish and Wildlife Service (USFWS) was petitioned in 2001 to remove the bald eagle from the List of Threatened and Endangered Species. In 2007 the USFWS determined that the best available information indicated the bald eagle has recovered, and therefore, removed the bald eagle in the lower 48 states from the Federal List of Endangered and Threatened Wildlife. This delisting was fueled by a reduction in threats, and an associated increase in breeding pairs (from 487 breeding pairs in 1963 to 9,789 in 2007).[1/] Very few bald eagles have nested in Utah in recent years, and prior to 2008 no nests were known to be located on or near the Uinta National Forest. Bald eagles do occur as migrants and winter residents on and near the Forest. They are most commonly observed foraging and roosting along rivers between November and March. They have often been seen during the winter in Heber Valley, the Vernon Unit, in canyons along the Wasatch Front (including Provo Canyon, American Fork, Hobble Creek, White River, and Diamond Fork), and on the Nebo Unit along Salt Creek. Bald eagle roost and nesting surveys, which occur primarily off-Forest, indicate populations are increasing. Although there has been improvement in the overall habitat and environment used by this species, it is not likely that population increases are due to Forest management activities as roost sites on the Forest are limited. An increase in sightings and use of the Forest has occurred concurrently with the overall increase in the population. **FY2003-FY2010:** Winter Raptor Surveys: Bald eagle counts from Utah Division of Wildlife Resources (UDWR) winter raptor surveys are used as indicator of bald eagle winter roosting activity on the Forest. UDWR has established several standardized routes for monitoring winter raptor populations. Although none of these routes occur on the Uinta National Forest, three routes are in vicinity of the Forest. One route (Rush Valley Route) starts north of the Forest in Vernon, and goes toward Rush Valley and Ophir Canyon. A second route (Cedar Valley Route) starts in Lehi, goes west to Saratoga Springs, south along Utah Lake, and then west and north to Fairview. The third route (Sanpete Route) starts near Fountain Green (southeast of the Nebo

Indicator	Monitoring

Unit), travels around Moroni, Freedom and Wales, and heads down through the Sanpete Valley. While these routes are not located on the Forest, the Forest has habitat in some areas similar to what is found along these routes. Bald eagle counts from these routes are displayed in the following table:

UDWR Winter Raptor Survey
Bald Eagle Counts[1/] for the Rush Valley, Cedar Valley and Sanpete Survey Routes
2003-2010

UDWR Winter Raptor Survey Route	Survey Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Rush Valley	53	52	----	10	34	33	23	3
Cedar Valley	----	----	41	----	26	28	16	11
Sanpete	84	86	94	55	81	80	56	75
Combined	137[2/]	138[2/]	135[2/]	65[2/]	141	141	95	89

[1/] Utah Division of Wildlife Resources. 2011. Spreadsheet containing unpublished data from winter raptor surveys of Rush Valley, Cedar Valley and Sanpete Valley survey routes. 3pg.
[2/] Incomplete data set. Data was not collected for one of the survey routes.

Other Bald Eagle Observations: January 2003 bald eagle data from UDWR showed 5 bald eagle sightings on the Forest, and 3 additional sightings within 1-2 miles of the Forest. The sightings on the Forest included observation of a roosting adult on two occasions in Provo Canyon, a roosting adult in Diamond Fork, and two roost sites with more than three individuals on the Vernon Unit.

In 2004 students visiting the Diamond Fork Youth Forest reported observing bald eagles on four different days. These sightings occurred between October and January, and involved at least 5 birds. In 2005, students visiting the Diamond Fork Youth Forest reported observing bald eagles 20 times, with 8 eagles seen in one day.

In 2008, a bald eagle was found nesting on the Forest in the area below the dam at Strawberry Reservoir.

[1/] U.S. Fish andWildlife Service (2007). Endangered and threatened wildlife and plants; Removing the bald eagle in the lower 48 states from the list of endangered and threatened wildlife, 50 CFR Part 17. Federal Register, 72, 37346–37372.

Indicator	Monitoring
Canada lynx: Documentation of observations (every 5 years)	Canada lynx (*Lynx canadensis*) is a federally listed (2000) threatened species. Although lynx are known to have historically occurred in Utah, no critical habitat for lynx is currently designated within Utah.[7/] The 2003 Forest Plan designated two Lynx Analysis Units (LAUs) on the Uinta National Forest. They are located on the northern part of the Heber-Kamas Ranger District in the Upper Provo River and West Fork Duchesne River drainages because these watersheds contain much of the forest's spruce/fir forest, and because of their connectivity to high-elevation conifer forests to the north and northeast in the Uinta Mountains where lynx historically occurred. The 2003 Forest Plan contains 5 subgoals describing the management intent relative to Canada lynx and its habitat. These subgoals provide direction to maintain, protect (including disturbance at key times from human activities) and improve key habitat. Key habitats addressed include denning and habitat and travel/linkage corridors. (Subgoal-2-23, Subgoal-2-26 thru Subgoal-2-29; pgs. 2-9 thru 2-10) The 2003 Forest Plan also contains 2 objectives (Objective-2-18 and Objective 2-19) specific to lynx. These call for surveying the 2 LAUs for lynx presence by 2013 and mapping the location and intensity of snow compacting activities on designated routes, trails, and play areas within LAUs. (pg. 2-15) Information on the status of Canada lynx on the Uinta National Forest was summarized as part of the viability assessment completed during revision of the Forest Plan. Lynx inhabit boreal and montane habitats dominated by coniferous or mixed forest with thick undergrowth. They require forested landscapes with abundant prey, preferably snowshoe hare, or when hares are absent, red squirrel. Den sites are typically in hollow trees, under stumps or logs, or in thick brush within mature or old growth stands with high log densities.[1/] In the western United States, lynx are primarily associated with lodgepole pine, Engelmann spruce, and subalpine fir.[2/] There are no known breeding populations of lynx in Utah, although historically the species regularly occurred throughout the Uinta Mountains. Hair-snare surveys were conducted for lynx as part of the National Lynx Survey during 1999, 2000, and 2001 within the two LAUs, but no lynx was detected.[3/] **<u>FY2003-FY2010</u>:** Between 1999 and 2007, 22 of the 218 lynx reintroduced into the Colorado Rockies were documented in Utah. Five (5) of these, all males, showed up in Utah within 180 days from when they were released. Seven of the reintroduced lynx were documented for 2 consecutive years in Utah.[4/] The satellite collars take readings once a month. These collars only last about 18 months, and consequently, none of these are currently still working. The radio-collars last about 5 years. Though reproduction has never been documented in Utah, the continuous presence of lynx in Utah from 2003-2009 suggests there is potential

Indicator	Monitoring
	for year-round residency and reproduction in the State.[5/] In 2004, two lynx (one male and one female) were detected on the Forest. The male passed through the Strawberry Valley area in July. The female was located at several locations on the Forest during the fall of 2004. Both lynx kept moving, did not stay in one area for more than a week, and eventually moved off the Forest. In January of 2005, a collared female lynx from Colorado was located in the Soapstone Basin on the west end of the Uinta Mountains. She passed through and did not remain on the Forest. In 2010 the Uinta-Wasatch-Cache and Ashley National Forests initiated lynx surveys within the Uinta Mountains. This study was largely located on the Wasatch-Cache planning area and Ashley National Forest, but did include 4 survey routes extending into the Uinta National Forest. About 705 miles of ground-based snowmobile track surveys were completed, including about 506 miles on the Uinta-Wasatch-Cache National Forest. No lynx tracks were observed on these surveys. An additional 1,266 miles were aerially surveyed (UWC and Ashley NFs). Two possible lynx tracks were located by aerial reconnaissance; however, weather conditions prohibited ground verification. These were in the West Fork/Beaver Creek and Burnt Fork/Fish Lake areas on the North Slope of the Uinta Mountains (Wasatch-Cache NF planning area). In addition, 8 lynx sightings were also reported during the survey period. Four of these reports were considered likely to be reliable; one of these was in the Uinta NF planning area (Lake Creek area).[6/] This study fulfilled Objective-2-18 in the 2003 Forest Plan Objective-2-18 (LRMP, pg. 2-15) which called for surveying the 2 LAUs by 2013 to determine the presence or absence of Canada lynx. 1/ Koehler, G., & Brittell, J. (1990). Managing spruce-fir habitat for lynx and snowshoe hares. *Journal of Forestry*, pp. 10-14. 2/ Ruediger, B., Clarr, J., Gniadek, S., Holt, B., Lewis, L., Mighton, S., et al. (2000). *Canada lynx conservation assessment and strategy.* Missoula, Montana: USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, USDI National Park Service. 3/ USDA Forest Service, Intermountain Region. 2003. Final Environmental Impact Statement for the 2003 Land and Resource Management Plan, Uinta National Forest. Intermountain Region. 273 pg. 4/ Colorado Division of Wildlife. 2006-2007 Lynx Research Report. Division of Wildlife, Mammals Research, Lynx Conservation, Post-Release Monitoring of Lynx Reintroduced to Colorado. http://wildlife.state.co.us/NR/rdonlyres/4D36282D-0C6D-4E11-A206-07DF57A2BFF6/0/ShenkFinal200607AnnualReportsecure.pdf 5/ Colorado Division of Wildlife. 2008-2009 Lynx Research Report. Division of Wildlife, Mammals Research, Lynx Conservation, Post-Release Monitoring of Lynx Reintroduced to Colorado. http://wildlife.state.co.us/NR/rdonlyres/AD9B39DC-79B8-4E2E-9499-4E120FA41751/0/LynxAnnualReport20082009.pdf

Indicator	Monitoring
	[6/] Berg, N.D. and R.M. Inman. 2010. Uinta Mountains Lynx and Wolverine Survey Report. Unpublished. Uinta-Wasatch-Cache National Forest. Salt lake City, Utah. 44 pp. 7/ Federal Register, Volume 24, Number 36. 2009. Revised Designation of Critical Habitat for the Contiguous United States Population of Canada Lynx. Published February 25, 2009. pp. 8616-8702.
Clay phacelia: Documentation of observations and project surveys in potential habitat (every 5 years)	Clay phacelia is a federally listed (1978) endangered species. The 2003 Forest Plan contains the following direction pertaining to clay phacelia: Subgoal-2-13: *"Participate in the development and implementation of a habitat management strategy for clay phacelia (Phacelia argillacea)."* Subgoal-2-14*:* "*Potential habitat for clay phacelia (Phacelia argillacea) in the Spanish Fork Canyon area is managed to ensure quality habitat will be available in the future if it becomes necessary to introduce this species onto National Forest System lands to provide for its recovery."* (pg. 2-6) Objective-2-6: *"By 2008, develop a habitat management strategy for and verify the location of potential habitat (as identified by Harper and Armstrong 1992) for clay phacelia (Phacelia argillacea) in the Spanish Fork Canyon area."* (pg. 2-13) Clay phacelia is presently known only in two small populations in Spanish Fork Canyon. The species is endemic to clay and shale soils of the Green River Formation on east and southeast facing slopes. Phacelia is found on sparsely vegetated slopes among mountain brush and pinyon/juniper communities, at elevations from about 6,000 to 7,000 feet. The locations of the two populations, though high in elevation, are considered to be on xeric sites because of the steepness and exposure. The existing population of about 200 plants occurs on private property. Although no populations are known to occur on the Forest, they do occur in close proximity to the Forest. Potential habitat exists on the Forest, as confirmed by a study comparing soils, vegetation, and physical parameters of potential sites on the Forest with those of occupied sites. The primary threat to the species is habitat destruction due to construction activities by the property owner, and or along the adjoining highway. A major goal in the recovery effort is to establish new populations on publically owned lands that can receive a higher level of protection. The objective of the recovery plan is to establish a self-sustaining population of 2,000 to 3,000 individuals on 120 acres of protected habitat, and to possibly establish at least one new population. [2/] There is an approved recovery plan (1982)[1/] for clay phacelia. The Forest Service participates actively in recovery efforts, both as a member of the recovery team and in implementing recovery tasks. The U.S. Fish and Wildlife Service plans to update the Recovery Plan for this species. The Forest Service is taking

Indicator	Monitoring
	part in the development of the updated recovery plan. Dr. Kim T. Harper of Utah Valley State College and students buried pots containing soil and seeds from an existing clay phacelia colony in three potential habitat areas on the Forest in 1996 and 1997, using soil from both private and NFS habitat. They found that the two soil sources did not differently affect seed germination. These pot sites were surveyed in 2002, but no clay phacelia plants were found. For this monitoring item, the Forest Plan notes that broad habitat-wide surveys have been conducted (as described above), and that projects in potential habitat are surveyed. (pg. 6-5) **FY2003-FY2010:** Surveys: Project and other surveys for clay phacelia are summarized in the following table: **Clay Phacelia Surveys and Results, FY2003 – FY2010:**

Fiscal Year	Surveys	Results
2003	1996 Experimental Planting Site -survey.	No phacelia found
2004	No projects proposed and no surveys within likely habitat.	NA
2005	No projects proposed and no surveys within likely habitat.	NA
2006	One project proposed and surveyed within potential habitat.	No phacelia found
2007	One project proposed and surveyed within potential habitat.	No phacelia found
2008	One project proposed and surveyed within potential habitat.	No phacelia found
2009	No projects proposed and no surveys within likely habitat.	NA
2010	Survey conducted in mapped potential habitat on National Forest System Lands.	No phacelia found

Clay Phacelia Reintroduction Project: In FY2002 a proposal to reintroduce clay phacelia on selected sites on the Uinta National Forest was developed. This involved completing the appropriate NEPA for a project involving collecting seed from existing plants, growing this seed in a greenhouse to produce much higher quantities of seed, and then planting the seed (or seedlings) on the Forest. Partners in this project included

Indicator	Monitoring
	the U.S. Fish and Wildlife Service, U.S. Forest Service (Uinta National Forest and Rocky Mountain Research Station – Shrub Sciences Laboratory), and Red Buttes Garden. Project activities are summarized in the following table:

Fiscal Year	Action
2003	A Decision Notice signed approving an interagency project to introduce clay phacelia on up to thirteen sites of apparently suitable habitat on the Uinta N. F over a period of several years.
2004	Seeds were collected from one of the two populations.
2005	Pilot germination study initiated. Seeds collected previously were treated and planted resulting in about 80 germinated seedlings. These were planted in containers.
2006	60 surviving plants were placed in a greenhouse, pollinated. This resulted in collection of about 13,000 seeds.
2007	Seeds were planted, and the resulting 400 seedlings were placed in containers. The 250 surviving seedlings were placed in cold-room, with only 99 survivors. These 99 were pollinated, resulting in collection of about 11,000 seeds.
2007	6,000 seeds field-planted/sown, for a small plot seeding study, at 2 reintroduction sites.
2007	Another 6,000 seeds were buried in bags at the 2 reintroduction sites for a seed retrieval experiment.
2008	The field sowing and retrieval studies were monitored and results evaluated.
2009	The field sowing and retrieval studies were monitored and results continue to be evaluated.
2010	The seed propagation (germination study) efforts were scaled up and out of 900 seeds which germinated approximately half survived planting, resulting in a total of about 450 plants which were held for 2 months in a warm greenhouse then moved to a cold greenhouse.
	Project report produced in March summarizing results to date.[2/]
	The field sowing and retrieval studies were monitored and results continue to be evaluated.
	The ~450 surviving plants were placed outdoors in an area with high natural pollinator density, resulting in high seed set. Approximately 177,000 seeds harvested by hand over several weeks in summer of 2010.
	Used 45,000 of the greenhouse-produced seeds for direct sowing in the field in fall 2010. Large plot seeding studies were installed at Mill Fork and Tie Fork and also at a third (new) reintroduction site called Upper Tie Fork,
	Approximately 131,000 seeds were stored to either be used for direct sowing in fall 2011 or placed in *ex situ* preservation.

So far the reintroduction effort has not been successful in reestablishing clay phacelia on the Forest. However, it has been successful in increasing our knowledge of the species as outlined below:

- A major limitation to reintroduction is lack of sufficient non-dormant seed, but with increased seed production and ability to sow large numbers of seeds, reintroduction success is becoming much

Indicator	Monitoring
	more likely. ♦ Clay phacelia can form a persistent seed bank that will probably last at least 10 years. There is no apparent field cue that can render a large fraction of the seed germinable. This is common in short-lived plants of harsh environments, where it provides protection against complete germination followed by complete seedling mortality. ♦ Clay phacelia is a true biennial rather than a winter annual. ♦ Seedling survival was increased in 2011 due to the ample and regular summer precipitation received at the study sites. ♦ Germination is low. Overall emergence averaged about 1 seedling for every 300 seeds planted. Considering only about 10% of the seeds planted were not dormant, about one seedling per 30 non-dormant seeds was produced. ♦ Of several methods tested to break seed dormancy (i.e., to allow production of more seedlings in a given time with a limited amount of seed available), the most productive in producing germination was scarification with one month of chilling. However, allowing longer ripening period for seed may increase their level of dormancy, causing the scarification to not have the desired effect. 1/ USDI- Fish and Wildlife Service. 1982. Clay phacelia (*Phacelia argillacea*) Recovery Plan. U.S. Fish and Wildlife Service. Denver, Colorado. 13pp. 2/ Meyer, Susan E. 2010. Clay Phacelia Reintroduction Report, March 2010 Report. U.S. Forest Service, Rocky Mountain Research Station Shrub Sciences Laboratory. Provo, UT. 9 pp. 3/ Meyer, Susan E. 2011. Clay Phacelia Reintroduction Report, August 2011 Report. U.S. Forest Service, Rocky Mountain Research Station Shrub Sciences Laboratory. Provo, UT. 7 pp.
Ute ladies'-tresses: Documentation of observations and project surveys in potential habitat (every 5 years)	Ute ladies'-tresses (*Spiranthes diluvialis*, i.e. "ULT") is a federally listed (1992) threatened species. The 2003 Forest Plan contains the following direction pertaining to ULT: Subgoal-2-15: "*Ute ladies'-tresses (Spiranthes diluvialis) colonies are managed so as to contribute to the protection and recovery of the species within the Diamond Fork watershed. If necessary, these colonies will serve as propagation stock for new habitats within this watershed. Bee (pollinator) habitat is identified and protected in association with these plant colonies".* (pg. 2-6) Objective-2-7: *"By 2008, select several Ute ladies'-tresses (Spiranthes diluvialis) colonies for protection and management attention to serve as propagation stock for the colonization of new habitats. Concurrently, provide adequate insect pollinator (bee) habitat in association with these colonies."* (pg. 2-13)

Indicator	Monitoring
	Guideline WL&F-16: **"***Where feasible, provide pollinator habitat adjacent to Ute ladies'-tresses colonies by avoiding the removal of down woody material in the course of any management activities in the lower 7.5 miles of the Diamond Fork River corridor. Where removal cannot be avoided, salvage a portion of down woody material greater than 3 inches in diameter and relocate it to sunny openings adjacent to Ute ladies'-tresses colonies."* (pg. 3-13) In 1992 this species was known from fewer than 6,000 individuals in 10 extant and 7 presumably extirpated populations in Colorado, Nevada, and Utah. The species was considered extremely vulnerable to extinction from habitat loss/modification, small population size, and low reproductive rate.[1/] Since 1992, the number of populations has increased to over 50 and its known range has expanded to Idaho, Montana, Nebraska, Washington, and Wyoming.[2/] The only known occurrences of ULT on the Uinta National Forest are in the Diamond Fork Creek drainage, with adjacent populations located just off-forest along the Spanish Fork River. Extensive surveys have failed to locate it elsewhere on the Forest. The U.S. Fish and Wildlife Service is in the process of completing a status review for this species. ULT was originally thought to be limited to undisturbed riparian habitats. It is now known to also occur in agricultural lands and managed riparian systems where frequent human-influence disturbance events simulated natural early to mid-seral conditions. Habitat loss or alteration due to competition from non-native plants and vegetation succession are now considered the most widespread potential threat range-wide. Urbanization, construction of roads and other infrastructure, changes in hydrology, impacts from recreation, late season haying, and pollution are other potential threats. Winter grazing has been found to be beneficial for reducing competing cover in ULT populations. Summer grazing can be detrimental, particularly if plants are trampled or inflorescences removed before seed produced. Herbivory of inflorescences by voles has been found to be much more severe than expected at several sites. [2/] **FY2003-FY2010:** Project and other surveys for ULT are summarized in the following table:

Indicator	Monitoring
	Ute Ladies'-tresses Surveys and Survey Results, FY2003 - FY2010:

Fiscal Year	Surveys	Results
2003	1 project (Diamond Fork Group Site) in ULT habitat surveyed.	A previously known population surveyed to ensure the project which was located in close proximity to the known colony avoided impacting plants.
2004	No projects proposed and no surveys within likely habitat.	NA
2005	Several proposed projects in Diamond Fork and Sixth Water Creek drainages were surveyed.	No new ULT colonies were found.
2006	1 project on Heber Ranger District proposed that would possibly impact ULT habitat. Project was surveyed. 1 project in Diamond Fork within several 100 feet of existing ULT population.	No new ULT colonies were found in project surveys, but 12 new colonies were found (between Diamond Fork Campground and the mouth of the drainage) in the ongoing Diamond Fork drainage-wide population monitoring.
2007	1 project on Heber Ranger District proposed that would possibly impact ULT habitat. Project was surveyed. 2 projects on Spanish Fork Ranger District proposed that would possibly impact ULT habitat. Projects were surveyed.	No new ULT colonies were found in project surveys.
2008	2 projects on Spanish Fork Ranger District proposed that would possibly impact ULT habitat. Projects were surveyed.	No new ULT colonies were found in project surveys.
2009	No projects proposed and no surveys within likely habitat.	NA
2010	1 project on Spanish Fork Ranger District proposed that would possibly impact ULT habitat. Project was surveyed. 1 project on Heber Ranger District proposed that would possibly impact ULT habitat. Project was surveyed.	No new ULT colonies were found in project surveys.

Ute Ladies'-tresses Enhancement Project: In 2001 twenty bee boxes were placed within existing ULT habitat to see if they would increase pollinator habitat. The bee boxes were monitored in 2002 to see if they were used by pollinators, and no use was found. Dr. Vincent Tepedino reviewed the project and

Indicator	Monitoring
	suggested that the bee boxes were located in sites too wet to appeal to bees. In 2003 the bee boxes were repositioned in adjacent upland areas, and 20 bundles of elderberry twigs were placed nearby. In 2005 the Forest monitored the relocated bee boxes and twig bundles. The bee boxes were not being used, but an unidentified species of bees had used a few of the twigs as nesting sites. [1/] U.S. Fish and Wildlife Service. 1992. Endangered and Threatened wildlife and plants; final rule to list the plant *Spiranthes diluvialis* as a Threatened species. *Federal Register* 57(12): 2048–2054. [2/] W.Fertig, R.Black & P.Wolken. 2005. Rangewide Status Review of Ute Ladies'-tresses. September 2005. Report prepared for U.S. Fish and Wildlife Service and Central Utah Water Conservancy District.
Ute ladies'-tresses: Population trends (every 5 years)	Through the 1980s Ute ladies'-tresses (ULT) was known from only 10 extant and 7 historical (i.e., extirpated) locations in Colorado, Nevada, and Utah. Many of these populations were considered highly threatened by urban sprawl, and/or development of stream and wet meadow habitat. Ute ladies'-tresses was listed as Threatened in 1992.[5/] Since then, additional field surveys and monitoring greatly increased the number of known populations, total population size, and the global range of this species. Today, ULT is known from 52 extant populations, and is found in four additional states (Idaho, Montana, Nebraska, Washington, and Wyoming). New monitoring and demographic research have documented that populations are more stable than originally suspected (especially if subterranean seedling and dormant individuals are counted) and more tolerant of human-induced disturbances. Today, about 35% of all known populations are in protected areas or afforded some form of special management attention.[1/] Survey work and monitoring studies suggest that the global population may be over 83,000 individuals. New discoveries have also shed light on the plant's complex life history, dependence on disturbance (natural and/or human-induced), and response to existing and newly identified threats.[1/] The only known occurrences of ULT on the Uinta National Forest are in the Diamond Fork area. When the 2003 Forest Plan was approved, 77 plant colonies in the Diamond Fork drainage had been identified. All of these lie on a depositional (flood-created) surface. In 1998, a year of record flowering in Diamond Fork, an extensive survey resulted in a population estimate of 16,500 flowering individuals in these colonies. Based on population estimates and acres of occupied habitat, the Diamond Fork complex is the largest along the Wasatch Front (the other occurrences total less than 1,000 flowering individuals) and one of the largest, most concentrated occurrences throughout the species' range. This population is considered to be one of the most valuable metapopulations range-wide, and as such, a high priority for conservation and protection.

Indicator	Monitoring
	FY2003-FY2005: Surveys for Ute ladies'-tresses have been conducted by Utah Reclamation Mitigation and Conservation Commission (URMCC) and the Central Utah Water Conservancy District (CUWCD) in the Diamond Fork area since 1992 (no counts were made in 1995-1996). The emphasis of the ULT monitoring program during this period was on the number of flowering plants encountered during the "peak" flowering season. The number of flowering plants was presumed to be a measure of the population's status, and the counts could be used to assess the impacts of activities (including Central Utah Project operations) on the species.[4/] The results of the surveys conducted thru 2005 are summarized below:

1992-2005 Ute Ladies'-tresses Monitoring Results, Diamond Fork Drainage
Total Population Counts[2/]

Year	Estimated Number of Plants	Number of Colonies
1992	303	8
1993	6,049	32
1994	804	33
1997	13,481	46
1998	16,892	53
1999	6,003	61
2000	19,793	71
2001	26,344	74
2002	18,063	77
2003	1,040	77
2004	697	77
2005	12,495	77

As can be seen above, the number of individual flowering plants has fluctuated widely over time, ranging from a high of 26,244 in 2001 to a low of 303 in 1992.

FY2006-FY2008:

Scientists involved in monitoring ULT populations have advanced several theories to possibly explain the high variability in population counts. One theory was the low counts in the early years of monitoring might have been due to lack of experience in conducting and timing the surveys. However low counts also occurred in 2004, after 12 years of experience. Another theory was that livestock grazing was impacting

Indicator	Monitoring
	plants. However, comparison of grazing and population counts over time revealed no significant correlation. In 2005 URMCC funded a study to evaluate the relationship between weather, and water levels (i.e., ground water level and stream flow) on populations, but no significant correlations emerged. This study did; however, conclude that certain colonies were indicative of the patterns of the total canyon population. Based on this, URMCC proposed and the U.S. Fish and Wildlife Service approved a modified monitoring protocol. The modified protocol consists of counting the number of flowering individuals at 13 the colony sites that showed the strongest correlation with total canyon counts. In addition, the remaining colonies are assessed for the relative abundance (none, few, moderate or abundant) of flowering individuals. This protocol was initiated in 2006 and continued through 2008. [4/] Monitoring results are summarized below:

2006-2008 Ute Ladies'-tresses Monitoring Results, Diamond Fork Drainage Population Counts for 10 Selected Colonies[4/]

Site #	1998-2005 Counts**				2006	2007	2008
	Low	High	Mean	+/- 80% Confidence Interval			
2a	0	63	16	21	0	0	0
2b	0	432	128	159	2	0	0
10a	0	523	188	202	297	114	129
13	0	83	29	33	0	0	11
14	18	663	256	252	879	57	0
17a	0	53	27	17	0	0	0
20	17	990	379	336	4	0	0
24b	8	952	368	329	872	5	28
30	6	474	179	178	680	128	160
36	2	162	54	48	104	68	1
All 10 Sites	131	4,123	1,624	1,348	2,838	372	329

significantly (80% confidence interval) low count (compared to 1998-2005 counts)

significantly (80% confidence interval) high count (compared to 1998-2005 counts)

** Used as baseline because not all the 10 sites had counts for years prior to 1998.

Indicator	Monitoring
	As can be seen above, the high variability continued in 2006 thru 2008. For instance, 4 sites had significantly high counts in 2006, while 2 had significantly low counts. However, although the total count was higher than average, it was within the range of variability and not significantly different than experienced in previous years. In 2006, URMCC initiated a study to see if the number of flowering to non-flowering individuals variation might account for the variation in plant counts. Two successive years of data showed the ratio of flowering to non-flowering plants to be about the same, and thus not responsible for the variability in flowering plant counts. In 2007, a different study found wide variation in the number of flowering plants within a short time. (e.g., In 2007 counts for 4 colonies surveyed 12 days apart changed from 114 to 535 individuals)[2/, 4/] In conclusion, the high degree of variability and lack of correlation between population counts indicates the limited utility of exact counts in determining the status of the ULT population. **FY2009-FY2010:** No monitoring was completed and no report produced in 2009 for ULT, as in 2009 the URMCC (via letter dated August 18, 2009[6/]) requested the opportunity to re-consult with the Fish and Wildlife Service regarding the previously established environmental commitments for monitoring of ULT in Diamond Fork, with the objective of agreeing to a meaningful program for supporting recovery actions for ULT that might or might not incorporate further monitoring in Diamond Fork. Consideration was also requested for a temporary suspension of the ULT monitoring requirements in Diamond Fork for 2009, because it wasn't believed that suspending the monitoring would have any effect on their inability to adequately assess the status of the ULT population in Diamond Fork. This was based upon the fact that after looking at the data collected, the variability within the data set precluded the detection of either a statistically significant or a managerially significant change – even after more than a decade of monitoring ULT. In 2010, riparian vegetation mapping and vegetation transect surveys were completed in Diamond Fork and Sixth Water Creeks and the data collected was compared to data previously collected in 2007. No monitoring specifically for ULT was done, (no flowering plant counts as in the past). Conclusions from this report state that as vegetation communities adjust to lower flows, that particular attention should be paid to non-native species which could greatly affect the structure of native vegetation communities. Invasive and exotic species are identified as a possible threat to ULT populations and habitat as both ULT and many non-native species have similar habitat requirements and are adapted to

Indicator	Monitoring
	disturbance regimes that historically occurred on Diamond Fork Creek. Careful monitoring and treatment programs for non-native species are recommended for both Diamond Fork and Sixth Water Creeks. Comparison of the 2007 with the 2010 data showed potential changes and trends in the riparian vegetation communities in the Diamond Fork Watershed as follows: species data and growth habit analysis show an overall reduction in grass cover; bare ground cover increased, which may indicate that overall vegetation cover has decreased since 2007; wetland woody species and particularly willow might be expanding in some areas; the Wetland Indicator Status analysis shows a potential trend to more intermediate species since both wetland and upland cover declined, however, it is not clear whether the transition is to drier or wetter or if a trend exists; analysis for native or non-native species suggests a general trend of native vegetation cover loss, however, the data also shows a loss in non-native species cover so the actual trend might not be discernable but the individual transect data indicate a potential issue with weedy species. More in-depth analyses and statistical tests might reveal changes and trends not noted in the report. Future monitoring and data collection will also create a stronger dataset to assess vegetation community changes in the Diamond Fork Watershed. [7/] [1/] W.Fertig, R.Black & P.Wolken. 2005. Rangewide Status Review of Ute Ladies'-tresses. September 2005. Report prepared for U.S. Fish and Wildlife Service and Central Utah Water Conservancy District. Data collected by URMCC and CUWCD. [2/] Utah Reclamation Mitigation and Conservation Commission. 2009. Diamond Fork and Sixth Water Creeks Riparian Vegetation and Ute Ladies' –tresses 2008 Monitoring Report. URMCC. Orem, Utah. [4/] Weland, Michael C. 2009. Memo dated August 18, 2009, with an enclosure from Utah Reclamation Mitigation and Conservation Commission to Larry Crist, Field Supervisor – Utah Field Office, U.S. Fish and Wildlife Service regarding monitoring commitments for Ute ladies'-tresses, Diamond Fork System, Central Utah Project. [5/] U.S. Fish and Wildlife Service. 1992. Endangered and Threatened wildlife and plants; final rule to list the plant *Spiranthes diluvialis* as a Threatened species. *Federal Register* 57(12): 2048–2054. [6/] Utah Reclamation Mitigation and Conservation Commission. 2009. Letter: Monitoring commitments for Ute ladies'-tresses, Diamond Fork System, Central Utah Project. URMCC. Orem, Utah. [7/] Utah Reclamation Mitigation and Conservation Commission. 2010. Diamond Fork and Sixth Water Creek Riparian Vegetation Mapping and Vegetation Transect Surveys 2010 Final Monitoring Report. URMCC. Orem, Utah.

3. Are **National Register eligible sites** and districts being protected?

DFC: Visitors to the Forest find opportunities to touch, explore, enjoy, and learn about their cultural heritage. They recognize and respect the diversity of past Forest users, and understand the fundamental relationship between people and the land. This access to the past is constantly growing through an active heritage program, which is fully integrated into other management areas including recreation, interpretation, and environmental education. A long-term management plan is developed in consultation with local Tribes, Historical Societies, and other interested publics to address management of heritage resources, including historic Forest Service structures. Information about past human activities provides a context for understanding current ecological issues, and provides a foundation for ecological restoration projects. Knowledge of past activities is increased through archaeological and historical research. Known sites are protected against erosion and impacts from recreation.

Indicator	Monitoring
Mitigation measures including pre-disturbance surveys applied/not applied (every 5 years)	*The revised Forest Plan contains a goal (FW-Goal-4) for heritage resources: "Heritage resources are identified, preserved, and enhanced."* (pg. 2-17) The revised Forest Plan also notes that: *"Project areas are surveyed prior to disturbance. Mitigation for potentially affected sites is outlined in NEPA documents. At least 1 vegetation management, 1 special use and 1 range project or activity"* is monitored annually. (pg. 6-20) At the time the Forest Plan was approved in 2003, about 94,386 acres of the Forest had been surveyed for heritage resources. Through these surveys, 427 cultural resource sites had been documented. [1/] **<u>FY2003-2010</u>:** All ground disturbing and historic guard station maintenance projects were surveyed for cultural resource sites, and the potential effects were evaluated. Most surveys were conducted as part of the National Historic Preservation Act Section 106 compliance associated with projects. However, "*Passport in Time*" (PIT) projects not associated with specific ground-disturbing projects also occurred, and these also played a significant role in assisting the Forest in fulfilling its obligation to document, evaluate, and protect "*National Register of Historic Places*" (NRHP) eligible heritage resources. Since the Forest Plan was approved in 2003 about 17,465 acres have been surveyed, and 195 new sites documented. The results by fiscal year are summarized in the following table. Collectively (pre- and post- Forest Plan approval) about 111,851 acres of the Forest (~ 12.6% of the Forest) have been surveyed and 622 sites documented.

Indicator	Monitoring

Summary of Heritage Resource Surveys and New Sites Documented
Fiscal Years 2003 - 2010

Fiscal Year	Acres Surveyed	New Sites Documented	Comments
2003	790	63	50 of the new sites were abandoned mines on Vernon Unit.
2004	2,042	26	7 sites were found via project surveys; other 19 were found thru PIT projects
2005	5,112	18	14 sites found via project surveys; other 4 thru PIT projects
2006	1,534	29	23 sites found via project surveys; other 6 thru PIT projects
2007	401	15	5 sites identified during Vernon PIT Project
2008	4,126	11	
2009	766	19	11 sites identified during Vernon BYU Project
2010	2,694	14	14 sites identified during the Vernon Fuels Survey

FY2003:

Fifty of the 63 new sites discovered were abandoned mines on the Vernon Management Area that were documented as part of a mine safety closure project. Only two projects had potential adverse effects to cultural resource sites. These include the American Fork Canyon Mine Reclamation project and the Buckley Diversion Trench project. The results of monitoring these projects are summarized below:

The **American Fork Canyon Mine Reclamation** project was redesigned to protect the concrete concentrator foundation at the Dutchman Mine. Post-project monitoring showed that the redesign features were applied as designed.

The **Buckley Draw Diversion** was designed to avoid and protect an adjacent historic lime kiln complex. The project was implemented as designed.

FY2004:

Of the projects surveyed, only the **Reservoir No. 1 Reclamation Project**, which is discussed below, had the potential to adversely affect a NRHP eligible site. Post-implementation monitoring was conducted on 3 projects, but no sites were found on 2 of the projects monitored.

Indicator	Monitoring
	Reservoir No. 1 Reclamation project adversely affected the historic integrity of the reservoir itself, which is part of the historically significant Daniel's Irrigation Company Canal System. Adverse effects to the reservoir were addressed through a 1995 Programmatic Agreement between the Central Utah Project Completion Act Program, the Central Utah Water Conservancy District, the Forest, and the Utah State Historic Preservation Office. This adverse effect was recognized during the NEPA process and mitigation implemented in the final project design. Mitigation measures include interpretive signs describing the history of the system. The project was implemented as approved and in accordance with the Programmatic Agreement. **FY2005:** Fourteen (14) of the 18 new sites found were found to be sufficiently important to local history to be eligible for the NRHP. Only one project, **Diamond Fork Group Campground**, had the potential to adversely affect a NRHP eligible site. Post-implementation monitoring was conducted on 4 projects; no sites were found on three of these. The Diamond Fork Group Campground project, and results of post-implementation monitoring are summarized below: The **Diamond Fork Group Campground** was found to have an adverse effect on a small site adjacent to one of the group sites; however, this will be mitigated by fencing the site and interpreting its history. No heritage sites were found within the areas of potential effect for the **Silver Meadows Fence** or the **Rocky Top Timber Sale** projects. No heritage sites were found within the portion of the **Questar Pipeline** that crossed lands managed by the Uinta National Forest. In addition, the Forest's Heritage Staff helped Questar identify and avoid known sites within gas line right-of-way in the section of right-of-way located off-Forest in the foothills east of Provo. A single National Register Eligible site was located within the overall analysis area of the **Halls Fork Prescribed Burn**, but this site was avoided through project planning that excluded it from the burn area. The site was visited during post-implementation monitoring, and found not to have been affected by project activities, including staging of equipment.

Indicator	Monitoring
	FY2006: Nine (9) of the 29 new sites found were sufficiently important to local history to be eligible for the NRHP. Six of these sites were recorded by *PIT* volunteers assisting with the on-going effort to document both ancient American Indian and historic European American homesteads on the Vernon Management Area. Four of the projects evaluated had the potential to adversely affect heritage resources. These are discussed below: The potential effect of adding solar panels to a **historic guard station** was also evaluated, and minimized by placing the solar panels away from the structure. Three ground disturbing projects were found to have the potential to affect important historic sites. The **Little Diamond Fuels Reduction Project** had the potential to affect a portion of the probable location of the 1866 Little Diamond Battle Site from Utah's Blackhawk War. The project was re-designed so that only hand thinning of vegetation (and no ground disturbance of any kind) would occur on or near the battle site. The **Telephone Hollow Timber Sale** had the potential to affect an ancient American Indian site, but the project was redesigned to avoid the site entirely. Emergency repairs to the **American Fork City Water Pipeline** in American Fork Canyon were designed to avoid adverse impacts to both the historic pipeline itself, and to an adjacent rock retaining wall from the 1870's. The redesign was only partially successful in avoiding adverse impacts during construction, as heavy equipment damaged a portion of the old rock wall. The project redesign did not take into account the actual operating limits of the heavy equipment, and contractors did not attempt to come up with a different solution to the problem once that was discovered. Forest plan monitoring was conducted on 3 projects. The results are summarized below: No sites were found in surveys conducted for the **Upper Murdock Timber Sale**. The potential for sheep grazing in the **Twin Peaks Allotment** to affect heritage resources was analyzed for the *Upper Strawberry AMP EIS*. The analysis showed that archaeological site densities and potential for grazing to affect sites on this allotment are low, and no impacts from grazing were identified.

Indicator	Monitoring
	The reissuance of the **Rocky Mountain Power Special Use Permit** was an administrative act that did not have the potential to affect cultural resources under 36 CFR Part 800.3.a.1. However, this did not include any reconstruction or relocation of power poles, access roads, or other features that have the potential to affect heritage sites. The power line corridor on National Forest System lands has never been systematically surveyed for archaeological sites. In the spring of 2006, the company built some temporary roads to access new pole locations. A quick survey did not identify any impact from the roads on archeological sites. However, this action showed a need for more coordination between Rocky Mountain Power and the Forest in identifying long-term maintenance needs and Forest Service regulations relating to these maintenance needs. The Ranger District initiated coordination and requested maintenance plans for all power lines. They also encouraged the company to survey all of their power line corridors. This kind of proactive planning will help avoid potential unapproved impacts to archaeological sites in the future, and helps move the Forest close to the DFC for heritage resources. The **Dry Canyon Restoration Project** area was inventoried for cultural resources as part of the NEPA process, and no sites were found. During implementation 2 separate isolated artifacts were uncovered by the dozer. In both cases, work was stopped by Ranger District staff, and the area checked for additional artifacts. No additional artifacts were found, meaning that no sites were involved (a site is an area of past activity that includes at least 5-10 artifacts). **FY2007:** In 2007 heritage specialists on the Forest conducted 15 projects, 13 of these projects involved inventories. A total of 15 newly identified archaeological and historic sites were recorded. 5 of the 15 sites were recorded through a PIT project designed to meet the Forest's commitment under Sec. 110 of the NHPA. Any deleterious effect to NRHP eligible sites was mitigated for the implementation of these projects. **FY2008:** In 2008 heritage specialists on the Forest addressed 24 projects, 11 of these projects involved inventories. A total of 11 newly identified archaeological and historic sites were recorded. Any adverse effect to NRHP eligible sites was mitigated for the implementation of these projects. The Forest also monitored "priority heritage assets" (PHAs) to better understand the potential for these sites to be the subject of adverse effects.

Indicator	Monitoring
	FY2009: In 2009 heritage specialists on the Forest addressed 33 projects, 15 of these projects involved inventories. A total of 7 newly identified archaeological and historic sites were recorded. Any adverse effect to NRHP eligible sites was mitigated for the implementation of these projects. The Forest also monitored 4 PHAs to better understand the potential for these sites to be the subject of adverse effects. A PIT project was accomplished with the goal of stabilizing and maintaining the "Theater in the Pines" CCC constructed ampitheater. The ampitheater is a PHA. Stabilizing the structure will help ensure that it will remain a viable part of our Forest's infrastructure and provide a unique experience for present and future Forest visitors. **FY2010:** In 2010 Heritage specialists on the Forest addressed 31 projects, 21 of these projects involved inventories. A total of 20 newly identified archaeological and historic sites were recorded. Any adverse effect to NRHP eligible sites was mitigated for the implementation of these projects. The Forest also performed monitoring of 11 PHAs to better understand the potential for these sites to be the subject of adverse effects. An Archaeological Resources Protection Act of 1979 (ARPA) case was initiated against two individuals accused of looting a historic era U.S. Army site on the Forest. Tasks associated with the case involved: damage assessments, site recording, and advising law enforcement. [1/] Uinta National Forest. 2003. *Uinta National Forest State of the Forest Report for Fiscal Years 2001 and 2002*. Pg 13.
Unapproved impacts to sites (every 5 years)	The revised Forest Plan contains a goal (FW-Goal-4) for heritage resources: *"Heritage resources are identified, preserved, and enhanced."* (pg. 2-17) **FY2003:** Two of the projects monitored potentially could have impacted cultural resources. No unanticipated or unauthorized impacts to cultural resource sites were identified during monitoring of these sites, or reported on other sites on the Forest. Post-implementation monitoring at the **American Fork Canyon Mine Reclamation** project showed that the redesign successfully preserved the concrete concentrator foundation at the Dutchman Mine. Post-implementation monitoring at the **Buckley Draw Diversion** occurred shortly after a debris flow episode, and found that the trench construction and debris flow

Indicator	Monitoring
	occurred without affecting the overall historic integrity of the lime kiln. See the discussion in the preceding section of this report. **FY2004:** Post-implementation monitoring was conducted on 3 projects. Only one of these projects had potential for impacting cultural resources. The **Reservoir No. 1 Reclamation** project adversely affected the historic integrity of the reservoir itself, which is part of the historically significant Daniel's Irrigation Company Canal System. However, this adverse effect was recognized during the NEPA process and mitigation implemented in the final project design. No unapproved impacts occurred as a result of this project, or were reported on other sites on the Forest. See the discussion in the preceding section of this report. **FY2005:** Post-implementation monitoring was conducted on 4 projects. Only one of these projects had potential for impacting cultural resources. A single National Register Eligible site was located within the overall analysis area of the **Halls Fork Prescribed Burn.** Post-implementation monitoring found this site had not been affected by project activities, including staging of equipment. No unapproved impacts occurred as a result of this project, or were reported on other sites on the Forest. See the discussion in the preceding section of this report. **FY2006:** Post-implementation monitoring was conducted on 4 projects. The results are summarized below: On the **Twin Peaks Sheep Grazing Allotment**, archaeological site densities and potential for grazing to affect sites on this allotment are low, and no impacts from grazing were identified. The reissuance of the **Rocky Mountain Power Special Use Permit** did not have the potential to affect cultural resources. However, this special use permit reauthorization project did not address any reconstruction or relocation of power poles, access roads, or other features that may have the potential to affect heritage sites. The powerline corridor on the Forest had never been systematically surveyed for archaeological sites. In the spring of 2006, the company built some temporary roads to access new pole locations. Post-implementation monitoring did not identify any impacts to cultural resource sites resulting from this action.

Indicator	Monitoring
	The **Dry Canyon Restoration Project** area was inventoried as part of the NEPA process, and no sites were found. During implementation 2 separate isolated artifacts were uncovered. In both cases, work was stopped by Forest Service staff, and the area checked for additional artifacts. No additional artifacts were found. Emergency repairs to the **American Fork City Water Pipeline** in American Fork Canyon were designed to avoid adverse impacts to both the historic pipeline itself, and to an adjacent rock retaining wall from the 1870's. The redesign was only partially successful in avoiding adverse impacts during construction, as heavy equipment damaged a portion of the old rock wall. The project redesign did not take into account the actual operating limits of the heavy equipment, and contractors did not attempt to come up with a different solution to the problem once that was discovered. Other than as discussed above, no unapproved impacts occurred as a result of this project, or were reported on other sites on the Forest. See the discussion in the preceding section of this report. **FY2007:** Post-implementation monitoring for impacts to cultural resources was conducted on 2 projects. Only one of these projects was identified as having potential for impacting cultural resources. The **Bryants Fork Timber Sale** selectively harvested about 190 acres of conifer stands, and involved construction and post-harvest obliteration of approximately 3.7 miles of temporary roads. The project area was surveyed for cultural resources as part of the NEPA process. One site (Okelberry Patio) that is not eligible for the NFHP was identified within the project area. The project was designed to avoid disturbance to this site and the site was not affected. No unapproved impacts occurred as a result of these 2 projects, or were reported on other sites on the Forest. See the discussion in the preceding section of this report. **FY2008:** Post-implementation monitoring for impacts to cultural resources was conducted on 2 projects. This is summarized below: **American Fork Hydroelectric Power Plant.** The American Fork (AF) hydroelectric plant was operated since 1913. While for many years American Fork was a valuable hydroelectric facility, when it came time to reauthorize the project the choice was made to decommission and remove the

Indicator	Monitoring
	project. Removal included the plant's main structures, a 4-foot high and 30-foot wide concrete dam, and a small home and garage that housed plant operators until the early 1950s. The powerhouse, which is on the NFHP, was restored and conveyed to the U.S. Forest Service. Post-implementation monitoring did not identify any unapproved or unanticipated impacts to cultural resources. **Little Mill Campground.** This project involved the maintenance and repair of existing facilities, in-kind replacement of existing facilities, and other measures to control damage to soil and vegetation and address safety concerns for the Little Mill Campground in American Fork Canyon. A complete cultural resources inventory was completed in 2004, and no ancient American Indian and early European American artifacts or sites were found in this highly disturbed area. However, there were 2 historic sites: the Little Mill Footbridge Abutments, and the Little Mill No. 2 Bridge. The footbridge abutments are not eligible for the NRHP. The Little Mill No. 2 Bridge was built in 1956 and has flat, horizontal treated timber abutments with a longitudinal laminated treated timber deck (with asphalt). The abutments reflect a particular style of lumber construction distinctive of many Forest Service bridges in Region 4 of the Forest Service during the 1950's. Lumber bridges have a recognized limited life span, and this type of bridge is particularly vulnerable to rotting, since its supporting members are buried into the stream banks behind the fronts of the abutments. Consequently, it would be extremely difficult to move the abutments, or to preserve them in place. Therefore, the primary long-term historic value of the bridge is in the history of its style, not in the bridge itself. The Little Mill No. 2 Bridge is eligible for the NFHP, and its removal would be an adverse effect on its historic character. This was resolved through a Memorandum of Agreement with the Utah State Historic Preservation Office, which included mitigation measures to make up for the loss of the bridge. These included photographic documentation of the bridge, and a written history of bridge construction on the Uinta National Forest that includes the history of timber bridges on the Forest. No unapproved impacts occurred as a result of these 2 projects, or were reported on other sites on the Forest. See the discussion in the preceding section of this report. **FY2009 – FY2010:** No Forest Plan post-implementation monitoring for cultural resources occurred, and no unapproved were reported on the Forest in FY2009. In FY2010 an ARPA case was initiated against two individuals accused of looting a historic era U.S. Army site on the Forest. See the discussion in the preceding section of this report. No other unapproved impacts were reported on other sites on the Forest.

4. Is **permitted grazing** in compliance with the Forest Plan? Are Forest Plan **utilization standards** effective in mitigating impacts of grazing?

DFC: Grazing opportunities are maintained on open cattle and sheep allotments and continue to support the livestock industry in the local communities. Livestock grazing continues to be a viable and sustainable use of vegetation on these allotments, and is managed to ensure that the long-term resource goals for soil productivity, vegetative communities, wildlife habitats, and water quality are achieved. See also the DFC for Vegetation.

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td>Compliance with utilization standards (every 5 years)</td><td>

For this monitoring item, the Forest Plan notes that utilization compliance has been ongoing, but results have not traditionally been summarized. The Forest Plan states that the monitoring frequency for this item is that at least 10% of active allotments be monitored annually.

All term grazing permits on the Forest include the Forest Plan utilization standards. The permits require the permittee to monitor their livestock use, and to move their livestock to another grazing unit or from the allotment before these standards are exceeded. These requirements are reviewed with each permittee prior to each grazing season.

FY2003-FY2010:

The following table summarizes administration of grazing allotments on the Forest where utilization was monitored since 2003. The Forest has monitored well over 10% of the acreage within active allotments on the Forest (~62,400 acres) annually since the 2003 Uinta Forest Plan was approved.

Utilization Monitoring on Uinta National Forest

Grazing Year	# Allotments With Utilization Monitored	Percent of Open Active Allotments Monitored
2003	11[1/]	16%
2004	20[1/]	29%
2005	18[1/]	26%
2006	16	23%
2007	23	34%
2008	25	37%
2009	22	33%
2010	16	24%

[1/] SOURCE: 2005 State of the Forest Report, Uinta National Forest.

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<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td>Allotments administered to standard (annually)</td><td>

For this monitoring item, the Forest Plan notes that the number of allotments administered to standard has been reported annually for several years, and states that the monitoring frequency for this item is that that this item be monitored annually. "Allotment administered to standard" is defined in the Workplan database as "During the fiscal year, an Agency employee qualified in grazing permit administration successfully administers grazing allotments to standard by implementing direction found in forest plans, allotment management plans, annual operating instructions, grazing permits or agreements, and other relevant documents."

FY2003-FY2010:

The following table summarizes administration of grazing allotments to standard accomplishment:

Allotments "Administered to Standard" on Uinta National Forest

Grazing Year	# Allotments Administered to Standard	NFS Acres Within Allotments Administered to Standard
2003	11 [3/]	128,900 [3/]
2004	9 [1/]	92,970 [1/]
2005	5 [3/]	87,300 [3/]
2006	Unknown	372,633 [1/]
2007	Unknown	333,071 [1/]
2008	35 [2/]	251,357 [2/]
2009	22 [2/]	194,707 [2/]
2010	24 [2/]	347,065 [2/]

[1/] SOURCE: Workplan data base.
[2/] SOURCE: INFRA "Pastures Administered to Standard" Reports
[3/] SOURCE: 2005 State of the Forest Report, Uinta National Forest.

The Forest has monitored at least 10% of the acreage within active allotments on the Forest (~62,400 acres) annually.

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<tr><td>Range condition and trend (every 5 years)</td><td>

For this monitoring item, the Forest Plan notes that "Surveys of condition and trend have been ongoing for several years on most allotments and on wildlife winter range along the Wasatch Front; however, in many cases protocols have varied over time." The Forest Plan states that the monitoring frequency for this item is that at least some portion of the Forest would be monitored annually.

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Indicator	Monitoring
	FY2003-2010: Some upland range condition and trend monitoring has been occurring annually on the Forest. The results are summarized in the following table:

Range Condition/Trend Monitoring on Uinta National Forest

Grazing Year	# Studies	Trend	Ecological Condition[4/]
2003	46[1/]	8 up, 11 stable, 12 down, 15 undetermined[3/]	7 early seral, 12 mid-seral/fair, 11 late seral/good, 16 undetermined
2004	14	6 up, 3 stable, 5 undetermined[3/]	1 early seral, 9 mid-seral/fair, 4 late seral/good
2005	15	2 up, 8 stable, 5 down,	1 early seral, 5 mid-seral/fair, 2 late seral/good, 7 undetermined
2006	17	8 stable, 1 down, 8 undetermined[3/]	6 early seral, 3 mid-seral/fair, 1 late seral/good, 7 undetermined
2007[2/]	21	5 up, 10 stable, 6 down	2 early seral, 10 mid-seral/fair, 9 late seral/good
2008	17	8 up, 1 stable, 2 down, 6 undetermined[3/]	2 early seral, 5 mid-seral/fair, 2 late seral/good, 8 undetermined
2009	2	2 undetermined[3/]	2 undetermined[3/]
2010	5	1 stable, 4 undetermined[3/]	1 early seral, 3 mid-seral/fair, 1 undetermined
Total	137	29 up, 42 stable, 26 down, 40 undetermined[3/]	20 early seral, 47 mid-seral/fair, 29 late seral/good, 41 undetermined

[1/] 27 of the 46 were range studies, the other 19 were sage or sage/grass studies conducted on the Vernon Unit of the Spanish Fork Ranger District. 14 of these 19 sites were newly established. Ocular cover data was collected in addition to the nested frequency data normally collected. The purpose of these surveys was to gather data about cover as it relates to sage grouse habitat. Drought may be the cause for the downward trend.

Indicator	Monitoring
	[2/] Does not include results of 26 studies on big game winter range conducted by UDWR through a participating agreement with the Forest, as the interpretations of these studies by UDWR for trend for these was done differently. [3/] No trend is available as this is the first reading, and/or the study was reread but the previous plot location could not be verified (i.e., the stakes were missing or could not be found) and thus a comparison could not be made. [4/] The ecological status was determined using professional judgment of the Range Conservationist who compared these studies with other sites that were originally set up as Potential Natural Communities (PNC). However, the degree to which the PNC sites accurately represent many of the study sites is questionable. Some sites have been altered (e.g., seeded with non-native species) and have no PNC for comparison. To the extent possible on these sites, the ecological status was also determined by using the professional judgment of the Range Conservationist. Ecological status on 25% was mid-seral/fair, and the ecological condition on 75% was late seral/good. Fair and Good are the terms used on sites that were seeded with non-native species.
Riparian condition and trend (every 5 years)	*For this monitoring item, the Forest Plan notes that "Riparian condition/trend surveys have been ongoing for several years on most allotments; however, in many cases protocols have varied over time." The Forest Plan states that the monitoring frequency for this item is that at least some portion of the Forest would be monitored annually.* **FY2003-2010:** Riparian condition and trend monitoring has been occurring. The results are summarized in the following table:

Riparian Condition/Trend Monitoring on Uinta National Forest

Grazing Year	# Studies	Greenline Ecological Status	Greenline Stability	Greenline Trend
2003	21	5 very early seral, 5 early seral, 4 mid seral, 2 late seral, 5 PNC	3 poor, 12 moderate, 2 good, 4 excellent	11 stable, 9 up, 1 down
2004	9	1 very early seral, 2 early seral, 1 mid seral, 2 late seral, 3 PNC	1 poor, 3 moderate, 3 good, 2 excellent	5 stable, 3 up, 1 down
2005	7	2 very early seral, 3 early seral, 2 PNC	5 moderate, 1 good, 1 excellent	6 stable, 1 up
2006	0	----	----	----

Indicator	Monitoring				
	2007	----	----	----	----
	2008	4	4 late seral	4 good	4 stable
	2009	8	2 early seral, 6 mid seral	8 good	8 undetermined
	2010	5	1 early seral, 3 mid seral, 1 late seral	5 good	5 undetermined
	Total	54	8 very early seral, 13 early seral, 14 mid seral, 9 late seral, 10 PNC	4 poor, 20 moderate, 23 good, 7 excellent	26 stable, 13 up, 2 down 13 undetermined

5. Are infestations of **noxious weeds** being contained, controlled, or eliminated?

DFC: Noxious weeds and undesirable invasive plants are effectively combated using integrated pest management. Priority is first given to eliminating weeds from critical habitats and preventing new infestations, then to reducing density or eliminating longer-established populations. The Forest uses public education to motivate the public to employ weed prevention practices.

Indicator	Monitoring
Application of Forest Plan direction and project mitigation measures including permit and contractual requirements (every 5 years)	The Forest Plan contains a subgoal (G-2-17): *"Activities and vegetation management minimize or eliminate the occurrence of non-native pests (including noxious weeds) and epidemic episodes of native pests."* (pg. 2-6) The Forest Plan also contains several standards and guidelines (e.g., Fire-6, Weeds-1 thru Weeds-17) designed to minimize the spread of noxious weeds due to management activities. (pg., 3-14 thru 3-16) **FY2003:** An interdisciplinary team (IDT) conducted Forest Plan Monitoring on three projects: American Fork Mine Reclamation, Silver Lake and Tibble Fork Summer Homes, and Springville Burn seeding. Monitoring found equipment was being washed prior to entry on the Forest and summer home permittees were actively treating weeds on their permit area, and that weed-free seed was being ordered and used (testing was occurring) on the Forest. Cereal barley, which is a non-persistent non-invasive annual, was chosen for use on the Springville Burn seeding due to its ability to provide a quick cover for erosion control and help stabilize the upper watersheds of the area burned by a fire. Executive Order 13112 (2/3/1999) on invasive species, was considered and a determination was made that the introduced species (barley) would not be "likely to cause economic or environmental harm or harm to human health." **FY2004:** An IDT conducted Forest Plan monitoring on four projects: American Fork Mine Reclamation, Three Forks Culvert and Parking Lot, Reservoir No. 1 Restoration, and Springville Crossing Exclosure. Monitoring of the American fork Mine Reclamation project found equipment cleaning had been done, and no new weed populations were located. Monitoring at Three Forks found that several mitigation measures for weeds had been implemented, but that post-project vegetation contained many weeds. There was no weed treatment prior to start of the construction project. Revegetation was conducted using seed of native species. Post-project monitoring found that vegetation on that site is mostly grasses with a mixture of weeds.

Indicator	Monitoring
	At the Reservoir No. 1 Restoration site, weeds were treated the year of construction and follow-up weed monitoring and treatments (for 5 years) were funded by the project proponent (Central Utah Water Conservancy District). The Forest Plan monitoring team found some cheatgrass, thick patches of Canada thistle, and some black medic and Virginia Creeper. The cheatgrass may have been introduced during the project, but the Canada thistle and other species pre-dated the project. The Springville Crossing Exclosure Fence project had a low potential for weed seed introduction, and post-project monitoring found no evidence the project had introduced weeds or caused a change in the degree of weed infestation in the area. **FY2005:** An IDT conducted Forest Plan monitoring on three projects: Silver Meadow Fence, Rocky Top Timber Sale, and Halls Fork Prescribed Burn. The Silver Meadow Fence project had a low potential for weed seed introduction, and post-project monitoring found no evidence the project had introduced weeds or caused a change in the degree of weed infestation in the area. This project did have potential for preventing weed spread by blocking existing and preventing additional user-created road disturbance in the area. Weeds are very often introduced into new areas by vehicles, and find easy establishment in soil bared and churned up by vehicles. Therefore, preventing the unauthorized ATV entry with the fence benefited the Silver Meadow area by preventing vehicle-induced new weed populations. Harvesting on the Rocky Top Timber Sale occurred in 2004. The Decision Notice included a mitigation measure for noxious weeds and prescribes annual monitoring for weeds in the sale area. District personnel are visually monitoring the project area for weeds. In a Forest Plan monitoring trip, a cluster of five Canada thistle stems was discovered but the IDT did not believe they were introduced by sale activities. Heavy equipment used on the sale was washed to prevent weed introduction prior to entering the sale area, and no straw/hay or seeding was occurring. Road gravel was brought in from “the valley” and, so far as known, potential for weeds was not considered or mitigated on this material. The Halls Fork Prescribed Burn NEPA decision was signed prior to approval of the Revised Forest Plan, but was conducted in 2004. Preventing the spread of noxious weeds was considered in the EA (pg. 16-17, 31-35), and mitigation (pg. 17) provided by avoiding burning areas where high infestations of noxious weeds currently exist. Taking action to prevent weed establishment, and monitoring to control any

Indicator	Monitoring
	weeds that do become established complies with LMP goals and objectives. The post-treatment monitoring team observed some patches of musk thistle. **FY2006:** An IDT conducted Forest Plan monitoring on four projects: Upper Murdock Timber Sale, Twin Peaks Grazing Allotment, Rocky Mountain Power Special Use Permit, and Dry Canyon Restoration. The IDT found that roads and landings on the Upper Murdock Timber Sale (completed in 2006) were and not well restored, leaving bare soil for weed establishment. The sale had not yet been surveyed for weeds, but surveys were planned. The IDT did not observe any weed invasion beyond a very few small annual weeds not on the noxious weed list. Heavy equipment used on the sale was washed to prevent weed introduction prior to entering the sale area, and no straw/hay or seeding was occurring. Road gravel was brought in from "the valley" and, so far as known, potential for weeds was not considered or mitigated on this material. Taking action to prevent weed establishment, and monitoring to control any weeds that do become established complies with Forest Plan goals and objectives. The Twin Peaks Allotment had multiple years of rest, but was scheduled for (had not yet occurred) grazing in 2006 when the Forest Plan monitoring occurred. Weeds and non-native plants were not observed in the area monitored. The IDT monitored a section of the Rocky Mountain Power utility corridor near Springville. The IDT observed several noxious weeds in the corridor including musk thistle, Dalmatian toadflax, and myrtle spurge. Cheatgrass and goatgrass, undesirable plants, were common in the corridor; however, the Forest has not been taking action to control these species. The Special Use Permit for this project requires the permit holder to survey for and control weeds. This requirement is consistent with Forest Plan direction; however, it does not appear it is being stringently enforced. The IDT monitored a portion of the 330-acre Dry Canyon Restoration Project. This project was designed to rehabilitate areas lacking desirable vegetation, and to close 13 miles of user-created roads. The IDT observed high densities of cheatgrass and goatgrass, and smaller amounts of musk thistle and Dalmatian toadflax in the project area. This is similar to other nearby low elevation areas along the Wasatch Front. A small population of moth mullein, a non-native species was also observed. The area encompassing the project is one of the few yellow star thistle infestations on the Forest. The District and County have been aggressively pursuing this infestation, but inventories continue to find new extensions of this infestation. This project and the ongoing yellow star thistle inventory and treatment efforts are

Indicator	Monitoring
	consistent with Forest Plan goals and objectives. **FY2007:** An IDT conducted Forest Plan monitoring on the First and Fourth Water Prescribed Burn. The EA for this project mitigated concerns for weeds by avoiding pinyon-juniper stands and restricting lighting in sagebrush stands. The IDT found that this mitigation had been applied. No new weed infestations resulting from the burn were reported by the IDT; however, the burn had only occurred a few months prior to the monitoring trip. USU weed inventory crews on the Pleasant Grove Ranger District found signs at many trailheads and mouths of canyons providing information regarding the certified weed-free hay program currently enforced by the District to minimize the introductions of unwanted plant species. **FY2008:** USU weed inventory crews on the Pleasant Grove Ranger Districts found signs at many trailheads and the mouth of American Fork Canyon providing information regarding the certified weed-free hay program currently enforced by the District to minimize the introductions of unwanted plant species. [1/] **FY2009:** USU weed inventory crews on the Spanish Fork Ranger District found signs at many trailheads and the mouths of canyons providing information regarding the certified weed-free hay program currently enforced by the District to minimize the introductions of unwanted plant species.[2/] **FY2010**: USU weed inventory crews on the Heber-Kamas and Spanish Fork Ranger Districts found signs at many trailheads and the mouths of canyons providing information regarding the certified weed-free hay program currently enforced by the District to minimize the introductions of unwanted plant species.[3/, 4/] [1/] Dewey, S.A. and K.A. Edvarchuk. 2008. 2008 Noxious and Invasive Weed Inventory, Pleasant Grove Ranger District. Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. SD0802A, 27 pp. plus appendices. [2/] Edvarchuk, K.A. and C.V. Ransom. 2009. Noxious and Invasive Weed Inventory on the Spanish Fork Ranger District. Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. SD0903A, 30 pp. plus appendices. [3/] Edvarchuk, K.A. and C.V. Ransom. 2010. Noxious and Invasive Weed Inventory on the Heber- Kamas Ranger District.

Indicator	Monitoring
	Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. CR1003A, 41 pp. plus appendices. [4/] Edvarchuk, K.A. and C.V. Ransom. 2010. Noxious and Invasive Weed Inventory on the Spanish Fork Ranger District. Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. CR1001A, 25 pp. plus appendices.
Acres of weeds treated (annually)	**FY2003:** 1,222 acres of noxious weeds and 93 acres of other invasive plants were treated (see "Estimated acres infested" row in the following table). These acres are approximately 50% of what was treated in 2002 and 80% of what was treated in 2001. The reduction in acres treated is due to a decrease in available funding. **FY2004:** 1,086 acres of noxious weeds and 1,493 acres of other invasive plants were treated. In addition, the Uinta N. F. cooperated in treating 45 acres of adjacent private land, to prevent spread of noxious weeds onto the Forest. **FY2005:** 1,796 acres of noxious weeds and 761 acres of other invasive plants were treated. In addition, the Forest cooperated in treating 10 acres of adjacent private land, to prevent spread of noxious weeds onto the Forest. **FY2006:** Noxious weeds and invasive plant treatments were completed on about 1,703 acres, including about 98 acres mechanically treated. **FY2007:** Noxious weeds and invasive plant treatments were completed on about 2,007 acres, including about 70 acres mechanically treated. Post-treatment monitoring was conducted on about 94% of the acres treated, and this monitoring indicated the treatments were effective on about 76% of the acreage where treatment was completed. **FY2008:** Noxious weeds and invasive plant treatments were completed on about 1,254 acres. Post-treatment monitoring was conducted on about 77% of the acres treated, and this monitoring indicated the treatments were effective on about 85% of the acreage where treatment was completed.

Indicator	Monitoring
	FY2009: Noxious weeds and invasive plant treatments were completed on about 1,009 acres. Post-treatment monitoring was conducted on all of the acres treated, and this monitoring indicated the treatments were effective on about 83% of the acreage where treatment was completed. **FY2010:** Noxious weeds and invasive plant treatments were completed on about 1,078 acres, including about 20 acres of bio-control. Post-treatment monitoring was conducted on all of the acres treated, and this monitoring indicated the treatments were effective on about 85% of the acreage where treatment was completed.
Estimated acres infested (every 5 years)	Subgoal G-2-17 in the Forest Plan states: *"Activities and vegetation management minimize or eliminate the occurrence of non-native pests (including noxious weeds) and epidemic episodes of native pests."* (pg. 2-6) The Forest Plan also contains two objectives pertinent to this monitoring element: (Objective-2-8) to *"Detect and prevent new infestations of noxious weeds and other undesirable plants from becoming established, and prevent further spread or reduce existing infestations."* (pg. 2-13 to 2-14) Objective-2-9 is to *"By 2017, complete an inventory of 80 percent of the Forest for the presence of noxious weeds and other undesirable plant species."* (pg 2-14) As noted below, when the Forest Plan was approved it was estimated that 24,506 acres are infested with noxious weeds and about 3,760 acres are infested with other undesirable plants. These estimates were based on some detailed inventory, but more so on general broad-scale low-resolution ocular inventories. During the FY2006 – FY2010 period, more detailed weed mapping on the Forest was conducted. This inventory focused in areas and on corridors most likely to have weed infestations. Base on data from this effort, the overall estimated acreage of weed/undesirable plant infestations is 21,320 acres.[1/] **FY2003:** It was estimated that 24,506 acres are infested with noxious weeds and about 3,760 acres are infested with other undesirable plants (see the following table).

Indicator	Monitoring
	Estimated Acres in 2003 (based on 2003 data) of Noxious Weeds and Other Undesirable Species

Species	Estimated Acres Infested
Canada thistle	5,300
Diffuse knapweed	10
Dyer's woad	30
Hoary cress (white top)	1,000
Leafy spurge	10
Medusahead	5
Musk thistle	18,000
Perennial pepperweed	6
Russian knapweed	5
Scotch thistle	30
Spotted knapweed	12
Squarrose knapweed	48
Yellow starthistle	50
TOTAL NOXIOUS	24,506
Other Undesirable Species	
Blue spurge	5
Common burdock	60
Dalmatian toadflax	1,500
Hounds tongue	2,000
Jointed goatgrass	25
Russian olive	5
Tamarisk (salt cedar)	15
Yellow sweetclover	150
TOTAL OTHER	3,760
COMBINED TOTAL	28,266

FY2004:

It is estimated that 39,767 acres are infested with noxious weeds and about 45,575 acres are infested with other undesirable plants. This is a large increase in the acreage estimate, particularly for the undesirable invasive category. It is based on the personal observations of District personnel. Over the

Indicator	Monitoring
	next several years, acreage documented with GPS data from employees and volunteers will replace the estimates. **FY2005:** The total acres of infestation documented on the Forest remain the same (39,767 acres of noxious weeds and about 45,575 acres of other undesirable plants). A more detailed mapping project was initiated in FY 2006 to update these figures. Note that these acres do not include cheatgrass-infested acres, though the species is alien, invasive and undesirable, and a major fuels threat to property and ecosystems. **FY2006:** The Wasatch-Cache National Forest (WCNF) initiated a project with Utah State University (USU) to inventory noxious and invasive weeds on key areas. Areas inventoried included corridors along roads and trails, and dispersed recreation use sites, as experience had shown these were areas most likely to have weed/undesirable plant infestations. On the Uinta National Forest portion of the U-W-C NF the Forest continuing effort to clean up weed mapping and the associated GIS database. As a result, the inventory identified about 16,950 acres of weed infestations. **FY2007:** In 2007 the USU weed inventory and mapping project was continued on the WCNF. On the Uinta NF, efforts continued to clean up weed mapping and the associated GIS database. **FY2008:** In 2008 the Uinta National Forest was combined with the WCNF, and the USU weed mapping effort was expanded to include the Pleasant Grove Ranger District. About 7,114 acres were inventoried and 613 acres of weed infestations were found, mapped (using GPS), and incorporated into the Forest's GIS database. Based on their inventory, USU recommended that much of the wilderness on the Pleasant Grove Ranger District be considered a Weed Prevention Area (i.e., clean of invasive plants), and managers should take all appropriate measures to keep invasive weeds from spreading into them. [2/] **FY2009:** In 2009 the USU weed inventory and mapping project was continued and included part of the Spanish Fork RD. In addition to corridors along travel routes, and dispersed recreation sites, the inventory included some areas that experienced large wildfires in the last several years. About 12,305 acres were inventoried, and 619 acres of weed infestations were found, mapped (using GPS), and incorporated into

Indicator	Monitoring
	the Forest's GIS database. Based on their inventory, USU recommended that much of the Nebo area, including the Wilderness Area, on the Spanish Fork District, especially the higher elevations be considered Weed Prevention Areas.[3/] **FY2010:** In 2010 the USU weed inventory and mapping project was continued and included the Heber-Kamas RD and the Vernon part of the Spanish Fork RD. Approximately 8,004 acres were inventoried on the Uinta NF portion of the Heber-Kamas RD, and about 500 acres of weed infestations were found, mapped (using GPS), and incorporated into the Forest's GIS database.[4/] About 5,174 acres were inventoried on the Vernon portion of the Spanish Fork RD, and only 19 acres of weed infestations were found. These were mapped (using GPS), and incorporated into the Forest's GIS database. Cheatgrass and several other non-native, but not currently identified as noxious weed, species were observed. Overall, the Vernon unit is relatively free of noxious weeds.[5/] The overall estimated acreage of weed/undesirable plant infestations is 21,320 acres.[1/] Weed inventories and treatments are ongoing, thus the acres infested continues to be uncertain. Alpine areas are the only communities not immediately threatened by invasive weeds, although some weed species are capable of invading alpine sites. Past weed treatments have focused primarily on musk thistle, and in some areas these infestations have been greatly reduced (e.g., Diamond Fork and Strawberry Valley). In contrast, populations of Canada thistle and whitetop have been increasing rapidly in spite of treatment efforts. In riparian areas small infestations of salt cedar have been found in several drainages. Perennial pepperweed dominates banks along sections of the Spanish Fork River just below the UNF boundary, and is beginning to spread onto the UNF along Diamond Fork.

Indicator	Monitoring

Noxious Weeds/Undesirable Plants - Acres Infested by Species[b]

Scientific Name	Common Name	2010 Estimated Acres Infested[a]
Acroptilon repens	hardheads	20
Aegilops cylindrica	jointed goatgrass	140
Anchusa officinalis	common bugloss	10
Arctium minus	lesser burdock	1,870
Bromus tectorum	cheatgrass	530
Cardaria draba	whitetop	1,970
Carduus nutans	nodding plumeless thistle	14,710
Centaurea biebersteinii	spotted knapweed	180
Centaurea diffusa	diffuse knapweed	20
Centaurea solstitialis	yellow star-thistle	10
Centaurea triumfettii	garden cornflower	80
Cirsium arvense	Canada thistle	12,340
Cirsium vulgare	bull thistle	50
Conium maculatum	poison hemlock	860
Convolvulus arvensis	field bindweed	1,120
Cynoglossum officinale	gypsyflower	9,200
Elymus repens	quackgrass	190
Euphorbia esula	leafy spurge	10
Euphorbia myrsinites	myrtle spurge	10
Isatis tinctoria	Dyer's woad	10
Lepidium latifolium	broadleaved pepperweed	120
Linaria dalmatica	Dalmatian toadflax	2,000
Melilotus officinalis	yellow sweetclover	2,860
Onopordum acanthium	Scotch cottonthistle	500
Sorghum halepense	Johnsongrass	40
Tamarix ramosissima	saltcedar	100
Thlaspi arvense	field pennycress	10
Ulmus pumila	Siberian elm	10
Verbascum thapsus	common mullein	9,080

[a] In this table the acres of 1 species often overlap those of other species (thus summing acres for various species results in double-counting acres where this occurs).

Indicator	Monitoring
	(b) GIS analysis of the Forest weeds database by T.Rhoades. 1/ USDA Forest Service, Uinta-Wasatch-Cache National Forest. 2010. GIS analysis of the Forest weeds database by Teresa Rhoades, Forest GIS Coordinator. Unpublished. Uinta-Wasatch-Cache National Forest. Salt Lake City, UT. 2/ Dewey, S.A. and K.A. Edvarchuk. 2008. 2008 Noxious and Invasive Weed Inventory, Pleasant Grove Ranger District. Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. SD0802A, 27 pp. plus appendices. 3/ Edvarchuk, K.A. and C.V. Ransom. 2009. Noxious and Invasive Weed Inventory on the Spanish Fork Ranger District. Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. SD0903A, 30 pp. plus appendices. 4/ Edvarchuk, K.A. and C.V. Ransom. 2010. Noxious and Invasive Weed Inventory on the Heber- Kamas Ranger District. Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. CR1003A, 41 pp. plus appendices. 5/ Edvarchuk, K.A. and C.V. Ransom. 2010. Noxious and Invasive Weed Inventory on the Spanish Fork Ranger District. Prepared for the Uinta-Wasatch-Cache National Forest, USDA Forest Service by Utah State University; Plants, Soils, and Climate Department; Weed Research Project No. CR1001A, 25 pp. plus appendices.

6. Is long-term **soil productivity** being maintained?

DFC: Most soils have adequate protective ground cover, soil organic matter, and large woody material. Soils have adequate physical properties for vegetative growth and soil-hydrologic function. Physical, chemical, and biological processes in most soils function similarly to soils that have not been disturbed. Degradation of soil quality and loss of soil productivity is prevented. Soil hydrologic function and productivity in riparian areas is protected, preserving the ability to serve as a filter for good water quality and regulation of nutrient cycling. Soil productivity, quality, and function are restored where adversely impaired and contributing to an overall decline in watershed condition.

Indicator	Monitoring
Detrimental soil disturbance (every 5 years)	The 2003 Forest Plan contains one goal (FW-Goal-1) and four subgoals (Subgoal-1-1 thru Subgoal-1-4) addressing maintenance of long term soil productivity. (pg. 2-2) In addition, there the 2003 Forest Plan contains several standards and guidelines (e.g., S&W-1 thru S&W-6) to protect soil productivity by preventing detrimentally disturbed soil. **(**pg. 3-8 thru 3-9) *Detrimentally disturbed soil is soil that has been detrimentally displaced, compacted, puddled, or severely burned. No more than 15% of an activity area should have detrimentally disturbed soil after the completion of all management activities.* **FY2003:** The **QWK Pipeline Project** was approved in 2001 and implemented in Fiscal Years 2002 and 2003. The Record of Decision (ROD) approving this project noted: "Short-term (1-3 year) increases in soil erosion would occur in areas disturbed by construction. … By implementing the mitigation measures described in Appendix A of the FEIS, long-term impacts to soil resources from any of the alternatives will be small." Mitigation measures included use of waterbars, stockpiling and reapplication of topsoil, prompt revegetation of disturbed areas, and limiting vehicle access, to the extent feasible, to existing roads and/or areas to be restored following pipeline construction. Uinta National Forest personnel monitored implementation of the portion of this project occurring on the Forest and found that BMPs called for in the ROD were appropriately applied. Monitoring was conducted on the **White River Prescribed Burn Vegetation Management** project. This project involved no earth-disturbing fireline construction, fire containment equipment was confined to existing roads, and the burn was aerially ignited. Therefore, there were no project activities that would have caused soil compaction or puddling. Post-burn monitoring indicates that only about 15% of the project area (i.e., the area within the fire perimeter) burned with sufficient intensity to reduce fuels and regenerate the vegetation. No accelerated erosion or detrimental soil displacement was observed during the monitoring visits. Only a small fraction of the acreage (15%) burned at high intensity, therefore, detrimental soil disturbance was well within the 15% threshold. No **special use or range projects** were implemented in FY2003 that involved use of fire or could have resulted in

Indicator	Monitoring
	severely burned soils. In 2002 data was collected to evaluate the effects of grazing on soil erosion in the Strawberry watershed. This data, analyzed in 2003, showed that areas grazed by cattle have significantly more bare soil (average 25% bare ground) than areas grazed by sheep (average 19% bare ground) and non-grazed lands (average 14% bare ground) in aspen and sagebrush ecosystems (probability = 95%). This study also indicates that although the average percent bare ground is greater for areas grazed by sheep than non-grazed lands, the differences are not statistically significant. Soil erosion rates are generally closely related to the amount of bare ground. **FY2004:** The **Three Forks Culvert Parking Lot** project was designed to mitigate and rehabilitate the flood plain areas adjacent to Diamond Fork from dispersed use by the public for parking on the stream terraces and from crossing the stream. The stream terraces were denuded, soils compacted, and the stream banks were eroding causing stream sedimentation. Soil surfaces on the flood plains were roughened to alleviate compaction and to limit runoff, thus effectively reducing stream sedimentation. Soils consist mainly of coble, gravels, and sandy loams. Large woody debris was left on the surface to add organic matter and to aid in long-term soil productivity. Vegetation establishment consists mainly of grasses with a mixture of weeds. In a few cases some woody species were observed including a few forbs. Vegetation cover is less than 80%. The **Springville Crossing Exclosure** area was established to limit cattle access to the riparian corridor. Vegetation cover was greater within the exclosure, especially on the stream banks, thus helping stabilize the banks against further trampling and erosion. The **Reservoir No.1 Restoration** was part of the Daniels Rehabilitation project, in which the reservoir was rehabilitated. This was previously a reservoir site, and the soils are devoid of topsoil. Although the site has been seeded and some vegetation and associated ground cover is being established, rills are present on north and south slopes in exposed areas. Bare ground averages 60 percent with a few large areas ranging from 25 percent. Because the reservoir site is just being vegetated, so there is very little litter ground cover. **FY2005:** **Silver Meadow Buck and Pole Fence.** The ***Silver Meadow Buck and Pole Fence*** project is located on the Heber Ranger District. The fence was installed in 2005 to help reduce illegal OHV access to the meadow and surrounding area. The fence project complies with Project Purpose and Need and with the Forest Plan Direction. The hydrologic and physical soil condition for ground cover was assessed in the general area and was determined as satisfactory. The assessed area had 79% live plant cover and 21% litter cover.

Indicator	Monitoring
	Questar Pipeline. A segment of the ***Questar Pipeline*** was replaced by Questar in 2005. The pipeline segment is aligned with the base of the Wasatch Front and is located on the Pleasant Grove District. A portion of the replaced segment was assessed within the forest boundary, just south of Y-Mountain Trailhead. The disturbed corridor was set back to approximate original contour, hydromulched and seeded with a Forest Service approved seed mix. The hydrologic and physical soil condition rating for ground cover is classified as satisfactory. A hundred foot transect showed 7% rock cover, 49% litter/debris cover (hydromulch), 38% living plant cover, and 6% bare soil. However, if living plant cover doesn't establish sufficiently in the future as the hydromulch breaks down, sufficient ground cover may not be satisfactory to control surface sheet, rill and gully soil erosion. **Hall's Fork Prescribed Burn.** The ***Hall's Fork Prescribed Burn*** was conducted during FY2005 (October 2004) and is located on the Spanish Fork District. The portion of the burn that was assessed is located in the headwaters of Shingle Mill Creek. Two area transects were completed to assess soil health and trend, including ground cover and soil hydrophobicity. • (1st Transect) – Hydrologic and physical soil conditions were rated satisfactory, except for soil hydrophobicity and effective ground cover which were both rated impaired. The transect showed 49% bare soil, 20% live plant cover, 27% litter/wood debris cover, and 4% rock cover. Soil hydophobicity was greatest at 3-inches, taking an average 25 seconds for water to infiltrate the soil. The biological health indicators were rated satisfactory for coarse woody debris, but impaired for vegetation community since plant establishment has not fully recovered since the burn. Overall, the soil health rating is satisfactory and soil health trend is aggrading. • (2nd Transect) – Hydrologic and physical soil conditions were rated satisfactory, except for soil hydrophobicity which was rated impaired. The transect showed 18% bare soil, 35% plant cover, 43% litter/wood debris cover, and 4% rock cover. The soil hydrophobicity was greatest at 3-inches, taking an average 27 seconds for water to infiltrate the soil. The biological soil condition was rated satisfactory for both coarse woody debris and vegetation community composition. The overall soil health rating is satisfactory and the soil health trend is aggrading. **Rocky Top Timber Sale.** The ***Rocky Top Timber Sale*** was authorized in 1999, prior to the signing of the 2003 LMP. Timber cutting and removal occurred in 2004. Units 1 and 2 were assessed and included spruce-fir, with adjacent and intermixed grassland areas. The hydrologic and physical soil conditions were rated satisfactory, except for soil compaction which was rated impaired. Compaction was measured on a 100 foot transect and showed 27% compaction which primarily occurred within the skid trail areas. Effective ground cover assessments showed 12% bare soil, 23% live plant cover, 56% litter, and 9% large woody debris cover. The biological soil conditions were rated satisfactory. Overall, the soil health rating is satisfactory and the soil health trend is aggrading.

Indicator	Monitoring
	FY2006: **Twin Peaks Sheep and Grazing allotment.** The 2006 Annual Operating Instructions for grazing management authorizes grazing 1250 ewes with lambs on portions of the Twin Peaks allotment from June 26th to October 5th. No trailing is needed since sheep enter the allotment from adjacent private land. Grazing rotation use for separate units is coordinated between the Twin Peaks and the Wallsburg allotments, with the 6th, 9th, and 10th sequences being on the Twin Peaks allotment. In addition, two rest sequences for 2006 were on the Twin Peaks allotment. On and Off rotation sequence dates for each unit vary depending on weather and when utilization standards are met. It is the permittee's responsibility to monitor the utilization and move the sheep before standards are exceeded. Two separate areas were assessed and monitored for evaluating soil condition: • Corral (below Harrys Reservoir). RHCA, south facing slope. Soil structure is observed as being moderate/strong granular in the surface horizon. The surface soils are very gravelly and cobbly with some boulders. No compaction is evident within the RHCA; however, an exception is the area immediate surrounding the corral where compaction is evident and limits vegetation both in vigor and diversity. For the RHCA, pedestals are present but on mature plants only; there are no roots exposed. Surface and active soil erosion are absent. There are no visible signs of soil displacement or deposition. The soil health rating is satisfactory and the soil health trend is improving. • Telemark Hill. Soil structure is moderate/strong granular in the surface horizon. The surface soils are gravelly and cobbly. No compaction is evident. Pedestals are present but on mature plants only; there are no roots exposed. Surface and active soil erosion are absent. There are no visible signs of soil displacement or deposition. The soil health rating is satisfactory and the soil health trend is improving. **Buck Springs Small Timber Sale – Upper Murdock Area.** The timber sale is a series of partial-cut timber harvests on approximately 550 acres of spruce-fir timber stands that will occur over a 5 year period. Approximately 3.75 miles of low-standard temporary roads were constructed during the sale; the plan called for completely closing and rehabilitating the temporary roads following the harvest activities. One clearing opening was assessed for soil condition in both skidded and non-skidded trail areas. Skid trails accounted for approximately 30 to 40 percent of the detrimental surface disturbance within the opening. • Skid trails: Compaction limits root growth and limits re-vegetation throughout the opening area. Surface soil is platy and massive. More than ½ of the ground cover has been removed and erosion is above natural rates. Soil has been detrimentally displaced, with no salvage or replacement of surface topsoil. Hummucks are evident with puddling. Surface soil erosion is prevalent as both sheet and in the form of rills and gullies. Soil deposition is excessive. Recent depositional material has moved offsite and is non-vegetated. Coarse woody debris does not meet FP minimums. Organic matter is absent. Revegetation is essentially non-existent; perennial vegetation types are very sparse. The soil health is unsatisfactory and the soil health

Indicator	Monitoring
	trend is degrading rapidly. • Non-skid areas: Surface soils have a strong granular structure. No compaction is evident in these areas or limited in scope. There is no evidence of surface soil erosion. There is sufficient ground cover to limit soil erosion to natural erosion rates. Soil displacement is minimal. There is no unusual or excessive soil deposition. Coarse woody debris meets the minimums for the ecological type. There is a desirable distribution of revegetated perennial plants. Soils are healthy and are improving after being disturbed. **Utah Power and Light Special Use Permit Issuance.** PacifiCorp (dpa Utah Power and Light) operates and maintains above-ground electric transmission lines within America Fork Canyon, in the Springville-Ironton area, and northeast of Pleasant Grove, Utah. Operation and maintenance of portions of the electric transmission line that occur on National Forest System lands are authorized through special use permits. These permits expired on December 31, 2004; and therefore, PacifiCorp has applied for new special use permits and has fully met the terms and conditions of the permits. These permits allow continued occupancy and use of a total of 37 acres of National Forest System lands. Occupancy and use will not result in ground-disturbing activities other than that associated with routine operation and maintenance of existing transmission lines (e.g., trimming vegetation along power-line right-of-way and repairs of power poles and lines). Noxious weed control will also be conducted. An area on the Olmstead line near Springville-Ironton area was assessed for planned disturbance associated with replacing two power poles: • Power pole adjacent to shrub enclosure (UTM: 12T, 4449327, 0448098). Soil structure was assessed as satisfactory. No compaction was evident except for access roads and recreation trails in the area. There was no evidence of active soil erosion, surface sheet erosion, rill formation, or gully formation. The only soil displacement is associated with the access maintenance road and access points to each set of power poles. The soil health rating is satisfactory and the soil health trend is improving. • Power pole adjacent to reclaimed road cut (UTM: 12T, 4449434, 0448031). Soil structure is impaired. No compaction was evident except for access roads and recreation trails in the area. Active soil erosion is occurring on the cut slope with development of small, embryonic rills. Soil displacement has occurred during construction of the road cut. Sediment is being deposited at the base of the cut slope. Additional sediment is being fed to the borrow drainage ditch adjacent to the road. The soil health rating is impaired and the soil is health trend is rated as degrading. **Dry Canyon Restoration.** A CE and Decision Memo signed by District Ranger Pam Gardner in August 2004 analyzed watershed restoration encompassing 330 acres of foothills between Dry Canyon and Battle Creek Canyon. The Decision Memo approved the reclamation of 13 miles of user-created roads and trails. Many of the user-created roads began at the Dry Canyon Trailhead. Three separate areas were assessed for soil impacts: • Reclaimed small knoll and reclaimed user-created trail (UTM: 12T, 4466077, 0442189, and 12T, 4466058,

Indicator	Monitoring
	0442227, respectively). Soil structure is impaired. Compaction is evident, but limited to user created trails and roads. These areas were ripped, but some compaction still remains because of continued foot traffic. In addition, there was evidence of some continued illegal ATV use. Soil erosion is evidenced by surface erosion with development of small, embryonic rills. Past erosion shows signs of gully formation. Most of the fines have been eroded out of the surface areas prior to reclamation efforts. Since restoration, there is some, but limited depositional material. Ground cover in the form of mostly rock with some vegetation seems to limit further soil erosion. Soil displacement has occurred from past illegal use and from the ripping to help alleviate compaction. The soil health rating is impaired and the soil health trend is static. • Reclaimed user-created trail area (UTM: 12T, 4465757, 0442429). Soil structure is rated as satisfactory. Compaction has been completely alleviated using deep surface roughening creating small pocks which also help eliminate further use. There are no signs of pedestaling or surface sheet erosion. Surface erosion is absent. Recent depositional material that has collected in the bottom of the pocks is vegetated. There is sufficient ground cover and plant cover to limit soil erosion. Soil displacement occurred in the deep surface roughening, but has created a situation where soil is now stable. There are no unusual or excessive amounts of soil deposition. The soil health rating is satisfactory and the soil is health trend is rated as improving. **FY2007:** **Trout Creek Sage Grouse Habitat Improvement.** This project opened up the sage brush canopy and created a mixed age class of sagebrush to improve sage grouse habitat. The treatment also allowed the understory grasses and forbs currently suppressed by the thick sage brush canopy to be released. The use of native seed will increase plant diversity. This area is one of the Utah Division of Wildlife Resources sage brush improvement focus areas, with DWR as a contributing partner with the Forest Service. Two separate areas were assessed and monitored for evaluating soil condition using Region IV Soil Condition Evaluation and Qualitative Soil Management Monitoring Form: • Mowed treatment within 50 feet of the RHCA. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 40% litter cover, 50% plant cover and 10% bare ground. There is no surface soil disturbance. • Harrow Treatment – single pass. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 5% rock cover, 20% litter cover, 55% plant cover and 10% bare ground. The use of the harrow resulted in mechanical soil displacement with. There is no sign of soil loss or erosion resulting from the treatment **Bryants Fork Timber Sale.** The purpose of this project was to modify the structure and composition of the spruce-fir stands to reduce beetle populations, reduce overall stand risk, retain viable spruce seed source and create

Indicator	Monitoring
	opportunities for natural spruce regeneration. The commercial timber harvest took trees (>8" dbh) on 190 acres of affected conifer stands. Approximately 3.7 miles of temporary roads were constructed and then obliterated at the close of the contract. Three separate areas were assessed using Region IV Soil Condition Evaluation and Qualitative Soil Management Monitoring Form: • Landing Zone. The soil health rating for the activity area was rated satisfactory with a no-change soil health trend. Using ocular estimates for ground cover, there is approximately 5% rock, 30% litter cover, 40% plant cover and 25% bare ground. Compaction is evident, but limited in depth, strength, and extent and does not significantly affect root growth. There are some signs of active erosion in the formation of small rills. There is soil displacement from movement of equipment. Obliterated temporary road is excellent rehabilitation. • Side Slope/Skid-Trails. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 10% rock, 40% litter cover, 30% plant cover and 20% bare ground. Overall rooting zone depth was measured at 15 inches. Skid trails were compacted at an average depth of 5 inches. Skid trails were not ripped and had very few water bars; however, they were left in a roughened condition. • Drainage with Reclaimed Landing/Haul/Slash-pile in drainage bottom. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 15% rock, 25% litter cover, 20% plant cover and 40% bare ground. Overall rooting zone depth was measured at 20 inches. Area was rehabilitated by deep surface roughening (soil pocking). Soil compaction was totally alleviated. Because of the soil depressions created by the pocking, there is no evidence of any run-off from the site. **1st – 4th Water Prescribed Burn.** This prescribed burn took place on October 27, 2005, which treated approximately 300 acres, on the eastern side of the unit. The area was assessed from several different vantage points: The south burned slopes killed the oak brush tops in 4th water and between 3rd and 4th water. There are no signs of large scale soil erosion, either as rills or the formation of gullies. **FY2008:** **American Fork Hydroelectric Power Plant.** The American Fork (AF) hydroelectric plant was operated since 1913. While American Fork was a valuable hydroelectric, its relatively small size, together with operational challenges, both environmental and the age of the plant, the choice was made to decommission and remove the project. Removal included the plant's main structures, a 4-foot high and 30-foot wide concrete dam near Little Mill campground, and a small home and garage that housed plant operators until the early 1950s. The plant's hydro turbine and generator was removed and recycled, while the powerhouse, which is on the National Register of Historic Places, was restored and conveyed to the U.S. Forest Service. Two separate areas were assessed and monitored for evaluating soil condition using Region IV Soil Condition Evaluation and Qualitative Soil Management

Indicator	Monitoring
	Monitoring Form: • Power House Area. The soil health rating for the activity area was rated unsatisfactory with a degrading soil health trend. It should be noted that the area reclamation is less than a year old. Using ocular estimates for ground cover, there is approximately 30% rock/gravel, 30% litter (mostly straw) cover, 10% plant cover and 30% bare ground. This assessment is for the reclaimed area where the house and garage were removed. Soil compaction is strongly developed and limits plant root growth. The area consists primarily of rock and bare ground and does not meet the Forest Plan minimums for the ecological type. Perennial vegetation is very sparse. Soil conditions are desiccated and inhibit germination. • Diversion Structure Removal Area – North flood plain area of the AF River. The soil health rating for the activity area was rated unsatisfactory with a degrading soil health trend. Using ocular estimates for ground cover, there is approximately 80% rock/gravel cover, 0% litter cover, 10% plant cover and 10% bare ground. • Diversion Structure Removal Area – South Bench area above the AF River. The soil health rating for this activity area was rated as satisfactory with a no-change soil health trend. Using ocular estimates for ground cover, there is approximately 10% rock cover, 20% litter (primarily straw) cover, 60% plant cover and 10% bare ground. **Little Mill Campground.** In 1998, the Pleasant Grove District Ranger signed a Decision Memo that approved the maintenance and repair of existing facilities, in-kind replacement of existing facilities, and other measures to control damage to soil and vegetation and address safety concerns for the Little Mill and North Mill campgrounds in American Fork Canyon. In 2004, the Uinta National Forest successfully presented a proposal to the Intermountain Region to secure Capital Improvement Program (CIP) dollars for the reconstruction of Little Mill Campground. A new NEPA review was performed to determine whether there was a need to correct, supplement or revise the environmental documents or decision. Based on the information gathered through that review, the Pleasant Grove District Ranger determined that the Decision Memo and associated analysis, with appropriate specialists' updates, were sufficient to proceed with reconstruction within the current disturbed area and footprint of the existing improved site. Three key issues for the design plans of the campground reconstruction were: 1) Public safety concerns associated with rock-fall hazards. To mitigate rock-fall hazards and to meet the accessibility standards, the Little Mill Campground capacity was reduced. 2) Reconfiguration of the campground to meet current spur/pad length and accessibility standards. The campground reconstruction design required installing a new bridge between North Mill, which is on the north side of the river, to Little Mill, which is on the south of the river, thus connecting the two campgrounds. The east bridge, which serves as an exit to Little Mill Campground, was removed and a new exit bridge constructed closer to the campground. 3) Streambank stabilization for public river access in the campground. The project is still in process with many areas either very recently completed or other areas still under construction.

Indicator	Monitoring
	Therefore, an assessment of the soil health rating for the activity area was not done. Those areas completed are graded and include new hardened campsite structures. There is no indication that surrounding native soils were disturbed or affected by the construction project. **FY2009:** **WestFork Sheep Allotment:** Under current conditions, soil compaction was measured with depth using a calibrated soil probe and by noting the depth levels where pressure increases occurred. Readings were made at 10 foot increments along a 100 foot transect and subsurface obstacles, such as rocks or roots were noted when encountered. There is no evidence of detrimental soil compaction under current conditions. Therefore, since readings were taken under current conditions of grazing use, the continued grazing alternative does not detrimentally impact soil resources or soil productivity relative to soil compaction. Soil health rating and soil health trend are based on the hydrologic and physical soil condition ratings. Soil health indicators are rated as satisfactory, impaired or unsatisfactory based on observed condition ratings. Assessment evaluations are based on ocular documentation, by data collection for effective ground cover, and by describing the soil profile. Thirteen soil condition evaluations were made for the West Fork sheep grazing analysis project area. The majority of the sites have a satisfactory soil health rating and an improving soil health trend. Two sites have a satisfactory soil health rating and a “no-change” soil health trend. Sample “High Use 4” was deliberately taken in an area where the sheep bed down daily is not representative of the allotment as a whole, but only for this one high use area. This one sample site showed the soil health rating at risk with a degrading soil health trend. **FY2010:** **Benmore Cattle Allotment:** The purpose of this project was to authorize continued grazing within the Benmore Allotment near Vernon, UT. Compaction was qualitatively assessed at several locations within the allotment. No soil platelets or signs of limited or deflected root growth from compacted soil layers were noted.
Down woody debris (every 5 years)	*Coarse woody debris is defined in Forest Service Handbook 2509.18 as organic materials such as plant stems, branches, and logs with a diameter greater than 3 inches. Coarse woody debris guidelines apply to ecological types that are capable of producing forested and woodland ecosystems. The minimum amount of large woody debris required to maintain nutrient and moisture supplies adequate to sustain site productivity varies by ecological type.* **FY2003:** Monitoring was conducted on the **White River Prescribed Burn Vegetation Management** project. Forest Plan Guideline Veg-18 calls for retention of at least 30 tons/acre of large woody debris per 10 treated acres. Monitoring

Indicator	Monitoring
	indicates that the amount of down woody debris over 3 inches in diameter changed little as a result of the burn. Both pre-burn and post-burn monitoring data indicates there were about 2 tons/acre of down woody debris greater than 3 inches in diameter. Although this does not meet the Forest Plan guideline, the data indicates the prescribed fire did not affect short-term compliance with this guideline. The data also suggests that in the long-term, down woody debris levels will be improved by the burn. Monitoring data shows that the number of dead trees per acre was substantially increased by the burn. These burn-killed trees will eventually fall and increase the amount of down woody debris. Only about 15% of the project area (i.e., the area within the fire perimeter) burned, and down woody debris levels were unaffected elsewhere within the treatment area. **FY2004:** The **Reservoir No.1 Restoration** project involved reclamation of a lake area to a wetland with surrounding upland conditions. The site was not forested; therefore, the down woody debris guideline does not apply to this project. The **Springville Crossing Exclosure** occurred on a range site, and therefore the down woody debris guideline is not applicable. The **Three Forks Culvert Parking Lot** project is a reclaimed parking area with access to the Three Forks trailhead. Improvements included an arch culvert crossing with expansion, leveling and graveling the parking lot with installation of a single-vault toilet and information board. The existing parking lot, vehicle ford and damaged stream banks were rehabilitated. Large cottonwood trees are present, but the restoration and culvert installation with parking improvements did not affect these standing trees. Large woody debris was left on the surface to add organic matter and to aid in long-term soil productivity. Monitoring was conducted on the **Bjorkman Headcut Restoration** project that was implemented in July 2003. Large aspen felled during implementation were spread across the final prepared surface and meet the 30 tons/acre for large woody debris per 10 treated acres. The aspen logs are beginning to settle into the soil surface with root masses still retaining some of the original soil still packed around the roots. Logs are still sound with very little decomposition or bark sloughing off the surface. **FY2005:** **Rocky Top Timber Sale.** The only project assessed during 2005 that qualifies for forested ecosystems is the ***Rocky Top Timber Sale*** which was authorized in 1999, prior to the signing of the 2003 LMP. Timber cutting and removal occurred in 2004. Units 1 and 2 were assessed and included spruce-fir, with adjacent and intermixed grassland areas. Effective ground cover assessments showed 12% bare soil, 23% live plant cover, 56% litter and 9% large woody debris cover. The biological soil condition for coarse woody debris was rated satisfactory.

Indicator	Monitoring
	FY2006: **Buck Springs Small Timber Sale – Upper Murdock Area.** The timber sale is a series of partial-cut timber harvests on approximately 550 acres of spruce-fir timber stands that will occur over a 5 year period. Approximately 3.75 miles of low-standard temporary roads were constructed during the sale; the plan called for completely closing and rehabilitating the temporary roads following the harvest activities. One clearing opening was assessed for coarse woody debris in both skidded and non-skidded trail areas. Skid trails accounted for approximately 30 to 40 percent of the detrimental surface disturbance within the opening. • Skid trails: Organic matter is absent and coarse woody debris does not meet FP minimums. • Non-skid areas: Coarse woody debris meets the minimums for the ecological type. **FY2007:** **Bryants Fork Timber Sale.** The purpose of this project was to modify the structure and composition of the spruce-fir stands to reduce beetle populations, reduce overall stand risk, retain viable spruce seed source and create opportunities for natural spruce regeneration. The commercial timber harvest took trees (>8" dbh) on 190 acres of affected conifer stands. Approximately 3.7 miles of temporary roads were constructed and then obliterated at the close of the contract. Three separate areas were assessed using Region IV Soil Condition Evaluation and Qualitative Soil Management Monitoring Form: • Landing Zone. The soil health rating for the activity area was rated satisfactory with a no-change soil health trend. Using ocular estimates for ground cover, there is approximately 5% rock, 30% litter/large-wood cover, 40% plant cover and 25% bare ground. Of the 30% litter/large-wood cover, the coarse woody debris met or exceeded the Forest Plan minimums. • Side Slope/Skid-Trails. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 10% rock, 40% litter/large-wood cover, 30% plant cover and 20% bare ground. Of the 40% litter/large-wood cover, the coarse woody debris met or exceeded the Forest Plan minimums. • Drainage with Reclaimed Landing/Haul/Slash-pile in drainage bottom. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 15% rock, 25% litter/large-wood cover, 20% plant cover and 40% bare ground. Of the 25% litter/large-wood cover, the coarse woody debris met or exceeded the Forest Plan minimums. **FY2008:** **American Fork Hydroelectric Power Plant.** The American Fork hydroelectric plant was operated since 1913. While American Fork was a valuable hydroelectric, its relatively small size, together with operational challenges, both environmental and the age of the plant, the choice was made to decommission and remove the project.

Indicator	Monitoring
	Removal included the plant's main structures, a 4-foot high and 30-foot wide concrete dam near Little Mill campground, and a small home and garage that housed plant operators until the early 1950s. The plant's hydro turbine and generator was removed and recycled, while the powerhouse, which is on the National Register of Historic Places, was restored and conveyed to the U.S. Forest Service. Two separate areas were assessed and monitored for evaluating soil condition using Region IV Soil Condition Evaluation and Qualitative Soil Management Monitoring Form: • Power House Area. There is no downed large woody debris in the reclaimed area where the house and garage were removed. • Diversion Structure Removal Area – North flood plane area of the AF River. There is some large woody debris in the reclaimed area. • Diversion Structure Removal Area – South Bench area above the AF River. There is no large woody debris present. **Little Mill Campground.** In 1998, the Pleasant Grove District Ranger signed a Decision Memo that approved the maintenance and repair of existing facilities, in-kind replacement of existing facilities, and other measures to control damage to soil and vegetation and address safety concerns for the Little Mill and North Mill campgrounds in American Fork Canyon. In 2004, the Uinta National Forest successfully presented a proposal to the Intermountain Region to secure Capital Improvement Program (CIP) dollars for the reconstruction of Little Mill Campground. A new NEPA review was performed to determine whether there was a need to correct, supplement or revise the environmental documents or decision. Based on the information gathered through that review, the Pleasant Grove District Ranger determined that the Decision Memo and associated analysis, with appropriate specialists' updates, were sufficient to proceed with reconstruction within the current disturbed area and footprint of the existing improved site. Three key issues for the design plans of the campground reconstruction were: 1) Public safety concerns associated with rock-fall hazards. To mitigate rock-fall hazards and to meet the accessibility standards, the Little Mill Campground capacity was reduced. 2) Reconfiguration of the campground to meet current spur/pad length and accessibility standards. The campground reconstruction design required installing a new bridge between North Mill, which is on the north side of the river, to Little Mill, which is on the south of the river, thus connecting the two campgrounds. The east bridge, which serves as an exit to Little Mill Campground, was removed and a new exit bridge constructed closer to the campground. 3) Streambank stabilization for public river access in the campground. The project is still in process with many areas either very recently completed or other areas still under construction. There is some large woody debris present either in adjacent undisturbed areas or placed in strategic positions in reclaimed areas, especially within the riparian zones.

Indicator	Monitoring
	FY2009-FY2010 Down woody debris not monitored.
Ground cover (every 5 years)	The Forest Plan defines **effective ground cover** as *"Vegetation, litter, and rock fragments larger than three-fourths inch in diameter in contact with the soil. Effective ground cover includes perennial canopy cover from the lowest shrubs occupying an area (FSH 2509.18)."* (pg. Glossary-9) Subgoal-1-3 in the 2003 Forest Plan describes the intention for soil cover: *"Sufficient vegetation and litter are left on site to prevent soil movement and maintain soil productivity."* (pg. 2-2) The Forest Plan also contains standards and guidelines (*i.e., S&W-1, S&W-3, S&W-4)* designed to maintain or improve long-term soil productivity and hydrologic function of the soil by limiting activities that would cause detrimental soil disturbance due to unacceptable loss of ground cover. (pg. 3-8 to 3-9) *For this monitoring item, the Forest Plan notes that ground cover would be monitored annually on the Forest as part of the monitoring of upland range condition and trend.*(pg., 6-12) **FY2003:** Changes in ground cover associated with grazing are monitored through the **range condition and trend study sites** across the Forest. Nineteen range study sites were monitored on the Heber Ranger District. The bare ground on the sites ranged from 6.5% to 41.5%, with an average of 24%. Eight range studies were monitored on the Spanish Fork Ranger District. Bare ground on these sites ranged from 0% to 36.25%, with an average of 12.88%. Additionally, ground cover data was collected on 19 studies on the Vernon Unit of the Spanish Fork Ranger District. The bare ground on these sites ranged from 28.5% to 56.75%, and averaged 44.71%. Ground cover was also monitored for the **White River Prescribed Burn Vegetation Management** project. Nested frequency plot data from the aspen stands burned in this project show minor, non-significant changes in ground cover due to the burn. A small increase in vegetative ground cover (3.125%), a small decrease in litter cover (3.75%), and a small decrease in bare ground (0.625%) were observed. **FY2004:** Changes in ground cover associated with grazing are monitored through the **range condition and trend study sites** across the Forest. Nine range study sites were monitored on the Heber Ranger District. The bare ground on the sites ranged from 3.0% to 27.5%, with an average of 17.9%. Five range trend studies were monitored on the Spanish Fork Ranger District. Bare ground on these sites ranged from 3% to 47%, with an average of 25%.

Indicator	Monitoring
	Project specific monitoring was also done at three locations. See the discussion of this monitoring under the "Detrimental Soil Disturbance" monitoring indicator above. **FY2005:** **Silver Meadow Buck and Pole Fence.** This fence was installed in 2005 to help reduce illegal OHV access to the meadow and surrounding area. The fence project complies with project Purpose and Need and with the Forest Plan Direction. The hydrologic and physical soil condition for ground cover was assessed in the general area and was determined as satisfactory. The assessed area had 79% live plant cover and 21% litter cover. **Questar Pipeline.** A segment of the ***Questar Pipeline*** was replaced in 2005. The pipeline segment is aligned with the base of the Wasatch Front and is located on the Pleasant Grove District. The disturbed corridor was set back to approximate original contour, hydromulched and seeded with a Forest Service approved seed mix. The hydrologic and physical soil condition rating for ground cover is classified as satisfactory. A hundred foot transect showed 7% rock cover, 49% litter/debris cover (hydromulch), 38% living plant cover, and 6% bare soil. However, if living plant cover doesn't establish sufficiently in the future as the hydromulch breaks down, sufficient ground cover may not be satisfactory to control surface sheet, rill and gully soil erosion. The ***Hall's Fork Prescribed Burn*** was conducted in October of 2004 and is located on the Spanish Fork District. The portion of the burn that was assessed is located in the headwaters of Shingle Mill Creek. Two area transects were completed to assess ground cover. • (1st Transect) – Hydrologic and physical soil condition for ground cover was rated impaired. The transect showed 49% bare soil, 20% live plant cover, 27% litter/woody debris cover, and 4% rock cover. • (2nd Transect) – Hydrologic and physical soil condition for ground cover was rated satisfactory. The transect showed 18% bare soil, 35% plant cover, 43% litter/woody debris cover, and 4% rock cover. The ***Rocky Top Timber Sale*** was authorized in 1999, prior to the signing of the 2003 LMP. Timber cutting and removal occurred in these units in 2004. Units 1 and 2 were assessed and included spruce-fir, with adjacent and intermixed grassland areas. The hydrologic and physical soil condition for ground cover was rated satisfactory. Effective ground cover assessments showed 12% bare soil, 23% live plant cover, 56% litter and 9% large woody debris cover. **FY2006:** **Twin Peaks Sheep and Grazing allotment.** The 2006 Annual Operating Instructions for grazing management authorizes grazing 1250 ewes with lambs on portions of the Twin Peaks allotment from June 26th to October 5th. No trailing is needed since sheep enter the allotment from adjacent private land. Grazing rotation use for separate

Indicator	Monitoring
	units is coordinated between the Twin Peaks and the Wallsburg allotments, with the 6th, 9th, and 10th sequences being on the Twin Peaks allotment. In addition, two rest sequences for 2006 were on the Twin Peaks allotment. On and Off rotation sequence dates for each unit vary depending on weather and when utilization standards are met. It is the permittee's responsibility to monitor the utilization and move the sheep before standards are exceeded. Two separate areas were assessed and monitored for evaluating soil condition: • Corral (below Harrys Reservoir). RHCA, south facing slope. Ground cover is sufficient to limit soil erosion to natural erosion rates. There are no visible signs of soil displacement or deposition. Organic matter is evenly distributed across the soil surface and meets the Forest Plan minimums. Vegetation community composition is evenly distributed and consists of desirable, perennial plant species of grasses, forbs, and shrubs. • Telemark Hill. Ground cover is sufficient to limit soil erosion to natural erosion rates. There are no visible signs of soil displacement or deposition. Organic matter is evenly distributed across the soil surface and meets the Forest Plan minimums. Vegetation community composition is evenly distributed and consists of desirable, perennial plant species of grasses, forbs, and shrubs. **Buck Springs Small Timber Sale – Upper Murdock Area.** The timber sale is a series of partial-cut timber harvests on approximately 550 acres of spruce-fir timber stands that will occur over a 5 year period. Approximately 3.75 miles of low-standard temporary roads were constructed during the sale; the plan called for completely closing and rehabilitating the temporary roads following the harvest activities. One clearing opening was assessed for ground cover in both skidded and non-skidded trail areas. Skid trails accounted for approximately 30 to 40 percent of the detrimental surface disturbance within the opening. • Skid trails: More than ½ of the ground cover has been removed and erosion is above natural rates. Coarse woody debris does not meet FP minimums. Organic matter is absent. Revegetation is essentially non-existent; perennial vegetation types are very sparse. • Non-skid areas: Surface soils have a strong granular structure. No compaction is evident in these areas or limited in scope. There is no evidence of surface soil erosion. There is sufficient ground cover to limit soil erosion to natural erosion rates. Soil displacement is minimal. There is no unusual or excessive soil deposition. Coarse woody debris meets the minimums for the ecological type. There is a desirable distribution of revegetated perennial plants. **Utah Power and Light Special Use Permit Issuance.** PacifiCorp (dpa Utah Power and Light) operates and maintains above-ground electric transmission lines within America Fork Canyon, in the Springville-Ironton area, and northeast of Pleasant Grove, Utah. Operation and maintenance of portions of the electric transmission line that occur on National Forest System lands are authorized through special use permits. These permits expired on December 31, 2004; and therefore, PacifiCorp has applied for new special use permits and has fully met the terms

Indicator	Monitoring
	and conditions of the permits. These permits allow continued occupancy and use of a total of 37 acres of National Forest System lands. Occupancy and use will not result in ground-disturbing activities other than that associated with routine operation and maintenance of existing transmission lines (e.g., trimming vegetation along power-line right-of-way and repairs of power poles and lines). Noxious weed control will also be conducted. An area on the Olmstead line near Springville-Ironton area was assessed for planned disturbance associated with replacing two power poles: • Power pole adjacent to shrub enclosure (UTM: 12T, 4449327, 0448098). Ground cover was observed as being sufficient to control and limit soil erosion to within natural rates. • Power pole adjacent to reclaimed road cut (UTM: 12T, 4449434, 0448031). More than one-half of the reclaimed cut slope is non-vegetated and is insufficient for controlling erosion. What vegetation is present consists of weedy species (i.e., sunflowers and Kosha). Organic matter is absent. **Dry Canyon Restoration.** A CE and Decision Memo signed by Pam Gardner in August 2004 analyzed watershed restoration encompassing 330 acres of foothills between Dry Canyon and Battle Creek Canyon. The Decision Memo approved the reclamation of 13 miles of user-created roads and trails. Many of the user-created roads began at the Dry Canyon Trailhead. Three separate areas were assessed for soil impacts: • Reclaimed small knoll and reclaimed user-created trail (UTM: 12T, 4466077, 0442189, and 12T, 4466058, 0442227, respectively). Ground cover in the form of mostly rock with some vegetation seems to limit further soil erosion. • Reclaimed user-created trail area (UTM: 12T, 4465757, 0442429). There is sufficient ground cover and plant cover to limit soil erosion. **FY2007:** **Trout Creek Sage grouse Habitat Improvement.** This project will open up the sage brush canopy and create a mixed age class of sagebrush which will improve sage grouse habitat. The treatment will also allow the understory grasses and forbs currently suppressed by the thick sage brush canopy to be released. The use of native seed will increase plant diversity. This area is one of the Utah Division of Wildlife Resources sage brush improvement focus areas, with DWR as a contributing partner with the Forest Service. Two separate areas were assessed and monitored for evaluating soil condition using Region IV Soil Condition Evaluation and Qualitative Soil Management Monitoring Form: • Mowed treatment within 50 feet of the RHCA. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 40% litter cover, 50% plant cover and 10% bare ground. There is no surface soil disturbance.

Indicator	Monitoring
	• Harrow Treatment – single pass. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 5% rock cover, 20% litter cover, 55% plant cover and 10% bare ground. **Bryants Fork Timber Sale.** The purpose of this project was to modify the structure and composition of the spruce-fir stands to reduce beetle populations, reduce overall stand risk, retain viable spruce seed source and create opportunities for natural spruce regeneration. The commercial timber harvest took trees (>8" dbh) on 190 acres of affected conifer stands. Approximately 3.7 miles of temporary roads were constructed and then obliterated at the close of the contract. Three separate areas were assessed using Region IV Soil Condition Evaluation and Qualitative Soil Management Monitoring Form: • Landing Zone. The soil health rating for the activity area was rated satisfactory with a no-change soil health trend. Using ocular estimates for ground cover, there is approximately 5% rock, 30% litter cover, 40% plant cover and 25% bare ground. • Side Slope/Skid-Trails. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 10% rock, 40% litter cover, 30% plant cover and 20% bare ground. • Drainage with Reclaimed Landing/Haul/Slash-pile in drainage bottom. The soil health rating for the activity area was rated satisfactory with an improving soil health trend. Using ocular estimates for ground cover, there is approximately 15% rock, 25% litter cover, 20% plant cover and 40% bare ground. **1st – 4th Water Prescribed Burn.** This prescribed burn took place on October 27, 2005, which treated approximately 300 acres, on the eastern side of the unit. The area was assessed from several different vantage points: The south burned slopes killed the oak brush tops in 4th water and between 3rd and 4th water. There are no signs of large scale soil erosion, either as rills or the formation of gullies. **FY2008:** **American Fork Hydroelectric Power Plant.** The American Fork hydroelectric plant was operated since 1913. While American Fork was a valuable hydroelectric, its relatively small size, together with operational challenges, both environmental and the age of the plant, the choice was made to decommission and remove the project. Removal included the plant's main structures, a 4-foot high and 30-foot wide concrete dam near Little Mill campground, and a small home and garage that housed plant operators until the early 1950s. The plant's hydro turbine and generator was removed and recycled, while the powerhouse, which is on the National Register of Historic Places, was restored and conveyed to the U.S. Forest Service. Two separate areas were assessed and monitored for evaluating soil condition using Region IV Soil Condition Evaluation and Qualitative Soil Management Monitoring Form:

Indicator	Monitoring
	• Power House Area. The soil health rating for the activity area was rated unsatisfactory with a degrading soil health trend. It should be noted that the area reclamation is less than a year old. Using ocular estimates for ground cover, there is approximately 30% rock/gravel, 30% litter (mostly straw) cover, 10% plant cover and 30% bare ground. This assessment is for the reclaimed area where the house and garage were removed. • Diversion Structure Removal Area – North flood plain area of the AF River. The soil health rating for the activity area was rated unsatisfactory with a degrading soil health trend. Using ocular estimates for ground cover, there is approximately 80% rock/gravel cover, 0% litter cover, 10% plant cover and 10% bare ground. • Diversion Structure Removal Area – South Bench area above the AF River. The soil health rating for this activity area was rated as satisfactory with a no-change soil health trend. Using ocular estimates for ground cover, there is approximately 10% rock cover, 20% litter (primarily straw) cover, 60% plant cover and 10% bare ground. **Little Mill Campground.** In 1998, the Pleasant Grove District Ranger signed a Decision Memo that approved the maintenance and repair of existing facilities, in-kind replacement of existing facilities, and other measures to control damage to soil and vegetation and address safety concerns for the Little Mill and North Mill campgrounds in American Fork Canyon. In 2004, the Uinta National Forest successfully presented a proposal to the Intermountain Region to secure Capital Improvement Program (CIP) dollars for the reconstruction of Little Mill Campground. A new NEPA review was performed to determine whether there was a need to correct, supplement or revise the environmental documents or decision. Based on the information gathered through that review, the Pleasant Grove District Ranger determined that the Decision Memo and associated analysis, with appropriate specialists' updates, were sufficient to proceed with reconstruction within the current disturbed area and footprint of the existing improved site. Three key issues for the design plans of the campground reconstruction were: 1) Public safety concerns associated with rock-fall hazards. To mitigate rock-fall hazards and to meet the accessibility standards, the Little Mill Campground capacity was reduced. 2) Reconfiguration of the campground to meet current spur/pad length and accessibility standards. The campground reconstruction design required installing a new bridge between North Mill, which is on the north side of the river, to Little Mill, which is on the south of the river, thus connecting the two campgrounds. The east bridge, which serves as an exit to Little Mill Campground, was removed and a new exit bridge constructed closer to the campground. 3) Streambank stabilization for public river access in the campground. The project is still in process with many areas either very recently completed or other areas still under construction. Therefore, an assessment of the soil ground cover for the activity area was not done. Those areas completed are graded and include new hardened campsite structures. There is no indication that surrounding native soils were disturbed or affected by the construction project.

Indicator	Monitoring

FY2009:

Vernon. This was a wildlife/range vegetation project on the Diagonal Electric pastures on the Vernon Unit. The study was established in 2008 to monitor the effects of a harrow treatment designed to improve a sagebrush population consisting of a single age class (old and decadent). The project objectives were to reduce sagebrush cover in treated areas to between 5% and 10% and to improve the herbaceous understory through the establishment of perennial grasses and forbs. The treatment was completed in the fall of 2008 and a seed mix was applied at treatment.

Following the treatment, the canopy cover of Wyoming big sagebrush was successfully decreased from 13% to 3%. The average height decreased from two feet to about a foot tall. The nested frequency of perennial grasses decreased 36% and cover declined from 17% to 6% in the first growing season following treatment. No seeded grass species were sampled in the year following treatment. Cheatgrass was sampled at a low frequency and cover. Perennial forbs were rare and provided less than 1% cover. There was a large increase in weedy annual forb sum of nested frequency and cover. Four seeded forb species were sampled at low frequency and cover; blue flax, alfalfa, sainfoin, and small burnet. Ground cover decreased (i.e. bare ground increased from 31% to 68% following treatment).

FY2010:

Diagonal Electric Sagebrush Improvement. This was a wildlife/range vegetation project at Vernon. Treatments were implemented in 2008 and monitored in 2009 and 2010. Treatment in the Benmore pasture was implemented in 2009. Treatment in Vernon Reservoir was implemented in 2006. Ground cover data was collected in two areas, untreated and treated, in order to compare the changes due to the treatment. A summary of the data collected follows:

Percent Ground Cover by Treatment Area by Ground Cover Class

Cover Type	Benmore				Diagonal Electric				Vernon Reservoir			
	1		2		1		2		1		2	
	Untreated	Treated	Untreated	Treated	Untreated	Treated	Untreated	Treated	Untreated	Treated	Untreated	Treated
Bare Soil	48	49	52	56	49	59	58	46	27	11	44	18
Litter	20	29	30	25	14	9	11	26	16	21	11	20
Rock	0	2	0	2	0	2	0	1	0	0	0	0
Grass	15	9	2	3	9	14	17	12	27	22	25	35
Forbs	4	9	1	11	0	6	3	3	6	34	4	22
Shrub	13	2	15	2	28	10	11	11	24	12	17	5

Indicator	Monitoring
	Benmore Allotment: The purpose of this project was to authorize continued grazing within the Benmore Allotment near Vernon, UT. Soil condition evaluations were made on grazed areas within many of the Benmore Allotment pastures. Samples were taken in representative areas across various soil types that showed obvious signs of grazing use and good supply of forage. Ground cover transects ranged from ¼ mile to ½ mile in length. The longer transect length ensured a large amount of samples would be taken, and that all ground cover conditions would be encountered. Data collected is summarized in the following table:

Benmore Allotment Ground Cover

Pasture	Veg/Litter	Rock	Biological Crust	Bare Soil Gopher	Bare Soil Other
Lower Bennion	78	0	7	0	15
Northeast	78	0	9	0	13
Middle Dutch-1	87	1	1	0	11
Middle Dutch-2	97	0	0	1	2
West Dutch-1	89	1	2	5	3
West Dutch-2	94	3	0	1	2
Bennion Canyon Riparian	86	5	0	5	4
Bennion Canyon Upland	90	8	0	0	2
Dutch Canyon	9	4	0	3	1
West Dutch	90	5	0	2	3
Unit 35	96	2	0	0	2
Benmore Pasture 20	91	1	1	0	7
Hidden Pasture	97	0	0	0	3
Bull Pasture	64	1	26	0	9
Northwest	84	3	3	1	9
Benmore Pasture 17	93	4	0	0	3

The sample sites show that the rangeland vegetation cover types meet Proper Functioning Condition requirement for all pastures.

7. Is **water quality** being adequately protected and meeting desired conditions?

DFC: Water quality is managed to meet clean water standards established by the State of Utah. All existing water rights are validated. Streams are managed to maintain natural fluvial processes where possible, in turn providing high quality aquatic habitat and water quality. Upland vegetation in all management areas is managed to maintain sufficient ground and soil cover to limit erosion and sediment transport to streams. Riparian Habitat Conservation Areas (RHCAs), regardless of width, are in a stable or upward trend. RHCAs and their corresponding steam channels provide quality habitat for associated terrestrial and aquatic wildlife species. Forest management activities are implemented in a manner that prevents unacceptable watershed impacts.

Indicator	Monitoring
Application of Best Management Practices (BMPs) designed to protect or improve water quality (every 5 years)	*The 2003 Revised Forest Plan contains two Forest-wide goals (FW-Goal-1, and FW-Goal-2) relative to protection of water quality. (pg. 2-1) In addition, the Forest Plan contains one subgoal (Sub-goal-1-11) specifically addressing water quality: "All activities on the Forest comply with state and federal clean water standards and applicable permitting processes. To the extent practical through management of activities on the Forest: <> Water chemistry is maintained in all surface water where the alkalinity will not be reduced more than 10 percent of baseline, and <> Management activities do not cause exceedances of State of Utah water quality standards (this monitoring is required by law) or increases in the listing of 303(d) streams." (Forest Plan, pg. 2-3) The Forest Plan also contains several guidelines (e.g., M&E-2, Timber-11, MP-2.3-2) for protection of water quality.* **FY2003:** BMPs were monitored on 3 projects in 2003: American Fork Canyon Mine Reclamation, Diamond Fork Pipeline and Strawberry River Exclosure. Monitoring results are discussed below: The purpose of **American Fork Canyon Mine Reclamation Project** was to remove contaminated mine wastes from direct contact with surface water. Silt fences, hay bales, a drainage ditch, and other measures were employed to protect water quality. The **Diamond Fork Pipeline** project, a component of the Central Utah Project, is an ongoing special use activity. BMPs called for in the ROD for this project included silt fencing, locating ground disturbing (where feasible) and other activities such as fuel and chemical storage and filling areas away from floodplains and water courses, waterbarring roads, and revegetation following disturbance. The Forest Service participated in development of the EIS and ROD, and participated in weekly coordination meetings during project implementation. Forest Service personnel also coordinated with other agencies to ensure the project, including application of BMPs, was appropriately implemented. BMPs were installed as called for, and generally adequately maintained.

Indicator	Monitoring
	Water quality was monitored by CUWCD and reported on the EPA's STORET website. The purpose of **Strawberry River Exclosure Project** was to protect water quality and wildlife and fisheries habitat along part of the Strawberry River. The exclosure was designed as a BMP to protect the riparian area and river banks by excluding livestock. The project design incorporated BMPs of keeping away from the river channel by using a buck and pole fence to negate or minimize the need for ground disturbance from fence construction in or near the riparian area. These BMPs were applied during implementation. **FY2004:** BMPs were monitored on 4 projects in 2004: Reservoir No. 1, Springville Crossing Exclosure, Three Forks Trailhead, and American Fork Canyon Abandoned Mine Reclamation. Monitoring results are summarized below: The purpose of the **Reservoir No.1 Restoration** part of the **Daniels Rehabilitation Project** was to rehabilitate the site and restore it to a wetland. Monitoring indicated sediment sources from a parking lot and partially vegetated adjacent uplands are affecting water quality in the wetland. However, the wetland is functioning, as designed, to filter and capture sediment. The **Springville Crossing Exclosure** was established to limit cattle access to the riparian corridor. The exclosure is keeping livestock out of the stream reach and associated riparian zone. Stabilizing riparian vegetation is being re-established, and aiding in restoring floodplain and stream function. As vegetation is re-established, the stream's ability to filter and capture sediment or other pollutants will increase. The **Three Forks Trailhead** is a heavily visited trailhead. Users were causing damage to the floodplain and water resources by stream crossings and parking in the floodplain and stream terraces. Installation of the culvert alleviated direct impacts to Diamond Fork Creek resulting from repeated vehicle crossing. The established parking area concentrated use within the gravel-surfaced area, reducing soil compaction, and stream bank and floodplain alteration. The channel and adjacent floodplain were restored to natural conditions. BMPs in the environmental document and Stream Alteration Permit successfully mitigated sedimentation to the stream during and following construction. However, ground cover was marginal on the reconstructed floodplain. The **American Fork Canyon Abandoned Mine Reclamation** project monitoring continued

Indicator	Monitoring
	monitoring from 2003. The project was monitored to ensure that BMPs implemented during the project are functioning as designed. Dutchman Flat Repository, and Sultana Smelter Site Restoration – Spring snow melt formed small rills on the face of the *Dutchman Flat Repository*, mainly on slopes steeper than 3:1. Vegetation establishment from the October 2003 hydroseeding resulted with only 10-15 percent cover. In July of 2004 bare eroding areas were reseeded and mulched (hand applied) using certified weed free straw. In addition, straw wattles were installed to prevent runoff from the top edge of the repository. The *Sultana Smelter* reclaimed area was also reseeded and mulched. **FY2005:** BMPs were monitored on 3 projects in 2005: Silver Meadows Buck and Pole Fence, Questar Pipeline, and Halls Fork Prescribed Burn. Monitoring results are summarized below: The purpose of **Silver Meadow Buck and Pole Fence** was to reduce illegal OHV use in the meadow. The fence is achieving the intended purpose and complied with Forest Plan direction. A segment of the recently replaced **Questar Pipeline** just south of Y-Mountain Trailhead was monitored. BMPs called for prompt revegetation of disturbed sites and installation of waterbars. Monitoring showed disturbed areas had been hydro-mulched and seeded with a Forest Service approved seed mix, and waterbars had been appropriately installed (including with adequate frequency) to reduce overland flows. Due, at least in part, to the short duration since the site was seeded; a large portion of the area monitored had mulch but limited vegetation. If vegetation does not increase, erosion on the disturbed area may increase as the mulch breaks down. The Shingle Mill Creek headwaters portion of the October 2004 **Hall's Fork Prescribed Burn** was monitored for hydrophobicity and ground cover. The results of this are described in the "Soil Productivity" section of this document. **FY2006:** The Vernon Management Unit Abandoned Mine Land (AML) Reclamation, and the American Fork AML Reclamation projects were monitored. These projects are themselves examples of BMPs. The **Vernon Management Unit AML Reclamation Project** began in 2004. Utah Department of Oil, Gas, and Mining (DOGM) and the Uinta NF began restoration and stabilization to restore and

Indicator	Monitoring
	enhance watershed resources on Uinta NF lands that are affected by past mining activities as identified in the inventory and assessment. From 2004 through 2007, DOGM and UNF reclaimed a number of AML sites for watershed restoration and enhancement purposes. Monitoring of the **American Fork Canyon Abandoned Mine Reclamation Project** from 2004-2006 shows that reclamation of abandoned mines in the North Fork has reduced the levels of metals levels in the stream. BMPs incorporated include removal of waste rock and other mine-related materials from stream proximity and deposition in a capped repository, construction of wetlands to reduce metals contributed to the stream courses, closure or elimination of unauthorized ATV access to reclamation areas. **FY2007:** The **Trout Creek Sage Grouse Habitat Improvement Project** was monitored. Disturbance (mowing and disking/seeding) was excluded from RHCAs to protect water quality. **FY2008:** Two projects were monitored in 2008: American Fork Canyon Trail Re-routes, and Little Mill Campground Campground Reconstruction. These projects used BMPs to reduce erosion and to provide better stream flow conditions. The **American Fork Canyon Trail Re-routes Project** rehabilitated segments of Mill Canyon (#040), Tibble Fork (#041), and Mud Springs (#173) Trails. These trails were re-routed to reduce erosion and sedimentation. BMPs for erosion/sedimentation reduction were implemented on the new construction and on the old segments that were obliterated. The **Little Mill Campground Campground Reconstruction Project** was monitored by personnel of the Utah Division of Water Quality and USFS to determine if best management practices and projects are protecting waters of the State of Utah. It was found that boulders placed in and along the stream had constricted the channel through several areas of American Fork River. As a result of this review, USFS engineers and fish biologists and the Utah Department of Transportation were consulted and a plan to widen and stabilize the stream bank along the constricted areas was developed (implementation occurred in the fall of 2008 – FY2009). This plan was implemented and stream channel was stabilized and the channel was widened.

Indicator	Monitoring
	FY2009: No projects were reviewed for best management practices. **FY2010:** Two projects were monitored in 2010: Willow Creek Culvert Replacements Project and Benmore Allotment Management. The **Willow Creek Culvert Replacements Project** involved replacement of two culverts to better accommodate fish and aquatic organism passage on Willow Creek, a headwaters tributary to Strawberry River and Reservoir. Best management practices and conditions of the Clean Water Act Section 404 Stream Alteration Permit were evaluated during the construction process. BMPs ultimately implemented in the process include disposal of excess material at upland location, erosion control measures, recontouring of disturbed areas, salvage/use of riparian plants, and dispersal of large woody material/slash on disturbed areas. These BMPs are all proven to reduce construction related impacts to stream and aquatic resources. Monitoring found that the BMPs had not been fully or properly implemented. As a result, additional work was conducted. The **Benmore Allotment** was reviewed for grazing conditions. Field studies were conducted to determine conditions of riparian and stream resources within the allotment. Analysis of the studies indicated that the Forest Plan guideline for ground cover in riparian habitat conservation areas were being met on 6 of the 8 stream reaches assessed. This analysis also concluded that BMPs implemented for riparian management have been successful. These BMPs include exclusion of livestock in sensitive or degraded riparian systems, riparian utilization standards, and development of off-site (outside RHCA) water sources. An environmental analysis was completed and subsequent NEPA decision issued in 2010 to continue current management.
Compliance with water quality standards (every 5 years)	*FW-Goal-1 and Sub-goal-1-11in the 2003 Revised Forest Plan specifically addresses compliance with water quality standards: "FW-Goal-1 Soil, air, and water resources provide for watershed health, public health and safety, long-term soil productivity, and ecosystem sustainability, and meet applicable laws and regulations." (LRMP, pg. 2-2) "Subgoal-1-11 All activities on the Forest comply with state and federal clean water standards" …"To the extent practical through management of activities on the Forest" … "Management activities do not cause exceedances of State of Utah water quality standards (this monitoring is required by law)…" (Forest Plan, pg. 2-3)* The Forest maintains a network of baseline water quality sites on the Forest. These sites are monitored on approximately a 4-year rotation in cooperation with the Utah Division of Water Quality (UDWQ) and/or

Indicator	Monitoring
	other partners. Standards of Quality for Waters of the State are listed in *"Utah Administrative Code – Rule R317-2"*. The parameters evaluated for exceedances include dissolved oxygen (DO) concentration and saturation, temperature, pH, and Total Suspended Solids (TSS). Total phosphorus (TP) is also evaluated as an indicator value, rather than as a standard. The chemical water quality of streams on the Uinta National Forest has been monitored since the late 1970s and several changes to the baseline sites have been made. From 1978 to 1980 three sites near Strawberry Reservoir and White River were sampled. From 1985 to 1989, 11 sites were sampled with several sites on streams near the Forest boundary. From 1990 to 2006, water quality samples were collected at 25 baseline sites on streams near the Forest boundary. From 2007 to the present, 23 baseline sites are sampled on a 4-year rotation schedule. In addition to the baseline water quality sample sites, water quality sample sites have been taken at sites in response to specific needs. From 1990 to 1997, 10 water quality monitoring sites were extensively sampled in the Strawberry Reservoir area. From 1989 to 1999, 7 sites were sampled in streams Duchesne and South Fork Provo River areas to monitor the effects of Wolf Creek Highway construction. From 2004 to 2006, water quality sites have been sampled to monitor the reclamation activities in the headwaters area of American Fork Canyon. To assess the beneficial use support of waters of the State, the UDWQ has developed listing criteria that is used to compare data against standards and indicators. The listing criteria are found in several tables in the 2006 Utah 303(d) list document (Utah State of 2006). The criteria vary depending upon the water classifications such as drinking water (Class 1C), primary and secondary contact (Class 2A, 2B), bacteria, aquatic life (Class 3A, 3B, 3C, 3D). For many of the criteria, the degree of support use (full, partial, non-supporting) is dependent upon percentage of the samples that violate the criterion during a given period. For example, for aquatic life beneficial use, the degree of use support would be fully supporting if for any one pollutant, criterion was exceed only once or was not exceeded in less than 10 percent of the samples if the criterion was exceeded at least two times. Therefore, it should be noted that although there may be water samples whose parameters may exceed the criterion, but the degree of support of the beneficial use class would be assessed using the State beneficial use support protocols. Though not a required for Forest Plan monitoring, macroinvertebrates have been collected on many streams of the Forest and the Hilsenhoff Biotic Index (HBI) is used as a biological indicator of water quality. The HBI Index is calculated as the density-weighted mean of tolerance values for the taxa of

Indicator	Monitoring
	macroinvertebrates present at each site. This value is compared to a standard value that corresponds to a rating such as *"poor", "fair", "good", "very good",* and *"excellent".* For each site sampled, 3 individual samples were typically collected at each site. In 2003, one sample round was collected at each site. Beginning in 2004, most sites had 2 samples taken, one in late spring/early summer and one in the late summer/fall. **FY2003:** Monitoring was conducted at ten baseline sites: (1) Trout Creek, (2) Currant Creek, (3) Left Fork White River, (4) Indian Creek, (5) Willow Creek, (6) Chipman Creek, (7) Wolf Creek, (8) Right Fork Little Hobble Creek, (9) South Fork Provo River, and (10) Mill Hollow Creek. Water quality standards were met except: • Trout Creek, Left Fork White River, and South Fork Provo River each had one; and Currant Creek, Right Fork Little Hobble Creek, and Indian Creek had two exceedances of the chronic indicator value for TP. • Left Fork White River had a single exceedance of the standard for DO. • Indian Creek, Willow Creek, and Chipman Creek each had one exceedance of DO at saturation, • Indian Creek had two temperature exceedances. • Chipman Creek had two exceedances values for pH. In addition, 8 sites in American Fork Canyon were also monitored as part of the American Fork Canyon Mines Reclamation Project. In American Fork Canyon, all sites were analyzed for pH and zinc, and 4 sites were also monitored for arsenic, cadmium, and lead. The only values observed not meeting state water quality standards were for pH. Although compliance with standards for zinc, a pollutant of concern on this project, could not be evaluated from the data collected; zinc values generally trended downward. An exception was at #2 Lower Bog Mine adit, where zinc values remained relatively stable. Macroinvertebrates were also monitored once at each of 10 sites: (1) Left Fork White River, (2) Currant Creek downstream of Layout Creek, (3) Willow Creek at French Hollow, (4) Trout Creek upstream from Strawberry, (5) Streeper Creek, (6) Indian Creek, (7) Clyde Creek, (8) Strawberry River upstream from the egg-taking station, (9) Chipman Creek, and (10) Halls Fork. Streeper Creek. Chipman Creek and Halls Fork exhibited *"excellent – very good"* results. Trout Creek was *"excellent – good".* Strawberry River, Clyde Creek, Indian Creek, and Left Fork White River were *"very good – good".* Willow Creek and Currant Creek were rated as *"good".*

Indicator	Monitoring
	FY2004: Monitoring occurred at the following 9 baseline sites: (1) Indian Creek, (2) West Fork Duchesne River, (3) Salt Creek, (4) Peteetneet Creek, (5) Summit Creek, (6) Tie Fork, (7) Right Fork Hobble Creek, (8) Daniels Creek, and (9) Co-op Creek. Water quality standards were met at these sites except: • Indian Creek which had two DO at saturation exceedances. • West Fork Duchesne which had 1 exceedance for the chronic indicator value for TP. Water quality was also monitored as part of the **American Fork Canyon Abandoned Mine Reclamation** project. The results are summarized below: Lower Bog Mine – Monitoring at the adit indicates constant values for dissolved metals: cadmium ~ 0.01 mg/L, iron ~ 7.1 mg/L, lead ~ 0.004 mg/L, zinc ~0.55 mg/L. Values measured for pH ranged between 4.0 – 4.5. Monitoring in the North Fork American River below Lower Bog Mine showed drops in all dissolved metals, including zinc. Levels of pH recorded ranged from 7.9 to 8.1. Rerouting flows from the adit through an extended runoff channel to the North Fork American River initially allowed much of the iron to drop out before reaching the North Fork American River. Spring 2004 iron levels of 7.2 mg/L at the adit were reduced to 0.69 mg/L before joining the North Fork American River. However, fall 2004 sampling only showed the pH drops from 5.5 at the adit to 4.5 just above the confluence with the North Fork of American Fork River. Thus, earlier improvements of pH and iron values are no longer evident, and water quality is being compromised. Pacific Mine Area – Monitoring at the adit indicates relatively constant values for dissolved metals: cadmium ~0.01 – 0.02 mg/L, iron ~ 0.07 – 0.10 mg/L, and lead ~ 0.005 mg/L. Zinc values have continued to rise since 2000. Spring 2004 monitoring showed zinc at 2.5 mg/L. Values for pH are remaining relatively stable at 7.0 – 7.5. Monitoring in the North Fork American River below Pacific Mine showed cadmium values have remained constant, and iron, lead, and zinc are lowering. PH levels are fluctuating between 8.0 – 8.3. The mine drainage wetland filtration system appears to be working as designed. Most notably, the wetland system is dramatically dropping out the high concentration of zinc. Spring 2004 monitoring yielded 2.5 mg/L at the adit, 0.410 mg/L at the outlet of the first pond, and 0.23 mg/L at the outlet of the fourth pond. Current zinc levels contributed to the North Fork American Fork River are similar to levels above the mine facility, with only a small increase (0.01 mg/L).

Indicator	Monitoring
	Macroinvertebrates were monitored at seven sites: (1) Streeper Creek, (2) Indian Creek, (3) Strawberry River downstream from Willow Creek, (4) Strawberry River upstream from Daniels, (5) Willow Creek, (6) Wide Hollow Creek, and (7) West Fork Duchesne River above Vat Creek Diversion Dam. The HBI of all of the sites were good to excellent. Strawberry River downstream from Willow Creek, Willow Creek, and West Fork Duchesne River were rated *"good"* in both sample rounds. Wide Hollow Creek was rated *"very good"* both sample rounds. Indian Creek only had 1 sample taken (June) and it was "*very good".* Streeper Creek was rated *"excellent"* in July and "*good"* in September. Strawberry River downstream from Willow Creek was *"good"* in June and *"very good"* in September. **FY2005:** In 2005 the Forest received average to above average precipitation and snow pack. In the preceding four years (2000 – 2004) the Forest received average to well below average precipitation and snow packs. Drought can indirectly affect water quality through reduction of vegetative vigor/production, recruitment, and litter production—all of which negatively affect groundcover. Reduced ground cover can result in increased erosion and sediment delivery to streams. Phosphorus is associated with sediment. Drought followed by an above average year of precipitation and snow pack may account for some or most of the elevated levels of phosphorous. The following 13 baseline sites were monitored: (1) Right Fork White River, (2) Trout Creek, (3) Indian Creek, (4) Co-op Creek, (5) Strawberry River, (6) Salt Creek, (7) Right Fork Currant Creek, (8) Peteetneet Creek, (9) Summit Creek, (10) Tie Fork, (11) Right Fork Hobble Creek, (12) Daniels Creek, and (13) Currant Creek above Pass Creek. Water quality standards were met except: • Trout Creek, Tie Fork, and Currant Creek each had 1; and Salt Creek had 4 exceedances for DO at saturation. • Indian Creek had 1 exceedance of the DO standard. • For chronic TP indicator values Summit Creek had 1, Right Fork White River and Right Fork Currant Creek each had 3, Tie Fork had 4, Co-op Creek had 5, and Salt Creek and Right Fork Hobble Creek each had 6 exceedances. • For the acute TP indicator values Salt Creek had 3, Right Fork White River had 2, and Right Fork Currant Creek and Summit Creek each had 1 exceedance. Water quality was also monitored at Left Fork Hobble Creek above Right Fork, and Lower South Fork

Indicator	Monitoring
	Provo River at the Gauging Station, but no exceedance reports are available. • At Left Fork Hobble Creek the trend for TP is downward, and the trends for pH, temperature, and DO are stable to upward. Recent disturbances that may have affected water quality at this site include the Cherry II Fire (10/2003), creation of the Pole Haven Trailhead, and road maintenance. Significantly, about 40% of the watershed is privately owned, and much of this is being developed. • At the Lower South Fork Provo River water quality is generally good, and trends for temperature, DO, pH, and TSS are stable to improving. The trend for TP at this site is decreasing although management activities in the contributing watershed have not changed substantially since last monitored. Water quality was also monitored at Holman Creek, Trail Hollow Creek, Salt Creek, and Co-op Creek Narrows. Management activities in the contributing watersheds for Trail Hollow Creek, Salt Creek, and Co-op Creek Narrows have not changed substantially since last monitored. Except as summarized below, these sites met water quality standards: • Holman Creek had 1 chronic and 1 acute exceedance for pH, • Trail Hollow Creek had a chronic exceedance for DO. Salt Creek, Co-op Creek Narrows, and Trail Hollow have stable or improving trends for DO • Salt Creek, Co-op Creek Narrows, and Trail Hollow have stable or improving trends for pH, and temperature. • DO and pH levels are in a stable to improving trend at Co-op Creek above Strawberry Reservoir. • Trends for TSS and TP are also stable or improving at Co-op Creek Narrows and Trail Hollow. Water quality was also monitored as part of the **American Fork Canyon Abandoned Mine Reclamation** project. The results are summarized below: Lower Bog Mine - Monitoring at the adit indicates relatively constant values for dissolved metals: aluminum ~0.4 mg/L, cadmium ~ 0.01 mg/L, copper ~0.02 mg/L, iron ~ 7.5 mg/L, lead ~ 0.007 mg/L, nickel ~0.01 mg/L, and zinc ~0.62 mg/L. Values for pH averaged 5.3, with measured values between 4.2 and 5.7. Monitoring in the North Fork American River below Lower Bog Mine showed the only consistent detectable soluble heavy metal is zinc. Monitoring showed no effect on soluble zinc levels in the North Fork River, with an average zinc value of 0.035 mg/L. Values for pH average 7.8 in the River before and after the Lower Bog Mine, with pH ranging from 7.2 to 8.3.

Indicator	Monitoring
	Rerouting flows from the adit through an extended runoff channel to the North Fork American River has little effect on removing dissolved heavy metals, except for iron and zinc. Approximately 77 percent of the iron is removed. <u>Pacific Mine Area</u> – Monitoring at the adit indicates relatively constant values for dissolved metals: cadmium ~0.02 mg/L, copper ~0.01 mg/L, iron <0.1 mg/L, nickel ~0.01 mg/L, and zinc ~3.1 mg/L. Values for pH were 7.1, with 2004-2005 values ranging from 6.6 to 7.0. The mine drainage wetland filtration system continues to reduce the high concentration of zinc. Zinc values drop from 3.7 mg/L at the adit to 0.51 mg/L at Pond 4 outfall. Soluble zinc increases from 0.024 mg/L in the North Fork American Fork River above Pacific Mine to 0.084 mg/L in the river below the Pacific Mine. All other heavy metal values are non-detectable. Levels of pH average 8.1 above the Pacific Mine and 8.1 below the Pacific Mine. The increase in soluble zinc values in the North Fork below the Pacific Mine may be attributable to the zinc discharge from Pond 4. The wetland treatment system is dropping out the high concentration of soluble zinc from the mine adit drainage, but with decreased efficiency with time. Average outfall values from Pond 4 increased from 0.024 mg/L in 2004. Both acute 1 hour and chronic 4 hour water quality standards for soluble zinc are exceeded during 2005. Macroinvertebrates were monitored at seven sites: (1) Right Fork White River, (2) Co-op Creek above Strawberry, (3) Co-op Creek at Narrows, (4) Trail Hollow Creek, (5) Salt Creek, (6) Holman Creek, and (7) Currant Creek above FR 471. Right Fork White River was *"good"* in June and *"very good"* in September. Co-op Creek above Strawberry was "*fair"* in June and *"poor"* in September. Co-op Creek at Narrows was *"fair"* in June and *"good"* in September. Trail Hollow Creek was *"good"* in June and *"fair"* in September. Salt Creek and Currant Creek were rated *"very good"* in June and *"fair"* in September. Holman Creek was rated "*very good"* in both sample rounds. **<u>FY2006</u>:** Monitoring occurred at the following 11 baseline sites: (1) Currant Creek below confluence, (2) Willow Creek, (3) Trout Creek, (4) Indian Creek, (5) Dry Fork above Chipman Creek, (6) Right Fork Currant Creek, (7) Vernon Creek, (8) Right Fork White River, (9) Co-op Creek, (10) Strawberry River, and (11) Salt Creek. Other than as summarized below, all water quality standards were met. • Currant Creek had 2 exceedances for DO, though one was over ten times more than the standard so there was possibly an error. In addition, Willow Creek and Dry Fork each had 1, and Right Fork

Indicator	Monitoring
	Currant Creek had 3 exceedances. • Currant Creek, Indian Creek, and Right Fork Currant Creek each had 1 exceedance of DO at saturation. • For chronic TP indicator values: Currant Creek, Willow Creek, Indian Creek, Strawberry River, Right Fork Currant Creek, Vernon Creek, Right Fork White River, and Co-op Creek had exceedances (3, 1, 1, 6, 4, 3, 1, and 3 respectively). • For acute TP indicator values: Willow Creek and Vernon Creek each had 1, and Strawberry River had 2 exceedances. More than half of the phosphorous in the Strawberry River was in the dissolved fraction indicating it is from the groundwater rather than from erosion of particles. This is true for all the sites sampled in the Strawberry area which has areas of phosphoria geologic formation. Water quality was also monitored as part of the **American Fork Canyon Abandoned Mine Reclamation** project. Monitoring of the project from 2004-2006 shows that reclamation of abandoned mines in the North Fork has reduced the levels of metals levels in the stream. The North Fork American Fork River is supporting beneficial uses and associated water quality standards. Specific results are described below: Lower Bog Mine - Monitoring at the adit indicates values for dissolved metals consistent with those observed in 2005. Extending the runoff channel from the adit to the North Fork American River for treating the mine adit drainage has little effect on removing dissolved heavy metals, except for iron and zinc. In 2006 iron averaged 8.7 mg/L at the adit and 2.0 mg/L just above the confluence with the North Fork. Approximately 60 percent of the soluble zinc was removed with average values dropping from 0.63 mg/L at the adit to 0.41 mg/L above the confluence. Values for pH values averaged 5.5 at the adit and 6.1 above the confluence. Earlier plans to install an anoxic limestone drain have been abandoned. Pacific Mine - Monitoring at the adit indicates values for dissolved metals consistent with those observed in 2005. Zinc values averaged 3.7 mg/L. The average value measured for pH increased slightly to 7.1 in 2006. Zinc and pH values measured in the North Fork American River were similar to values recorded in 2005 (see previous discussion for 2005). The mine drainage wetland filtration system continues to function as described previously for 2005. Macroinvertebrates were monitored at six sites: (1) Right Fork Currant Creek, (2) Currant Creek below Layout, (3) Halls Fork, (4) Dry Creek, (5) Willow Creek, and (6) Vernon Creek. Right Fork Currant Creek

Indicator	Monitoring
	and Vernon Creek were rated "good" in June and *"very good"* in September. Currant Creek was *"very good"* in June and *"excellent"* in September. Halls Fork was *"good"* in June and *"fair"* in September. Dry Creek was *"excellent"* in June and *"very good"* in September. Willow Creek was *"very good"* in both sample rounds. **FY2007:** Monitoring occurred at the following 7 baseline sites: (1) Left Fork White River above the Forest boundary, (2) Trout Creek above Strawberry Reservoir, (3) Indian Creek above Westside Road, (4) Strawberry River at US 40 Crossing, (5) Tie Fork above Soldier Creek, (6) Right Fork Little Hobble Creek, and (7) Right Fork Currant Creek. All water quality standards were met except: • Left Fork White River had 2, and Indian Creek Right Fork Currant Creek each had 1 exceedance for the standards value of DO. • Strawberry River had 3 exceedances of the acute and chronic DO saturation standard. • Right Fork Currant Creek had 1 temperature exceedance. Macroinvertebrates were monitored at six sites: (1) Strawberry River, (2) Tie Fork, (3) Indian Creek, (4) Trout Creek, (5) Right Fork Little Hobble Creek, and (6) Left Fork White River. Strawberry River was *"good"* in June and was *"poor"* in September. Tie Fork was *"good"* in June and *"fairly poor"* in September. Indian Creek was *"very good"* in June and *"excellent"* in September. Trout Creek was *"excellent"* in June and *"good"* in September. Right Fork Little Hobble Creek was *"very good"* in June and *"good"* in September. Left Fork White River was *"good"* in both sample rounds. **FY2008:** Monitoring occurred at the following 8 baseline sites: (1) Dry Fork Creek above Chipman Creek, (2) North Fork American Fork River, (3) Salt Creek at the Forest boundary, (4) Peteetneet Creek above Maple Dell Campground, (5) Summit Creek above the Forest boundary, (6) Right Fork Hobble Creek at Cherry Campground, (7) Vernon Creek at the private land boundary, and (8) Right Fork Little Hobble Creek. All water quality standards were met except as summarized below: • For chronic TP indicator values Dry Fork and American Fork each had 1, Peteetneet Creek had 4, and Vernon Creek had 2 exceedances, • For acute TP indicator values Peteetneet Creek and Vernon Creek had two exceedances. • Right Fork Little Hobble Creek had one exceedance for DO at saturation.

Indicator	Monitoring
	Macroinvertebrates were monitored at six sites: (1) Dry Fork Creek, (2) North Fork American Fork River, (3) Hobble Creek, (4) Summit Creek, (5) Peteetneet Creek, and (6) Salt Creek. Dry Fork Creek was *"excellent"* in July and *"good"* in September. North Fork American Fork River was *"good"* in both samples. Hobble Creek was *"very good"* in July and *"excellent"* in September. Summit Creek was *"very good"* in both samples. Peteetneet Creek was *"fair"* in July and *"good"* in September. Salt Creek was *"good"* in July and was *"very good"* in September. **FY2009:** Monitoring occurred at the following 12 baseline sites: (1) Willow Creek below French Hollow, (2) Wolf Creek below Twin Creek Diversion, (3) West Fork Duchesne River, (4) South Fork Provo River, (5) Mill Hollow Creek above Upper South Fork Provo River, (6) Dry Fork Creek above Chipman Creek, (7) North Fork American Fork River, (8) Salt Creek at the Forest boundary, (9) Peteetneet Creek above Maple Dell Campground, (10) Summit Creek above the Forest boundary, (11) Right Fork Hobble Creek at Cherry Campground, and (12) Vernon Creek at the private land boundary. All water quality standards were met except as summarized below: • For chronic TP indicator values: Wolf Creek, West Fork Duchesne River and Mill Hollow each had 7, and South Fork Provo River had 8 exceedances. • For acute TP indicator values: Wolf Creek had 2, South Fork Provo River had 1, and Mill Hollow had 3 exceedances. Although there are several exceedances of the TP indicator value at several sites, the TP in water quality samples at these sites were $\geq$ 50% in the dissolved fraction indicating the much of the phosphorous came from the groundwater rather than the erosion of particles. Bacteria samples and water quality data were also collected at several sites in range allotments in July of 2009. These sites are Squaw Creek, Crooked Creek, Streeper Creek, Indian Creek, Chipman Creek, Little West Fork Duchesne, and three sites on the West Fork Duchesne. The values for Most Probable Number (MPN) for E. coli ranged from 5 – 119 and fell well within the State of Utah's standard. Water temperature ranged from 8 – 16.7, pH from 8.2 – 8.7, and dissolved oxygen from 8.2 – 10.7. Water temperature, pH and dissolved oxygen values also meet state standards. Macroinvertebrates were monitored at five sites: (1) South Fork Provo River, (2) Mill Hollow Creek, (3) Wolf Creek, (4) West Fork Duchesne River, and (5) Willow Creek. South Fork Provo River was "*very good"* in both samples. Mill Hollow Creek was "*very good"* in June and *"excellent"* in September. Wolf Creek was *"excellent"* in June and *"good"* in September. West Fork Duchesne River was *"good"* in both samples. Willow Creek was *"fair"* in both samples.

Indicator	Monitoring
	<u>FY2010</u>: Monitoring occurred at the following 12 baseline sites: (1) Currant Creek below Layout Creek, (2) Co-op Creek below USFS Boundary, (3) Indian Creek, (4) Strawberry River, (5) Daniels Creek at Pass Creek, (6) Currant Creek above Pass Creek, (7) Right Fork Currant Creek above USFS Road 70471, (8) Willow Creek, (9) Wolf Creek, (10) West Fork Duchense River, (11) South Fork Provo River, and (12) Mill Hollow. All water quality standards were met except as summarized below: • For chronic TP indicator values: Daniels Creek and Right Fork Currant Creek each had 7, Right Fork Currant Creek had 8 , Wolf Creek and South Fork Provo River each had 2, West Fork Duchesne River had 3, and Mill Hollow had 1 exceedance. • For acute TP indicator values: Daniels Creek had 2, Currant Creek had 4, Right Fork Currant Creek had 3, and West Fork Duchesne River had one exceedance. Macroinvertebrates were monitored at five sites: (1) Currant Creek above Pass Creek, (2) Right Fork Currant Creek, and (3) Currant Creek below Layout Creek, (4) Co-op Creek, and (5) Daniels Creek. Currant Creek above Pass Creek and Right fork Currant Creek were "*good"* in June and *"excellent"* in September. Currant Creek below Layout Creek and Co-op Creek were *"good"* in both samples. Daniels Creek was *"excellent"* in both samples.
Number of 303(d) listed water bodies (annually)	The Utah Division of Water Quality assesses the water of the state and provides a report to Congress on those waters that are listed as impaired. *"Pursuant to Section 303(d) of the Clean Water Act as amended, each State is required to identify those assessment units (AUs) for which existing pollution controls are not stringent enough to implement state water quality standards. Thus, those waters or assessment units (i.e., lakes, reservoirs, rivers, and streams) that are not currently achieving or are not expected to achieve those standards are identified as water quality limited."* (State of Utah, 2006) The 2003 Revised Forest Plan contains a sub-goal specific to 303(d) listed water bodies: *"Sub-goal-1-11 "…Management activities do not cause" … "increases in the listing of 303(d) streams."* (pg. 2-3) **<u>FY2003</u>:** <u>Streams</u> **-** The North Fork of the American Fork River and tributaries above Tibble Fork Reservoir are listed in the *Draft 2002 303(d) List of Waters* for arsenic. The North Fork American Fork River will be listed for effects caused by historic mining activity in the watershed. Diamond Fork Creek has been moved from the 303(d) list to the 305(b) list.

Indicator	Monitoring
	Lakes - Lakes included on the 303(d) list include Strawberry Reservoir, Mill Hollow Reservoir, and Big East Lake due to dissolved oxygen levels/total phosphorus, total phosphorus/pH, and dissolved oxygen, respectively. **FY2004:** In previous 303(d) lists, the State of Utah had identified only those waters needing Total Maximum Daily Loads (TMDLs) and removed Assessment Units that had approved TMDLs from the list. In 2004 the State has adopted the five-part integrated list for reporting the status of the State's water. The categories are listed below: • Category 1: Attaining all water quality standards and supporting all beneficial uses. • Category 2: Attaining some beneficial uses and insufficient or no data to assess remaining uses. • Category 3: Insufficient or no data and information to determine if any designated use is attained. • Category 4a: Impaired for one or more designated uses but does not require a TMDL because TMDL has been completed and approved. • Category 4b: Impaired for one or more designated uses but does not require a TMDL because other pollution control requirements are reasonably expected to result in the attainment of the water quality standard in the near future. • Category 4c: Impaired for one or more designated uses but does not require a TMDL because impairment is not caused by a pollutant. • Category 5A: The water quality standard is not attained. The Analysis Unit is impaired for one or more designated beneficial uses by a pollutant(s), and requires a TMDL. • Category 5B: Request for removal from the *303(d) List of Impaired Waters*. Streams - The North Fork of the American Fork River and tributaries above Tibble Fork Reservoir were removed from the *2004 303(d) List of Waters* due to a recent assessment that water quality standards are being met. The fish consumption health advisory for this river segment was lifted and development of TMDL is not needed. The American Fork River and Tributaries from the diversion at mouth of Canyon to Tibble Fork Reservoir are now on the list as a Category 5A, which requires development of a TMDL for pH exceedances, and for partially supporting beneficial uses. Lakes - Lakes listed are the same as for 2003. A TMDL Study for Strawberry Reservoir is scheduled for completion in 2005.

Indicator	Monitoring
	FY2005: Streams – Two streams are listed: (1) American Fork River and Tributaries from diversion at mouth of Canyon to Tibble Fork Reservoir, and (2) Soldier Creek from confluence with Thistle Creek to confluence of Starvation Creek. American Fork and its tributaries is listed as Category 5A for "Partially Supporting Beneficial Uses" 2B, 3B, and 4 Criteria for pH. Soldier Creek is listed as Category 5A for "Partially Supporting Beneficial Use" Class 3A Criteria for sediment and total phosphorous. Lakes – Strawberry Reservoir, Mill Hollow Reservoir, and Big East Lake continue to be included on the 303(d) list as Category 5A. Strawberry Reservoir is identified for "Partially Supporting Beneficial Use" Class 3A Criteria for pH and Total Phosphorous. Mill Hollow Reservoir is identified for "Partially Supporting Beneficial Use" Class 3A Criteria for pH and total phosphorous. Big East Lake is identified for "Partially Supporting Beneficial Use" Class 3A Criteria for dissolved oxygen. The Forest and Utah Department of Environmental Quality are scheduled to conduct water sampling on Big East Lake and Mill Hollow Reservoir in 2006 in order to further determine the nature and extent of the impairment, and to develop mitigation measures for water quality improvement. **FY2006:** Streams – Soldier Creek continues to be listed as Category 5a for total dissolved solids. American Fork River and tributaries from the diversion at mouth of the Canyon to Tibble Fork Reservoir was listed as impaired for pH, but in 2006 it was listed in Category 5B and requested to be removed from the 303(d) list since the 2004-2005 Intensive Survey indicates that the pH standard was met. Lakes – Strawberry Reservoir, Mill Hollow Reservoir and Big East Lake continue to be listed as impaired. Strawberry Reservoir is listed as impaired for total phosphorus and dissolved oxygen and a TMDL was approved by in 2007. Mill Hollow Reservoir is listed as impaired for total phosphorus and pH and Big East Reservoir is listed as impaired for dissolved oxygen. Uinta NF submitted water quality data and reports to the Utah Division of Water Quality who then prepared a limnological assessment of water quality for these reservoirs. **FY2007-FY2010:** Same as year 2006. The State did not submit a report to the U.S. Environmental Protection Agency (EPA) for 2008. In 2010 the State submitted a report to EPA that includes information from 2006 to 2010, but this report has not been approved by the EPA at this time (5/2011).

8. Are **airsheds** on the Forest meeting or trending toward desired conditions?

DFC: Smoke emissions from prescribed and wildland fires are within the historical frequency and distribution for the various vegetation types across the Forest. Resulting ambient air quality and visibility values across the Forest are within federal and state standards for particulate matter and visibility.

Indicator	Monitoring
Forest Service management activities do/don't result in exceedances from established NAAQs standards (every 5 years)	The Forest Plan contains a goal and subgoal relative to this monitoring item. FW-Goal-1 states: *"Soil, air, and water resources provide for watershed health, public health and safety, long-term soil productivity, and ecosystem sustainability, and meet applicable laws and regulations."* (pg. 2-1) Subgoal-1-8 states: *"Activities on the Forest do not impede attainment of state clean air standards."* (pg. 2-2) **FY2003[1/]:** The **Cascade II Prescribed Burn** initiated in September 2003 escaped control lines. Emissions during the planned burning period were within state standards; however, the wildfire resulting from the escape resulted in PM_{10} emissions of 350 and 160 micrograms per cubic meter of air at the Hawthorne monitoring station in Salt Lake City on September 25 and 26, respectively, exceeding the 150 microgram level deemed unhealthy by the Environmental Protection Agency. This was the first exceedance of National Ambient Air Quality Standards (NAAQS) experienced by the Uinta National Forest as a result of a management action. **FY2004 and FY2006:** No prescribed burns were implemented on the Uinta National Forest during Fiscal Year 2004. **FY2005[1/]:** The **Halls Fork Prescribed Burn** was conducted in October of 2004 (FY 2005). A smoke plan for the burn was approved October 14, 2004. Air quality in the general area is monitored by the State of Utah Division of Air Quality (UDAQ) through a network of stations. Five stations are located in Utah County, and none in Wasatch, Juab, Sanpete or Tooele Counties. Only 2 of these (Lindon and North Provo) monitored particulate matter levels at the time of project implementation. Data from the Lindon station shows that PM_{10} 24-hour concentrations ranged from 3.2 - 8.7 $\mu g/m^3$ during implementation of the Halls Fork Prescribed Burn, well below the 65 $\mu g/m^3$ standard for this air quality indicator. Similarly, $PM_{2.5}$ levels ranged from 3.6 – 12.9 $\mu g/m^3$ during the burning period, well within the range considered "good" air quality (i.e., $PM_{2.5} \leq 15.4\ \mu g/m^3$). In addition, particulate ($PM_{2.5}$) air quality for this project was monitored using a remote weather station

Indicator	Monitoring
	located near the burn. Monitoring showed daily average pre- and post-burn $PM_{2.5}$ concentrations of about 0.5 µg/m^3 with daily average levels rising to a maximum of 2.2 µg/m^3 during project implementation. Maximum short-term (i.e., 5-7 minutes) levels recorded were 17.9 µg/m^3. Air quality in the project area and along the nearby Wasatch Front met established air quality standards during this project's implementation. **<u>FY2007</u>:** The **1st-4th Water Prescribed Burn** was conducted on April 3, 2007. A smoke plan for the burn was approved March 26, 2007. Observations during the burn indicate smoke dispersion was good. The smoke column rose quickly and dispersed to the south and east, and no inversion layer formed. (Miller, 2008)[3/] Two UDAQ stations (Lindon and North Provo) monitored particulate matter levels at the time of project implementation. Data from these shows that PM_{10} concentrations were 19-20 µg/m^3 during implementation of the prescribed burn, well below the 65 µg/m^3 standard for this air quality indicator. This data indicates the burn had little or no effect on air quality in the Provo-Orem area. (SOURCE: EPA Air Explorer data base)[2/] **<u>FY2008</u>**: The **5th-6th Water – Oak Prescribed Burn** was ignited on April 29th. A smoke plan for the burn was approved February 29, 2008. Observations during the burn indicate winds were variable but generally were from the southwest. There was a brief period in the afternoon when smoke settled into the drainages, but this abated with increased winds. (Stavast et. al., 2008)[4/] Three UDAQ stations monitored particulate matter levels at the time of project implementation. Data from these shows both PM_{10} and $PM_{2.5}$ concentrations increased on the day of and/or following the burn. $PM_{2.5}$ concentrations rose from about 7-9 µg/m^3 prior to the burn to 14-29 µg/m^3 the day of or after the burn. Data from a few days after the burn shows concentrations had declined to 5-10 µg/m^3 range. $PM_{2.5}$ levels did not exceed the 35 µg/m^3 24-hour standard. Similarly, PM_{10} concentrations rose from about 18-20 µg/m^3 prior to the burn to 60-155 µg/m^3 the day of or after the burn. Data from a few days after the burn shows concentrations had declined to 17-30 µg/m^3 range. The 155 µg/m^3 measurement at one UDAQ air quality station slightly exceeded the 150 µg/m^3 24-hour standard for PM_{10}. Considering smoke dispersal observations on the burn, and air quality conditions at the other 2 Utah County UDAQ stations, it is unclear whether this prescribed burn contributed to this increase the day of/after the burn. (SOURCE: EPA Air Explorer data base)[2/]

Indicator	Monitoring
	FY2009: The **5th-6th Water – Aspen/Conifer Prescribed Burn** occurred October 29 - 31, 2008. A smoke plan for the burn was approved on February 29, 2008. Smoke dispersed and lifted quickly throughout all of the burn periods. On-site observations generally showed smoke rising to around 500ft, then dispersing to the north and northeast over the saddles towards Strawberry Reservoir. Some subsidence was observed in the evenings and early morning hours over the unit and near Strawberry Reservoir. No smoke complaints from the public were received and no smoke was visible on Highway 6 through Spanish Fork Canyon, in Heber City, or in other sensitive areas. (Corbin and Miller, 2008)[5/] Three UDAQ stations monitored particulate matter levels at the time of project implementation. Data from these shows no change in either PM_{10} and $PM_{2.5}$ concentrations during and/or the few days following the burn. $PM_{2.5}$ concentrations ranged from about 8.7-9.4 µg/m^3 prior to the burn to 5-8.4 µg/m^3 during the burn, and dropped to 2.2-3.3 µg/m^3 three days (11/2/2008) after the burn. Similarly, PM_{10} concentrations were about 29-39 µg/m^3 prior to the burn, 24-30 µg/m^3 during the burn, and 4-7 µg/m^3 three days after the burn. Air quality in Utah County (no stations are present in Wasatch County) during the burning period was well within NAAQS. (SOURCE: EPA Air Explorer data base)[2/] **FY2010:** Three wildfires that resulted in fuels benefit occurred on the Forest. These fires are Cottonwood Fire located in Diamond Fork occurring July 24th over 10 acres, Shady Fire located near the ridge of Strawberry Reservoir area occurring July 26th over 22 acres, and Willow Creek Fire located northeast of Nephi occurring August 18th over 148 acres. The minimum daily summary criteria for sites in Salt Lake and Utah counties were met on these dates for the following parameters: carbon monoxide, nitrogen, nitrogen dioxide, ozone, PM_{10}, $PM_{2.5}$, and sulfur dioxide. (SOURCE: EPA Air Explorer data base)[2/] [1/] SOURCE: 2005 State of the Forest Report, Uinta National Forest. [2/] SOURCE: Air quality data from U.S. EPA's Air Explorer data base (www.epa.gov/airexplorer). Smoke dispersal information from project monitoring reports (on file at Forest Supervisor's Office). [3/] L.Miller. January 2008. *First – Fourth Water Prescribed Fire Post-Fire Monitoring Report*. Uinta-Wasatch-Cache National Forest. Provo, UT. 10 pg. (on file at Forest Supervisor's Office). [4/] L.Stavast, B. Corbin, and R. J. Hannah. May 5, 2008. *Fire Effects Monitoring Report, 5th6th Waters South Aspects Prescribed Fire, Spanish Fork Ranger District, Uinta-Wasatch-Cache National Forest*. Uinta-Wasatch-Cache National Forest. Provo, UT. 11 pg. (on file at Forest Supervisor's Office). [5/] B. Corbin and L.Miller. October 29-31, 2008. *Uinta-Wasatch-Cache National Forest Fire Effects Monitoring Report, 5th6th Waters North Aspects*. Uinta-Wasatch-Cache National Forest. Provo, UT. 14 pg. (on file at Forest Supervisor's Office).

Indicator	Monitoring
Degradation of lichen biomonitoring sites (every 5 years)	**FY2003-FY2004[1/]:** Lichen biomonitoring samples were collected in 2003. This involved sampling at 11 previously established sites located along the Wasatch Front, and establishment and collection of baseline data on an additional 12 sites. The 2003 Forest Plan indicates there were 13 additional sites; however, only 12 additional sites were identified and established. The samples were analyzed in 2004; however, a report describing the results was not completed until February of 2005 (FY 2005). The results of this report are described in the 2005 section below. **FY2005[1/]:** Field review of the 11 original air quality biomonitoring reference sites (established in 1995) during the 2001-2003 re-sampling did not show any visually detectable changes in the lichen communities. All substrates (bark, lignum, rock and soil) at these sites still support viable lichen communities. The average number and abundance of pollution sensitive indicator species at these sites appears to remain unchanged and the occurrence of the more pollution sensitive, larger foliose and fruticose species is still low in comparison with other less impacted areas in the intermountain western United States. Necrotic and/or bleached thalli are generally absent these sites. Elemental analysis data indicates overall pollutant element concentrations in sensitive indicator species have generally declined. In 1995 sulfur levels were elevated at 10 of the 11 sites, but in 2002 nine of the 10 showed significantly reduced sulfur levels. In 1995 chromium and nickel were elevated at 2 sites, but in 2002 chromium and nickel levels were well within background levels at these sites. In 1995 lead levels were moderately elevated at 7 sites, but in 2002 only at 1 site. Arsenic levels were elevated at 10 sites in 1995; in 2002 seven of these sites showed reduced concentrations and 3 showed elevated concentrations. Iron-titanium rations are generally still elevated across many of the original sites. Ten of 11 of the sites showed elevated floride concentrations. Overall, there is a trend of decreasing concentrations for most pollutant levels; likely related to the declining operation at the steel mill in Utah Valley. During 2003, 12 additional baseline reference sites were established. These sites were established in management areas not represented by the eleven 1995 sites. The 12 new sites show many of the same basic lichen communities patterns observed for the original 1995 sites. However, the average number of sensitive indicator species for the new sites is much higher (11.3 vs. 6.3). Overall, pollutant element concentrations at the 12 new sites are lower than the original sites. Sulfur concentrations were moderate-high at 3 sites, and 9 of 12 were within background levels. Two sites showed moderately high concentrations of lead, and 4 sites showed moderately high concentrations of cobalt. Three sites showed moderate to high levels of arsenic. Eleven of the 12 sites showed elevated floride concentrations. The higher average number of sensitive indicator species per site and overall lower

Indicator	Monitoring
	pollutant element concentrations are most likely due to the fact that many of the new sites are located further east or in one case further west and away from the Wasatch Front. The consistently high floride concentrations at all sites is difficult to interpret, and needs further exploration. Collections from the 12 new sites added 9 new genera and 27 new lichen species; bringing the total number of lichen taxa across all 23 sites to 56 genera and 182 species. **FY2006 - FY2009:** No bio-monitoring was conducted. The report for the 2003-2004 biomonitoring prepared by Dr. Larry St. Clair recommended the sites be revisited in 2010. **FY2010:** An agreement was let with Dr. Larry St. Clair for the collection and analysis of lichen data. Project field work for lichen monitoring will be completed during 2010 and 2011 field seasons and written interim reports will be submitted by December 2011. Written final reports will be submitted by December 2012. [1/] SOURCE: 2005 State of the Forest Report, Uinta National Forest.
Exceedances from NAAQs standards (every 5 years)	*The Forest Plan contains a goal and subgoal relative to this monitoring item. FW-Goal-1 states: "Soil, air, and water resources provide for watershed health, public health and safety, long-term soil productivity, and ecosystem sustainability, and meet applicable laws and regulations." (pg. 2-1) Subgoal-1-7 states: Management activities do not cause exceedances of National Ambient Air Quality Standards (NAAQS). (pg. 2-2)* NAAQS for the 7 criteria air pollutants (lead, ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter < 10 microns [PM_{10}], and particulate matter < 2.5 microns [$PM_{2.5}$]) are monitored at several sites by the Utah Division of Air Quality. Several sites are located in counties that contain the Uinta National Forest. These include several sites in Utah County, one site in Tooele County, and several sites in nearby Salt Lake County. ♦ Lead is monitored at 2 Salt Lake County, and no Utah and Tooele County sites. ♦ Ozone is monitored at 3 Utah County sites, 6 Salt Lake County sites, no Tooele County sites. ♦ Sulfur dioxide is monitored at 3 Salt Lake County sites, and no Tooele or Utah County sites. ♦ Nitrogen dioxide is at 1 Utah County site, 2 Salt Lake County sites, and no Tooele County sites. ♦ Carbon monoxide is monitored at 2 Utah County, 4 Salt Lake County and no Tooele County sites.

Indicator	Monitoring
	♦ PM_{10} is monitored at 2 Utah County, 4 Salt Lake County, and no Tooele County sites. ♦ $PM_{2.5}$ is monitored at 4 Utah County, 1 Tooele County, and 6 Salt Lake County sites **FY2003[1/]:** In 2003, 8 exceedances from NAAQS for PM_{10} were recorded at air quality monitoring sites in Salt Lake County. This included 2 exceedances at the Hawthorne monitoring site in Salt Lake County. (see discussion above for the indicator *"Forest Service management activities do/don't result in exceedances from established NAAQs standards*". No other exceedances for PM_{10}, or the other criteria pollutants were recorded at the air quality monitoring sites in Utah County, Tooele or Salt Lake Counties in 2003. **FY2004[1/]:** In the winter of 2004, one exceedance from NAAQS for $PM_{2.5}$ and one for PM_{10} were recorded at one Salt Lake County site. Neither of these exceedances were caused by, or coincided with Forest management actions that might have contributed to the elevated levels of particulates. (SOURCE: EPA Air Explorer data base)[1/] **FY2005[1/]:** In 2005 NAAQS for the 7 criteria air pollutants were monitored at several sites by the Utah Division of Air Quality. Several sites are located in counties that contain the Uinta National Forest. The stations monitoring lead and ozone have changed, and these are summarized below: ♦ Lead was monitored at 1 Salt Lake County (Magna) station. ♦ Ozone was monitored at 3 Utah County, 5 Salt Lake County, and 1 Tooele County stations. In 2005, 1 exceedance (Magna) from NAAQS for PM_{10} was recorded. The NAAQS allows 3 exceedances of the standard over a 3-year period. In 2005, four Salt Lake County stations had a 4th highest reading greater than 0.080 ppm. The NAAQS ($\leq$ 0.080 ppm) is based on a 3-year average of the 4th highest ozone reading at each monitor. No other exceedances were recorded at the air quality monitoring sites in Utah County, Tooele or Salt Lake Counties in 2005. (SOURCE: EPA Air Explorer data base)[1] **FY2006**: In 2006 the sites monitoring lead and ozone changed. Ozone was monitored at 2 sites in Utah County and 4 in Salt Lake County. No sites monitored lead.

Indicator	Monitoring
	No exceedances were reported in carbon monoxide, sulfur dioxide, or nitrogen dioxide. No 1-hour exceedances for ozone were reported, but all sites reported days when the 8-hour ozone levels were higher than the standard (0.075 ppm). At the 5 Salt Lake County sites, 8-hour ozone levels exceeded standards an average of about 10.6 days/site. At the Tooele County site 8-hour ozone levels exceeded standards on 8 days. At the 3 Utah County sites, 8-hour ozone levels exceeded standards on an average of about 4.7 days/site. PM2.5 was monitored at 11 sites; 6 in Salt Lake County, 1 in Tooele County, and 4 in Utah County. No exceedances were reported in Tooele or Utah County. In Salt Lake County, there were no exceedances of the annual standard but 4 sites recorded exceedances of the 24-hour standard. PM10 was monitored at 6 sites; 4 in Salt Lake County and 2 in Utah County. No exceedances were reported in Utah County. In Salt Lake County, there were no exceedances of the annual standard but 2 sites recorded exceedances of the 24-hour standard. (SOURCE: EPA Air Explorer data base)[1/] **FY2007:** In December of 2006 EPA made 2 changes to the standards applicable to particulates: (1) EPA revoked the PM_{10} annual standard due to a lack of evidence linking health problems to long-term exposure to coarse particulate pollution. (2) EPA strengthened the $PM_{2.5}$ 24-hour standard. Before its revocation, the level of the annual standard was 65 micrograms per cubic meter of air to 35 micrograms per cubic meter of air. Some locations that previously met the $PM_{2.5}$ standard may exceed the level of the revised standard. The sites monitoring carbon monoxide, ozone, and $PM_{2.5}$ also changed. Carbon monoxide was monitored at 1 site in Utah County and 3 in Salt Lake County. Ozone was monitored at 3 sites in Utah County, 1 in Tooele County, and 5 in Salt Lake County. $PM_{2.5}$ was monitored at 4 sites in Utah County, 1 in Tooele County, and 8 in Salt Lake County. No exceedances were reported in carbon monoxide, sulfur dioxide, or nitrogen dioxide. No sites monitored lead. One site in Salt Lake County reported a 1-hour exceedances for ozone. All monitoring sites in the analysis area reported days when the 8-hour ozone levels were higher than the standard (0.075 ppm). At the 5 Salt Lake County sites, 8-hour ozone levels exceeded standards an average of about 9.4 days/site. At the Tooele County site 8-hour ozone levels exceeded standards on 5 days. At the 3 Utah County sites, 8-hour ozone levels exceeded standards on an average of about 4.3 days/site. No exceedances of $PM_{2.5}$ were reported in Tooele County. In Utah County, there were no exceedances reported of the annual standard, but all 4 sites reported exceeding the 24-hour standard. In Salt Lake County, one site exceeded the annual standard and 4 of the 8 sites recorded exceedances of the 24-

Indicator	Monitoring
	hour standard. No exceedances of PM_{10} standards were reported in Utah or Tooele Counties. In Salt Lake County, there were no exceedances of the annual standard but 1 site recorded 4 exceedances of the 24-hour standard. (SOURCE: EPA Air Explorer data base)[2/] **FY2008:** In March of 2008 EPA strengthened the 8-hour standard for ozone. Before its revocation, the level of the annual standard was 0.080 parts per million to 0.075 parts per million. Some locations that previously met the ozone standard may exceed the level of the revised standard. The sites monitoring carbon monoxide, ozone, PM_{10}, and $PM_{2.5}$ also changed. Carbon monoxide was monitored at 3 sites in Salt Lake County. Ozone was monitored at 3 sites in Utah County, 1 in Tooele County, and 3 sites in Salt Lake County. $PM_{2.5}$ was monitored at 5 sites in Utah County, 1 in Tooele County, and 6 in Salt Lake County. PM_{10} was monitored at 3 sites in Utah County, 1 in Tooele County, and 4 in Salt Lake County. No exceedances were reported in carbon monoxide, sulfur dioxide, or nitrogen dioxide. No sites monitored lead. One site in Salt Lake County reported 1-hour exceedances for ozone. All monitoring sites in the analysis area reported days when the 8-hour ozone levels were higher than the standard (0.075 ppm). At the 3 Salt Lake County sites, 8-hour ozone levels exceeded standards an average of about 4 days/site. At the Tooele County site 8-hour ozone levels exceeded standards on 2 days. At the 3 Utah County sites, 8-hour ozone levels exceeded standards an average of about 2.3 days/site. No exceedances of $PM_{2.5}$ were reported of the annual standard. There was 1 exceedance reported at a site in Tooele County, and one at a site in Utah County of the 24-hour standard. In Salt Lake County, 5 of the 6 sites recorded exceedances of the 24-hour standard. For PM10, no sites reported exceeding the annual standard. However, 1 site in Utah County and 4 sites in Salt Lake County reported exceedances of the 24-hour standard. (SOURCE: EPA Air Explorer data base)[2/] **FY2009:** The sites monitoring PM_{10}, $PM_{2.5}$, and carbon monoxide changed from 2008. Carbon monoxide was monitored at 2 sites in Salt Lake County and 1 site in Utah County. $PM_{2.5}$ was monitored at 4 sites in Utah County, 1 in Tooele County, and 4 in Salt Lake County. PM_{10} was monitored at 2 sites in Utah County and 4 in Salt Lake County. As in the past years, no sites monitored lead. For Utah County, the criteria in which data was given are carbon monoxide, nitrogen, ozone, PM_{10}, and $PM_{2.5.}$ There are minimum daily summary criteria and they were not met for carbon monoxide for four

Indicator	Monitoring
	days and nitrogen for two days and were met for all days for ozone, PM_{10} and $PM_{2.5}$. For Salt Lake County, the criteria in which data was given are carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, PM_{10}, and $PM_{2.5}$. There are minimum daily summary criteria and they were not met for carbon monoxide for eleven days and nitrogen dioxide for sixteen days and were met for all days for ozone, sulfur dioxide, PM_{10} and $PM_{2.5}$. (SOURCE: EPA Air Explorer data base)[2/] **FY2010:** For Utah County, data are available for carbon monoxide, nitrogen dioxide, ozone, PM_{10}, and $PM_{2.5}$ criteria. The minimum daily summary criteria for carbon monoxide were not met for 4 days, nitrogen dioxide was not met for 9 days. All days were met criteria for ozone, PM_{10} and $PM_{2.5}$. For Salt Lake County, data are available for carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, PM_{10}, and $PM_{2.5}$ criteria. The minimum daily summary criteria for carbon monoxide were not for carbon monoxide for 12 days and nitrogen dioxide for 14 days. Criteria for ozone, sulfur dioxide, PM_{10} and $PM_{2.5}$ were met all days. (SOURCE: EPA Air Explorer data base)[2/] [1/] SOURCE: 2005 State of the Forest Report, Uinta National Forest. [2/] SOURCE: Air quality data from U.S. EPA's Air Explorer data base (www.epa.gov/airexplorer).

9. Are **vegetation conditions** stable or moving toward desired future conditions?

DFC: Deteriorated vegetated communities are assessed for estimated potential for recovery, and active restoration work is completed as appropriate. Suitable habitat conditions are provided for plant-pollinating insects. Vegetative communities exist in a full range of seral stages and age classes. Vegetation management focuses on improving the diversity of forested and non-forested communities, with an emphasis on aspen stand regeneration and insect and disease control in conifer species. Vegetation is managed to create a more diverse mosaic of species and size classes within the landscape in an effort to move the vegetation towards desired future conditions. Wildlife habitat needs are considered in designing treatment projects, but do not necessarily drive the purpose and need for treatment. Forested vegetation that is classified as capable and available is managed to provide a portion of the Forest's Allowable Sale Quantity (ASQ). Forested vegetation throughout the remainder of the Forest is managed for general forest health and other forest resource needs.

The Uinta National Forest supports a wide variety of vegetation types. The most common vegetation community types on the Forest are aspen forest, oak/maple, sagebrush, conifer forest, pinyon/juniper woodlands, mountain brush, and riparian.

The desired future condition of each habitat type is a vegetation community where species composition and age-class distribution are within the historic range of variability for that community type and approach patterns described under properly functioning conditions. Vegetation conditions that are within the historic range of variability are desired because these are habitat conditions under which all native species evolved and to which they are adapted. Vegetation composition and structure are important because they largely determine types and amounts of food and cover available for each species.

Indicator	Monitoring
Clearcut size and timber management practices according to Forest Plan direction (annually)	*The 2003 Forest Plan provides direction for cutting method in Guideline Timber-1. (pg. 3-20)*

FY2003-FY2010:

Fiscal Year	Acres Harvested [1/]							
	Clearcut	Shelterwood (Prep Cut)	Shelterwood (Removal Cut)	Selection	Intermediate Thinning	Sanitation	Other	Total
2003	79	40	0	349	38	42	0	548
2004	58	0	0	152	0	117	0	327
2005	0	0	0	0	0	0	0	0
2006	0	0	0	183	0	0	94	277
2007	0	0	0	143	0	274	0	417
2008	0	0	0	132	0	0	0	132

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>
<table>
<tr><td>2009</td><td>0</td><td>0</td><td>0</td><td>75</td><td>0</td><td>0</td><td>0</td><td>75</td></tr>
<tr><td>2010</td><td>0</td><td>0</td><td>0</td><td>59</td><td>0</td><td>0</td><td>0</td><td>59</td></tr>
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[1/] Data from Annual FACT206F (2006-2008) and Annual Table 20 - Reforestation and Timber Stand Improvement Accomplishment Reports (2003 – 2005, 2009 – 2010).

Clearcutting occurred in aspen stands (Dry Hollow Timber Sale) in 2003 and 2004. Shelterwood and selection harvests occurred in spruce-fir stands. The other harvests occurred primarily in spruce-fir and lodgepole pine stands to prevent or respond to insect infestations. Timber harvest methods are consistent with Forest Plan direction (see below regarding maximum unit size).

On June 28, 2010, Forest Supervisor Brian Ferebee issued Forest Plan Correction #6. This correction added standard Timber-15: *“The maximum size for created openings by even-aged timber harvest will be 40 acres. Exceptions are: Proposals for larger openings are allowable after public review and review by the responsible Forest Service officer one level above the Forest Service officer who normally would approve the harvest proposal. Limits do not apply to the size of areas harvested as a result of natural catastrophic conditions such as fire, insect or disease attack, or windstorm.”* This correction was issued because limits on maximum even-age harvest unit size had previously been provided thru the 1982 Planning Rule. That rule is no longer in effect, but the need to define the maximum size for created openings remained. The 2003 and 2004 clearcut acreages reported in the table above occurred in multiple units, and no units exceeded 40 acres in size.
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<tr><td>Prescribed fire and wildland fire use according to Forest Plan direction (every 5 years)</td><td>
The 2003 Forest Plan contains the following sub-goal pertaining to use of fire: “Fire is reintroduced as an ecosystem function to move landscapes toward desired conditions.” (Sub-goal-2-3, pg. 2-5) The 2003 Forest Plan also contains 2 guidelines (Fire-2, and Fire-3, pg 3-15) providing direction relative to the application of prescribed fire and wildland fire use. These generally authorize use of these vegetation management tools forest-wide, except where direction for certain management areas and management prescriptions provides otherwise.

FY2003:
The **Red Hollow Prescribed Fire** (1,733 acres) was implemented in accordance with Forest Plan direction, and met burn objectives.

The **Cascade II Prescribed Fire** (600 acres) was implemented September 23 and escaped control lines. As a result of the escape, **Cascade III** (820 acres) was also burned. In addition to these planned burn units, 6,408 acres were also burned, including 4,504 acres of state and private land. Overall, burn severity on 18% (1,406 acres) was high, 46% (3,580 acres) was moderate, and 36% (2,843 acres) was low or unburned. Generally, the planned burn units burned at moderate to low intensities that met the prescribed objectives, and the vegetation
</td></tr>
</table>

Indicator	Monitoring
	stands within these units are expected to move toward the desired conditions described in the Forest Plan. Evaluation of the **White River Prescribed Fire** was also completed in 2003. Monitoring indicated that the burn achieved desired results on about 15% of the treatment area (i.e., the area within the burn perimeter). Overall, much of the burned unit either did not burn or burned at too low of an intensity to meet identified objectives. No wildland fire use fires occurred in FY 2003. **FY2004:** No prescribed fires or wildland fire use fires were conducted in FY2004. **FY2005:** The **Halls Fork Prescribed Fire** (2,408 acres) was implemented in October 2004. The burn was implemented in accordance with Forest Plan direction and met burn objectives. The **Silver Wildland Fire Use Fire** (1 acre) occurred in October 2004. **FY2006:** The **First-Fourth Water Prescribed Fire** (300 acres) was implemented in FY2006. The burn unit perimeter was blacklined to prepare the unit for additional burning that occurred in FY2007. No wildland fire use fires were conducted in FY2006. **FY2007:** The **First-Fourth Water Prescribed Fire** (2,150 acres) was implemented in April 2007. Monitoring indicated that fire spread within the burn unit met objectives, successfully affecting the entire shrub community, primarily gambel oak. Additionally, live fuel heights were reduced and soil cover was maintained at desirable levels. The **Cascade Wildland Fire Use Fire** (less than 1 acre) occurred in October 2006. **FY2008:** The **Fifth-Sixth Water Prescribed Fire** (3,200 acres) was implemented in May 2008. Monitoring indicated that a mosaic of fire effects was achieved and project objectives were met; 40-60% of the shrub community was burned, standing fuel loads were reduced, and age class diversity within the shrub communities was improved.

Indicator	Monitoring
	The **Bryant's Fork Prescribed Fire** (8 acres) which involved burning of slash piles was implemented in July 2008. The project was implemented in accordance with Forest Plan direction and met burn objectives. There were no wildland fire use fires in FY2008. **FY2009:** The **Fifth-Sixth Water Prescribed Fire** (2,400 acres) was implemented in October 2008. Monitoring indicated that a mosaic of fire effects was achieved and project objectives were met; age class diversity in the shrub community and aspen was improved. Reinterpretation of national fire policy in 2009 eliminated *Wildland Fire Use* as a separate category of wildland fire. There are now just two categories, *"wildfire"* (unplanned ignitions) and *"prescribed fire"* (planned ignitions). As a consequence of this reinterpretation, previous guidance contained in the Forest Plan does not completely fit with current policy. In the case of naturally caused wildfires, agency administrators are to make decisions on how to manage fires based on the direction in the Forest Plan, values at risk, available resources, probability of success, and any potential resource benefits. In FY2009 a total of 26 acres from one lightning-caused wildfire resulted in resource benefits, consistent with Forest Plan direction and land management objectives- the **Black Crook Canyon Fire** in July 2009. **FY2010:** No prescribed fires were implemented in FY2010. See discussion for FY2009. In FY2010 a total of 180 acres from 3 lightning-caused wildfires resulted in resource benefits, consistent with Forest Plan direction and land management objectives - **Shady** (22 acres), **Cottonwood** (10 acres), and **Willow Creek** (148 acres).
Acres of hazardous fuels treated (annually)	*The 2003 Forest Plan contains the following sub-goal pertaining to treatment of hazardous fuels: "The fuel management aspect of the fire management program is emphasized through application of hazard reduction activities." (Sub-goal-2-3, pg. 2-5) The Forest Plan also contains an objective for treatment of vegetation; however, this is not specific to just treatment of hazardous fuels. "By 2013, accomplish at least 30,000 acres of vegetative treatments (combined total for all purposes)." (Objective-2-5, pg. 2-12)*

Indicator	Monitoring

FY2003 – FY2010:

The Forest has essentially achieved Objective-2-5. As shown below, about 29,571 acres of fuels (vegetation) have been treated.

Fiscal Year	Prescribed Burn		Mechanical Treatments		All
	Project	Acres	Project	Acres	Acres
2003[2/]	Red Hollow (1,733), Cascade II & Cascade II (1,087)[1/]	2,820	----	0	2,820
2004[2/]	----	0	Bryant's Fork Summer Home Fuelbreak (92), Bryant's Fork Spruce Trap Tree (178), Dry Hollow Thinning (20), Heber Aspen Beaver #1 (38), Murdock Timber Sale (42), Silver Meadows Timber Sale (184), Squaw Creek Road (20), Strawberry Sage Grouse Lek (4)	578	578
2005[2/]	Halls Fork	2,408	Silver Lake/Tibble Fork Mechanical Fuels (80), Bryant's Fork Trap Tree II (113), Vernon Pinyon-Juniper Enhancement (25), Spanish Fork Powerline Clearring (78), Hope (40) and Mill Hollow (18) Campgrounds Hazard Reduction, Rocky Top Timber Stand Improvement (57), Forest-wide Road Maintenance (6)	417	2,825
2006[2/]	First-Fourth Water	300	Alpine Loop Road Fuelbreak (300); Hope (10), Rock Canyon (10), Granite flat (10) Campgrounds Hazard Reduction; Bryant's Fork Trap Tree II (112), Bryant's Fork Timber Stand Improvement (79), Nunya Timber Sale (317), Aspen Grove Avalanche Pile & Burn (42), Bryant's Fork Spruce Trap Tree (145)	1,025	1,325
2007[3/]	First-Fourth Water	2,150	Trout Creek Sage (185); Vernon Reservoir Sage (300); Bear Canyon (8) and Cottonwood (17) Campgrounds Hazard Reduction; Maple Canyon (3) and Salt Creek (5) Roads; Payson (70), Maple Bench (63) and Whiting (11) Campgrounds Hazard Reduction; Bear Canyon Summer Homes Hazard Reduction (1); Rock Canyon (81) and Little Mill (18) Campgrounds Hazard Reduction; American Fork Road (23); Whiskey Springs Picnic Area (2) and Lodgepole Campground (35) Hazard Reduction; White River Salvage Sale (220); Rock Garden Timber Sale (133); Rocky Top Timber Stand Improve. (44)	1,219	3,369
2008[3/]	Fifth-Sixth Water (3,200) and Bryant's Fork Piles (8)	3,208	Currant Creek Campground Hazard Reduction (64); Vernon Reservoir Sage (1,300); Tank Hollow (775); Salt Creek Piling (50); Rock Canyon Campground Hazard Reduction (60); Camp Koholowo Thinning (13); Diamond Fork Little Diamond thinning (12); Billes Mountain Mechanical (1,150); Telephone Hollow Timber Sale (141)	3,565	6,773

Indicator	Monitoring

2009[3/]	Fifth-Sixth Water (2,400); Salt Creek Piles (42); Black Crook Canyon Wildfire (26)	2,468	Sabie Mountain Habitat Improvement (565); Diamond Fork Little Diamond Mastication (106); Millow Hollow Campground Slash Piling (27); Diamond-Electric Sagebrush Mowing (992); Tank Hollow Thinning (334); Salamander Flat Thinning (10); Little Mill Campground Thinning (7); Camp Kololowo Thinning (53); Bartholomew Canyon Mastication (1,500)	3,594	6,062
2010[3/]	Currant Creek Campground Piles (64); Shady Wildfire (22), Cottonwood Wildfire (10); Willow Creek Wildfire (148)	244	American Fork Road (120); Springdell South Mastication (2,500); First-Forth Water Thinning (5); Sharps P-J Habitat Improvement (870); Badger Hollow-Chicken Creek Sage (500); Benmore Pastures Sage (750); Sabie Mountain Lop & Scatter (830)	5,575	5,819
All	-----	13,598	-----	15,973	29,571

[1/] Cascade III burned when Cascade II escaped containment lines and became a wildfire. Only the acres included within the original burn plan were reported as "*acres of hazardous fuels treated".*
[2/] DATA SOURCE: National Fire Plan Operations Reporting System (NFPORS) database.
[3/] DATA SOURCE: FACTS database.

Acreage with approved wildland fire use plan (every 5 years)

The 2003 Forest Plan contains two objectives pertaining to wildland fire use plans: Objective-2-1 states: "By 2005, evaluate and identify which areas on the Forest will be included in wildland fire use plans. Delineate the geographic areas to be covered by each plan. (Note: Not all areas on the Forest may be suitable for inclusion in a plan.)" (pg. 2-12) Objective-2-2 states: "By 2008, complete three wildland fire use plans." (pg. 2-12) The 2003 Forest Plan also contains a guideline (Fire-3, pg. 3-15) providing direction that wildland fire use is generally authorized forest-wide, except where direction for certain management areas and management prescriptions provides otherwise.

FY2003 – FY2008:

A Fire Management Plan for the Forest is prepared and updated annually. This includes a Wildland Fire Use Plan. The Wildland Fire Use Plan allowed wildland fire use to be considered in several areas within, and outside of designated wilderness on the Forest. Objective-2-1 and Objective-2-2 were met in 2005 when all of the Forest was evaluated for inclusion in a wildland fire use plan.

The following table identifies the approximate acreage of areas identified for consideration of wildland fire use in the annual fire management plans.

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>
<table>
<tr><th>Fiscal Year</th><th>Approximate Acres With Approved Fire Management Plan</th><th>Approximate Acres Identified in Fire Management Plan Where Wildland Fire Use Is To Be Considered</th></tr>
<tr><td>2003</td><td>58,400[2/]</td><td>58,400</td></tr>
<tr><td>2004</td><td>898,360[3/]</td><td>286,430</td></tr>
<tr><td>2005</td><td>898,360[3/]</td><td>453,190</td></tr>
<tr><td>2006</td><td>898,360[3/]</td><td>418,690</td></tr>
<tr><td>2007</td><td>898,360[3/]</td><td>404,110</td></tr>
<tr><td>2008</td><td>898,360[3/]</td><td>410,700</td></tr>
<tr><td>2009</td><td>898,360[3/]</td><td>NA[1/]</td></tr>
<tr><td>2010</td><td>898,360[3/]</td><td>NA[1/]</td></tr>
</table>
[1/] See discussion for FY2009 – FY2010 below.
[2/] Designated Wilderness.
[3/] Current approximate acreage on National Forest System lands within the Uinta National Forest (acreage determined using GIS)

<u>FY2009 – FY2010</u>:
Reinterpretation of national fire policy in 2009 eliminated wildland fire use as a separate category of wildland fire.
There are now just two categories, wildfire (unplanned ignitions) and prescribed fire (planned ignitions). As a consequence of this reinterpretation, previous guidance contained in the Forest Plan does not completely fit with current policy. In the case of naturally caused wildfires, agency administrators are to make decisions on how to manage fires based on the direction in the Forest Plan, values at risk, available resources, probability of success, and any potential resource benefits. Therefore, the Forest no longer has a wildland fire use plan in place.
</td></tr>
<tr><td>Aspen, spruce/fir, Douglas-fir
a. Extent of conversion (acres) to younger age</td><td>For aspen forests, desired future conditions include a heterogeneous mosaic of age classes, with young, mid, and old age classes represented across the landscape. Aspen regeneration should be sufficient to withstand browsing pressure from wildlife and livestock and still provide sufficient recruitment to ensure stand maintenance or stand replacement across the landscape. At least 30% of stands should be in mature or old age classes, and at least 10% should have old growth structural characteristics. Mature and old stands should have densities of at least two large-diameter snags (≥8 inches diameter at breast height) per acre, and at least</td></tr>
</table>

Indicator	Monitoring
classes (every 5 years) b. Extent and distribution of old and mature (every 5 years) c. Extent of insect/disease infestations (every 5 years)	five large-diameter logs (≥6 inches mid-point diameter) per acre. Desired future conditions also include seral aspen forests that are being maintained by periodic disturbance and not being converted at large spatial scales to conifer forest due to lack of disturbance. Grass, forb, and shrub growth is productive, providing forage and browse for both wildlife and livestock. For **spruce/fir** and **Douglas-fir/white fir** conifer forests, desired future conditions include a balanced range of age classes, with at least 40% of stands mature or old, and at least 10% having old growth structural characteristics. Mature and old growth stands should have multi-layered canopies, with densities of at least three large-diameter snags (≥18 inches diameter at breast height) per acre, and at least five large-diameter logs (≥12 inch mid-point diameter) per acre. Insects and disease are not causing large-scale tree mortality across entire landscapes. **FY2003 – FY2010:** **a. Conversion to Younger Age Classes:** Aspen: Aspen communities (climax aspen, mixed conifer-aspen/aspen-conifer, and aspen/oak vegetation cover types) occupy about 244,000 acres of on the Uinta National Forest. (2003 Forest Plan FEIS, pg. 3-128) Old and mature stands of aspen are typically converted to younger stands by sprouting when they are cut or burn (aspen are easily killed by fire when burnt; however, aspen stands are often wetter than surrounding stands and burns in aspen are often patchy [unburned or very lightly burned spots mixed in with more heavily burned patches]). Since 2003, natural and human-induced aspen regeneration events have occurred on the Forest. These include fire (prescribed and/or wildland fire), timber harvest, and other mechanical treatments (e.g., non-commercial bullhog or felling for fuels abatement or wildlife habitat improvement). As shown in the following table, during the FY2003 thru FY2010 period, about 7,140 acres of aspen on the Forest experienced regeneration events. This represents a small percentage (3%) of the aspen on the Forest. This acreage does not include peturbations in other vegetation types that may result in aspen regeneration (e.g., burns in conifer stands that originally had a minor component of aspen often regenerate as predominantly aspen).

Indicator	Monitoring

Approximate Acreage of Aspen Regeneration Events, FY2003 - FY2010

Fiscal Year	Timber Sale Regeneration Harvest[c] (Acres)	Other Vegetation Treatments[a][b] (Acres)	Within Wildfires[a] (Acres)	Total Affected Acres
2003	80	1,440	630	2,150
2004	55	0	65	120
2005	0	1,995	0	1,955
2006	0	0	0	0
2007	0	480	75	555
2008	0	1,010	0	1,010
2009	0	1,260	0	1,260
2010	0	70	0	70
Total	135	6,215	770	7,120

(a) Acres were estimated through GIS analysis using data for land ownership, mid-scale vegetation, wildfire perimeters, and vegetation treatment projects (this includes both mechanical and prescribed fire treatments).
(b) Prescribed fire or mechanical treatments (e.g., bullhog, felling, etc.)
(c) SOURCE: *Annual Reforestation and Timber Stand Improvement Needs Report*

Douglas-fir: Douglas-fir/white fir stands occupy about 20,710 acres on the Forest. (2003 Forest Plan FEIS, pg. 3-128) GIS analysis of the data used for the Forest Plan indicates there are about 15,270 acres of Douglas-fir on the Forest, including about 30 acres of immature stands. Most Douglas-fir on the Forest is found on steep north and east-facing slopes along the Wasatch Front, and consequently, is not frequently impacted by timber harvest or other mechanical vegetation treatments. Fire has variable effects on the species. Older trees have thick bark and are typically not killed by low intensity fires. Younger trees have thinner bark and may be killed by lower intensity burns. GIS analysis indicates that mechanical treatments and fire (wildfire and prescribed fire) during the FY2003 thru FY2010 period potentially resulted in regeneration events on about 30 acres (< 1%) of the Douglas-fir cover type. More specifically:

- 0 acres were within wildfires,
- 0 acres were treated through timber sales (NOTE: ~ the White River Timber Sale was sold in 2007. This sale included individual tree selection in ~220 acres of Douglas-fir/white fir stands; however, as of 9/30/2010 these stands are still under contract but have not yet been harvested.)

Indicator	Monitoring
	• 0 acres were within other mechanical vegetation treatments, and • In both FY2008 and in FY2009, about 15 acres (~30 ac. total) were within prescribed burns. As illustrated in the following discussion of *"Forest Insect and Disease Conditions",* insects have caused tree mortality on several thousand acres of Douglas-fir on the Forest. The intensity of this mortality is variable, ranging from heavy stand-wide mortality to scattered trees. The data indicates that on the average only 2-5 trees/acre have been killed each year. These are typically large, mature or old trees, and smaller young trees are not usually infested. This type of mortality often creates small holes in stands which provide growing space to allow regeneration to occur. The detailed data needed to quantify the extent insects have resulted in regeneration is not currently available. <u>White Fir</u>: As noted above, the Forest Plan FEIS (pg. 3-128) indicates that Douglas-fir/white fir stands occupy about 20,710 acres on the Uinta National Forest. GIS analysis of the data used for the 2003 Forest Plan indicates that about 5,460 acres of this are classified as white fir stands. Much of the white fir on the Forest is found on steep north and east-facing slopes along the Wasatch Front, and consequently, is not frequently impacted by timber harvest or other mechanical vegetation treatments. GIS analysis indicates that mechanical treatments and fire (wildfire and prescribed fire) during the FY2003 thru FY2010 period potentially resulted in regeneration events on about 265 acres (~4.9%) of the white fir cover type. More specifically: • 105 acres were within wildfires (100 acres in 2004, 5 acres in 2010), • 0 acres were treated through timber sales (NOTE: ~ the White River Timber Sale was sold in 2007. This sale included individual tree selection in ~220 acres of Douglas-fir/white fir stands [typed as Douglas-fir rather than white fir]; however, as of 9/30/2010 these stands are still under contract but have not yet been harvested.), and • 160 acres were within other mechanical vegetation treatments (2008), and As illustrated in the following discussion of *"Forest Insect and Disease Conditions",* insects have caused tree mortality on several thousand acres of fir/spruce-fir on the Forest. The intensity of this mortality varies, ranging from heavy stand-wide mortality to scattered trees. The data indicates that on the average only 1.5 to 6.5 trees/acre have been killed each year. The affected trees are typically large, mature or old trees, and smaller young trees are not usually killed. Fir is highly shade tolerant, and younger trees are often present beneath the overstory of larger trees. This type of mortality often creates small holes in stands which provide growing space to allow younger trees to grow and/or regeneration to occur. The detailed data needed to quantify the extent insects have resulted in regeneration is not currently available.

Indicator	Monitoring

Spruce-fir/Subalpine Fir: Spruce-fir communities occupy about 77,050 acres on the Forest. (2003 Forest Plan FEIS, pg. 3-128) Most spruce-fir stands on the Forest are mature or overmature. GIS analysis of the data used for the Forest Plan indicates there are about 1,720 acres of young/immature spruce-fir stands on the Forest. Old and mature spruce-fir stands are typically converted to younger stands when they are subject to insect epidemics, or when they are cut or burn (spruce and fir are easily killed by fire when burnt. Predominantly spruce stands may be converted to predominantly fir stands where most of the large overstory spruce are killed or removed. Spruce-fir communities often occupy sites that are wetter and/or cooler than other forest cover types. Consequently, burns in spruce-fir communities on the Uinta NF are often more infrequent and/or patchy [unburned or very lightly burned spots mixed in with more heavily burned patches]). Since 2003, natural and human-induced regeneration events have occurred on the Forest. These include fire (prescribed and/or wildland fire), timber harvest, and other mechanical treatments (e.g., non-commercial felling for fuels abatement or wildlife habitat improvement). As shown in the following table, during the FY2003 thru FY2010 period, about 2,030 acres of spruce-fir on the Forest experienced regeneration events. This represents a small percentage (~2.6%) of this forest type on the Forest. This acreage does not include peturbations in other vegetation types that may result in spruce-fir regeneration (e.g., harvests or patchy burns in conifer stands that originally had a minor component of spruce-fir).

Approximate Acreage of Spruce-Fir Regeneration Events, FY2003 - FY2010

Fiscal Year	Timber Sale Regeneration Harvest[c] (Acres)	Other Vegetation Treatments[a][b] (Acres)	Within Wildfires[a] (Acres)	Total Affected Acres
2003	350	50	45	455
2004	150	0	0	150
2005	0	255	0	255
2006	185	0	0	185
2007	145	0	0	145
2008	130	130	110	370
2009	75	245	0	320
2010	60	80	20	160
Total	1,095	760	175	2,030

[a] Acres were estimated through GIS analysis using data for land ownership, mid-scale vegetation, wildfire perimeters, and vegetation treatment projects (this includes both mechanical and prescribed fire treatments).

Indicator	Monitoring
	[b] Prescribed fire or mechanical treatments (e.g., felling, etc.) [c] Based on data reported in "*Annual Reforestation and Timber Stand Improvement Needs Report*" As illustrated in the following discussion of *"Forest Insect and Disease Conditions",* insects/disease has caused several thousand acres of spruce and subalpine-fir on the Forest to experience tree mortality. The intensity of this mortality is highly variable, ranging from heavy stand-wide mortality to widely scattered trees or small groups of trees. The data indicates that on the average only 1.0 to 6.5 trees/acre have been killed each year. These are typically large, mature or old trees, and smaller young trees are not usually killed. The detailed data needed to quantify the extent insects have resulted in regeneration is not currently available. <u>Lodgepole Pine</u>: GIS analysis of the data used for the 2003 Forest Plan indicates that about 115 acres of lodgepole pine stands on the Forest. GIS analysis of lodgepole pine stands in areas impacted by fire and mechanical treatments during the FY2003 thru FY2010 period indicates 0 acres have been impacted during this time period by potential regeneration events. Although no regeneration events have occurred, three management activities have occurred in lodgepole stands: • In 2006 mountain pine beetle infested trees in Lodgepole Campground were felled and sold as firewood. This harvest encompassed about 35 acres, but with the treatment intensity and having occurred in a campground likely resulted in only scattered regeneration and thus is not considered a regeneration event. • In 2008 the Telephone Hollow timber sale was sold. This sale includes 18 acres of group selection harvest, and 125 acres of thinning of lodgepole pine. Cutting had started but not yet been reported as completed as of 9/30/2010. • Lodgepole Campground Timber Sale was advertised in 2009, but was not sold. This sale would treat about 90 acres of lodgepole pine. This timber sale is scheduled to be reoffered in 2012. As illustrated in the following discussion of *"Forest Insect and Disease Conditions",* mountain pine beetle has caused mortality in several thousand acres of pine trees on the Forest since 2003. This acreage includes pines in stands that are predominantly stocked with another tree species, and thus are not classified as having a pine forest cover type. The intensity of this mortality is variable, but on the average only 1.7 to 4.7 trees/acre infested have been killed each year. These are typically large, mature or old trees, and smaller young trees are not usually killed. This type of mortality often creates small holes in stands which provide growing space to allow regeneration to occur. The detailed data needed to quantify the extent insects have resulted in regeneration is not currently available.

Indicator	Monitoring

b. <u>Extent and distribution of Old and Mature</u>: The 2003 Revised Forest Plan contains a guideline (**Veg-11**) for the amount of mature and old structural stages: *"Manage for at least 30 percent of aspen and aspen/conifer forest cover types, and at least 40 percent of Douglas-fir, white fir, mixed conifer, spruce/fir, and lodgepole pine forest cover types in mature and old structural stages." (pg. 3-18*

Most aspen, Douglas-fir, white fir, spruce-fir, and lodgepole pine stands on the Forest were mature and/or old. Only a small percentage of each type (3%, <1%, 4.9%, 2.6%, 0% respectively) has been regenerated through fire or mechanical treatments. However, significant acreages of the conifers have been impacted by insect activity (see the following discussion of *"Forest Insect and Disease Conditions*"). Data quantifying the extent of age class conversion (from old-mature to non-stocked or young) is not currently available for the Forest as a whole.

c. <u>Forest Insect and Disease Conditions</u>: Survey results are summarized below:
Insect activity in Engelmann spruce, Douglas-fir and lodgepole pine stands increased substantially since 2004. Insect activity in subalpine fir stands declined. Survey results are summarized below:

Conifer Insect Mortality Estimates By Year, Uinta National Forest

Damage Agent	Affected Species	Estimated Acres[(a)(b)] with Insect Mortality by Year[1/]							
		2003	2004	2005	2006	2007	2008	2009	2010
Spruce Beetle	Spruce	180	300	1,980	1,290	6,475	5,740	8,240	11,430
Fir Engraver Beetle	Subalpine and White Fir	4,225	17,485	5,040	95	240	5	25	130
Subalpine Fir Mortality Complex	Subalpine and White Fir	4,695	9,850	10,585	2,730	11,280	9,360	2,550	1,150
Mountain Pine Beetle	Lodgepole, Limber and Ponderosa Pine	20	860	2,485	460	4,730	6,920	3,145	1,670
Douglas-fir Beetle	Douglas-fir	1,490	3,535	6,800	975	3,995	1,460	775	660
Ips Beetle	Pinyon Pine	1,655	0	15	<5	145	0	0	0

Indicator	Monitoring

Damage Agent	Affected Species	Estimated Trees[a] with Insect Mortality by Year							
		2003	2004	2005	2006	2007	2008	2009	2010
Spruce Beetle	Spruce	500	1,140	3,410	1,745	6,680	15,420	11,685	26,925
Fir Engraver beetle	Subalpine and White Fir	7,260	113,370	9,775	140	410	10	50	260
Subalpine Fir Mortality Complex	Subalpine and White Fir	16,035	55,045	19,290	5,150	22,715	14,575	3,810	1,780
Mountain Pine Beetle	Lodgepole, Limber and Ponderosa Pine	50	4,040	16,480	785	10,380	18,195	5,810	4,610
Douglas-fir beetle	Douglas-fir	4,115	15,275	15,025	2,015	7,060	3,080	1,485	1,350
Ips Beetle	Pinyon Pine	8,720	0	30	5	400	0	0	0

In addition to the conifer insect infestations described above, other insect and/or disease activity impacted aspen and/or conifers on the Uinta National Forest. This information[a][b] is summarized in the following table:

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>
<table>
<tr><th>Year</th><th>Host Species</th><th>Agent/Ailment</th><th>Approximate Acres Affected[(a)]</th><th>Comments</th></tr>
<tr><td>2003</td><td>Douglas-fir, spruce</td><td>Western spruce budworm</td><td>200</td><td>Heber and Spanish Fork Ranger Districts</td></tr>
<tr><td>2004</td><td>Douglas-fir, spruce</td><td>Western Spruce Budworm</td><td>250</td><td>Heber and Spanish Fork Ranger Districts</td></tr>
<tr><td>2006</td><td>Aspen</td><td>Defoliation</td><td>4,130</td><td>Heber and Spanish Fork Ranger Districts</td></tr>
<tr><td>2007</td><td>Aspen</td><td>Aspen decline</td><td>13,650</td><td>All 3 ranger districts.</td></tr>
<tr><td rowspan="2">2008</td><td rowspan="2">Aspen</td><td>Forest tent caterpillar</td><td>360</td><td>Defoliation – Pleasant Grove Ranger District</td></tr>
<tr><td>Aspen decline</td><td>3,600</td><td>Pleasant Grove Ranger District</td></tr>
<tr><td rowspan="3">2009</td><td rowspan="2">Aspen</td><td>Aspen decline</td><td>1,795</td><td rowspan="2">Acres for entire U-W-C NF. Ailment recorded on all 3 ranger districts on Uinta NF.</td></tr>
<tr><td>Defoliation</td><td>855</td></tr>
<tr><td>Douglas-fir</td><td>Western spruce budworm</td><td>85</td><td>Spanish Fork Ranger District</td></tr>
<tr><td rowspan="4">2010</td><td rowspan="3">Aspen</td><td>Aspen decline</td><td>1,555</td><td>Acres for entire U-W-C NF. Ailment recorded on all 3 ranger districts on Uinta NF.</td></tr>
<tr><td>Defoliation</td><td>150</td><td>Acres for entire U-W-C NF. Ailment reported on Heber Ranger District on Uinta NF.</td></tr>
<tr><td>Aspen dieback</td><td>175</td><td>Acres for entire U-W-C NF. Ailment reported on Heber Ranger District on Uinta NF.</td></tr>
<tr><td>Douglas-fir</td><td>Douglas-fir tussock moth</td><td>25</td><td>Spanish Fork Ranger District</td></tr>
</table>

(a) Based on USDA-FS, Forest Health Protection Aerial Survey Results. Acres and tree numbers rounded to nearest 5.
(b) Acres infested often overlap from year to year. Acres reported represent where trees of this species have been killed or impacted due to insects or disease. The stands containing trees of the indicated species may not be of the same forest cover type (e.g., Lodgepole pine trees within a stand typed as aspen/conifer might have been killed).
</td></tr>
<tr><td>Riparian forest types - Extent and distribution of old and mature (every 10 years)</td><td>The description of Desired Future Condition in the 2003 Forest Plan states: “Vegetative communities exist in a full range of seral stages and age classes. Vegetation management focuses on improving the diversity of forested and non-forested communities” … “Vegetation is managed to create a more diverse mosaic of species and size classes within the landscape in an effort to move the vegetation towards desired future conditions.” (pg. 5-2) Subgoal-2-38 in the Forest Plan also provides direction: “Healthy, self-sustaining riparian communities, habitat for viable populations of aquatic life, and conditions for natural stream dynamics exist on the Forest.” (pg. 2-11)

Riparian forest types occupy about 8,650 acres (~4,510 acres of “Tree-Dominated Riparian Forest” type and 4,140 acres of “Willow/Birch” vegetation cover type) of the Forest. Information on age class distribution of this vegetation is not available, but in general, except where disturbance events have occurred most of this vegetation is mature and/or old.</td></tr>
</table>

Indicator	Monitoring

FY2003-FY2010:

Vegetation treatment projects (prescribed fire or mechanical treatments) have been implemented since 2003 in order to improve the plant community's composition and ground cover. The Forest Plan contains a standard for management of forested riparian areas: "*Apply silvicultural practices, including prescribed fire, for RHCAs to acquire desired vegetation characteristics where needed to achieve aquatic Forest Plan management direction. Apply silvicultural practices in a manner that does not retard attainment of aquatic Forest Plan management direction and that avoids significant adverse effects to aquatic organism populations."* (pg. 3-22) As shown in the following tables, some vegetation treatments in forested riparian habitats have been implemented.

Approximate Acreage of Tree-Dominated Willow/Birch Affected, FY2003 - FY2010[a/]

Fiscal Year	Acres Treated	Acres Wildfire	Total Affected Acres
2003-04	0	0	0
2005	0	10	10
2006	0	0	0
2007	0	5	5
2008	45[b/]	0	45
2009	30[b/]	0	30
2010	0	0	0
Total	75	15	90

a/ Acres were estimated through GIS analysis using data for land ownership, mid-scale vegetation, wildfire perimeters, and vegetation treatment projects (this includes both mechanical and prescribed fire treatments).

b/ Mostly mowing, but with some prescribed fire. These will encourage sprouting.

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>

Approximate Acreage of Tree-Dominated Riparian Forest Affected, FY2003 - FY2010[a/]

Fiscal Year	Acres Treated	Acres Wildfire	Total Affected Acres
2003	120 [b/]	90	210
2004	0	15	15
2005-2006	0	0	0
2007	0	230	230
2008	0	0	0
2009	15[b/]	0	15
2010	70[c/]	0	70
Total	205	335	540

a/ Acres were estimated through GIS analysis using data for land ownership, mid-scale vegetation, wildfire perimeters, and vegetation treatment projects (this includes both mechanical and prescribed fire treatments).

b/ Prescribed fire.

c/ Thinning of roadside vegetation.

1/ Derived using GIS from data sets used to estimate grazing capacity for the 2003 Forest Plan. Data layers used included land ownership and mid-scale vegetation type.

</td></tr>
<tr><td>Other forest types
a. Extent and distribution of old and mature (every 10 years)
b. Extent of insect/disease infestations (every 5 years)</td><td>

The description of **Desired Future Condition** in the 2003 Forest Plan states: "*Vegetative communities exist in a full range of seral stages and age classes. Vegetation management focuses on improving the diversity of forested and non-forested communities" … "Vegetation is managed to create a more diverse mosaic of species and size classes within the landscape in an effort to move the vegetation towards desired future conditions."* (pg. 5-2) **Subgoal-2-8** in the Forest Plan also provides direction: *"Ecosystem resilience is maintained by providing for a full range of seral stages and age classes (by cover type) that achieve a mosaic of habitat conditions and diversity to meet a variety of desired resource management objectives. Recruitment and sustainability of some early seral species and vegetation communities in the landscape are necessary to maintain ecosystem resilience to perturbations."* (pg. 2-11)

For **oak/maple** cover types, desired future conditions include a heterogeneous mosaic of age classes, with young, mid, and old age classes represented across the landscape. (2003 Revised Forest Plan, pg. 5-4)

</td></tr>
</table>

Indicator	Monitoring
	For **pinyon/juniper** woodlands, desired future conditions include open stands with productive herbaceous growth. Disturbance is sufficient to prevent large-scale invasion of adjacent vegetation associations (e.g., sagebrush and mountain brush) by pinyon/juniper. (2003 Revised Forest Plan, pg. 5-5) **FY2003 – FY2010:** **a. Extent and distribution of Old and Mature:** Pinyon-Juniper: Pinyon-juniper (P-J) communities occupy about 43,500 acres of on the Uinta National Forest. (2003 Forest Plan FEIS, pg. 3-162) Old and mature stands are typically converted to grassland or shrubland stands when they are cut or burn. Juniper and pinyon pines reinvade these sites over time from residuals within or adjacent to the area disturbed. Since 2003, natural and human-induced regeneration events have occurred on the Forest. These include fire (prescribed and/or wildland fire), and other mechanical treatments (e.g., non-commercial bullhog or felling for fuels abatement or wildlife habitat improvement). As shown in the following table, during the FY2003 thru FY2010 period, about 2,670 acres of P-J on the Forest experienced regeneration events. This represents a small percentage (~6.2%) of the P-J type on the Forest. This acreage does not include peturbations in other vegetation types that may include some pinyon and/or juniper component (e.g., the oak/pinyon-juniper type, or a sage or mountain brush type with a minor component of pinyon and/or juniper). Pinyon-juniper stands on the Uinta NF occupy a variety of ecological niches. In terms of fire regimes that could have occurred in this vegetation type prior to Euro-American influence on the landscape, the mean fire interval (MFI) ranges from 30 years with 41% replacement to a MFI of 400 years with 92% replacement. The *"Colorado Plateau Pinyon-Juniper Woodland (#1610160)"* fire regime generally best represents the reference conditions for the P-J on the Uinta NF. This ecological system is described as being dominated by juniper and has a surface fire MFI of 150-200 years and a replacement fire MFI of 200-500 years. Typically, disturbances occur on a small scale, affecting single trees or small patches. Vegetation is distributed more evenly throughout the seral classes than other P-J models, with about 10% in the early seral stages. As noted in the preceding paragraph, about 6.2% of the P-J type on the Forest has experienced perturbations over the FY2003-FY2010 period. Most of these perturbations would leave the affected P-J stands in an early seral ecological condition. The 6.2% compares favorably with the 10% typically in the early seral stages in this fire regime model.

Indicator	Monitoring

Approximate Acreage of Pinyon-Juniper Forest Affected by Wildfire and Vegetation Management Activities, FY2003 - FY2010[2/]

Fiscal Year	Approximate Acreage of Pinyon-Juniper Forest		
	Within Vegetation Management Treatment Units	Within Wildfires	Total Affected Acres
2003	680	0	680
2004	0	375	375
2005	0	15	15
2006	10	0	10
2007	0	250	250
2008	390	0	390
2009	305	5	310
2010	630	10	640
Total	2,015	655	2,670

Unlike other areas of the country and other conifer species on the Uinta NF, only a limited acreage of pinyon-juniper have been impacted by insect/disease activity (see the following discussion of *"b. Extent of Insect and Disease Infestations*").

Oak/Maple: Oak/maple (oak, oak-maple, maple-oak, and oak-pj vegetation types) communities occupy about 206,700 acres of on the Uinta National Forest. (2003 Forest Plan FEIS, pg. 3-162) Old and mature stands are typically converted to younger stands by sprouting when they are cut or burn. Since 2003, natural and human-induced regeneration events have occurred on the Forest. These include fire (prescribed and/or wildland fire), and other mechanical treatments (e.g., non-commercial bullhog or felling for fuels abatement or wildlife habitat improvement). As shown in the following table, during the FY2003 thru FY2010 period, about 22,885 acres of oak-maple on the Forest experienced regeneration events. This represents a small percentage (~11.1%) of the oak-maple type on the Forest. This acreage does not include peturbations in other vegetation types that may include some oak or maple component.

Indicator	Monitoring
	Oak-maple stands on the Uinta NF occupy a variety of ecological niches. In terms of fire regimes that could have occurred in this vegetation type prior to Euro-American influence on the landscape, the mean fire interval (MFI) is about 37-42 years with 25-74% replacement depending upon the fire regime. About 5-10% of the vegetation is typically in an early seral stage. As noted in the preceding paragraph, about 11.1% of the oak-maple type on the Forest has experienced perturbations over the FY2003-FY2010 period. The 11.1% compares favorably with the 5-10% typically occurring under natural conditions for these forest vegetation types.

Approximate Acreage of Oak-Maple Forest[(a)] Affected by Wildfire and Vegetation Management Activities, FY2003 - FY2010[2/]

Fiscal Year	Approximate Acreage of Oak-Maple[(a)]		
	Within Vegetation Management Treatment Units	Within Wildfires	Total Affected Acres
2003	4,235	2,235	6,470
2004	0	5,265	5,265
2005	100	30	130
2006	0	110	110
2007	635	6,565	7,200
2008	2,115	155	2,270
2009	705	0	705
2010	2,265	120	2,385
Total	10,055	14,480	24,535

[(a)] Includes the Oak, Oak-Maple, Maple-Oak, and Oak-PJ types from the Forest's mid-scale vegetation GIS layer.

Unlike other areas of the country and some conifer species on the Uinta NF, only a limited acreage of oak-maple have been impacted by insect/disease activity (see the following discussion of *"b. Extent of Insect and Disease Infestations*").

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
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b. **<u>Extent of Insect/Disease Infestations</u>**: Annual aerial surveys for insect/disease outbreaks by USDA-Forest Service Forest Health Protection have identified limited outbreaks in pinyon-juniper and oak/oak-maple communities on the Uinta NF. Survey results are summarized below:

Insect Mortality Estimates By Year, Uinta National Forest

Species (Damaging Agent)	Pinyon Pine Insect (ips beetle) Infestation by Fiscal Year							
	2003	2004	2005	2006	2007	2008	2009	2010
Approximate Acres[1/] with Insect Mortality	1,655	0	15	<5	145	0	0	0
Approximate Trees with Insect Mortality by Year	8,270	0	30	5	400	0	0	0

In addition to the ips beetle insect infestations described above, aerial detection surveys in 2007 recorded about 2,670 acres of oak dieback on Pleasant Grove and Spanish Fork Ranger Districts.

1/ Acres infested may overlap from year to year. Acres reported represent where trees of this species have been killed or impacted due to insects or disease. The stands containing trees of the indicated species may not be of the same forest cover type (e.g., Pinyon pine trees within a stand typed as Douglas-fir might have been killed).

2/ Acres were estimated through GIS analysis using data for land ownership, mid-scale vegetation, wildfire perimeters, and vegetation treatment projects (this includes both mechanical and prescribed fire treatments).

</td></tr>
<tr><td>Sagebrush – Extent and distribution with >15% sage canopy cover (every 10 years)</td><td>

The 2003 Forest Plan describes the desired future condition for sagebrush types as including a heterogeneous mosaic of age classes, with young, mid, and old age classes represented across the landscape. Sagebrush communities provide critical and high value winter range for sage grouse and big game. Grass and forb growth is productive, providing forage for many species of wildlife including greater sage grouse. Non-native annual grasses like cheatgrass and noxious weeds are not increasing in cover. (pg. 5-5)

Sagebrush types occupy about 182,200 acres of the Forest. Sagebrush occurs in all three ecological sub-regions. Seven kinds occur on the Forest, with mountain big sagebrush occupying the largest area (~79%). Except where disturbed by mechanical treatments or fire (either prescribed fire or wildfire), sagebrush stands on the Forest are typically mid to late seral ecological condition, with canopy covers exceeding 15%. An noteable exception is the Vernon area where fires during 1990-1995 burned more than 20 percent of the sagebrush type. In the Strawberry Valley area, almost three-fourths of sagebrush have canopy covers exceeding 15-18 percent. The diversity of understory species in sagebrush is less than desired across much of the Forest. Competition from sagebrush may become detrimental to understory species at sagebrush canopies as low as 13-15 percent.

</td></tr>
</table>

Indicator	Monitoring
	Most of the sagebrush types on the Forest can be expected to reach 15 percent canopy cover within 20 years after burning. Many acres of mountain big sagebrush were cleared and replanted to non-native grasses. Where crested wheatgrass was planted, native species have begun to reestablish. In other areas planted to non-native species, sagebrush is still largely absent. At lower to moderate elevations, pinyon/juniper has spread into adjacent sagebrush. On many low elevation sites, cheatgrass and other annual weeds have expanded. In these areas the frequency of fire as dramatically increased and this has eliminated sagebrush from the plant community. Sagebrush has a 20-40 year natural fire occurrence interval.[1/] Applying this, on the average about 4,500 to 9,000 acres would be disturbed each year if natural conditions existed. **FY2003-FY2010:** Vegetation treatment projects (prescribed fire or mechanical treatments) have been implemented since 2003 in order to improve the plant community's composition and ground cover. Post-treatment monitoring on several of these (see Section 6: *"Soil Productivity*, *"Ground Cover*", *"FY2007*", *"FY2009*", and *"FY2010*" of this document) validates the effectiveness of these treatments in reducing sage densities. In the mountain sagebrush types, moderate to high intensity fires remove or substantially reduce sagebrush densities in the areas burned. Low intensity fires and mechanical treatments usually thin, but do not eradicate sagebrush from the affected stands. The following table summarizes the estimated acres of sagebrush vegetation cover impacted by wildfire and management activities. As can be seen, a substantial acreage has been treated. However, the acreage treated is well below the natural rate (approximately 36,000 – 72,000 acres over the 8-year period).

Approximate Acreage of Sagebrush Affected, FY2003 - FY2010 [a/]

Fiscal Year	Acres Treated	Acres Wildfire	Total Affected Acres
2003	515	365	880
2004	0	525	525
2005	60	0	60
2006	435	20	455
2007	310	930	1,240
2008	4,505	270	4,775

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
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<table>
<tr><td>2009</td><td>630</td><td>20</td><td>650</td></tr>
<tr><td>2010</td><td>4,225</td><td>0</td><td>4,225</td></tr>
<tr><td>Total</td><td>10,680</td><td>2,130</td><td>12,810</td></tr>
</table>
[a/] Acres were estimated through GIS analysis using data for land ownership, mid-scale vegetation, wildfire perimeters, and vegetation treatment projects (this includes both mechanical and prescribed fire treatments).

[1/] 2003 Forest Plan FEIS. Pgs. 3-162 and 3-169.</td></tr>
<tr><td>Other rangeland types – Extent, distribution, and trend (every 10 years)</td><td>
Subgoal-2-8 in the 2003 Forest Plan states: “Ecosystem resilience is maintained by providing for a full range of seral stages and age classes (by cover type) that achieve a mosaic of habitat conditions and diversity to meet a variety of desired resource management objectives. Recruitment and sustainability of some early seral species and vegetation communities in the landscape are necessary to maintain ecosystem resilience to perturbations.” (pg. 2-6) The Forest Plan describes the desired future condition: “The desired future condition of each habitat type is a vegetation community where species composition and age-class distribution are within the historic range of variability for that community type and that approach patterns described under properly functioning conditions.” (pg. 5-4)

Perennial (including both native and seeded non-native species) and annual grasslands, grass-forb, wet meadows, and tall forb vegetation types occupy about 33,000 acres of the Forest.[1/]

<u>FY2003 – FY2010</u>:
<u>Grassland and Grass-Forb Rangeland Types</u>: Vegetation treatment projects (prescribed fire or mechanical treatments) have been implemented since 2003 in order to improve the plant community’s composition and ground cover. The following table summarizes the estimated acres of existing forb/grass/grass-forb vegetation cover impacted by wildfire and management activities. As can be seen, a substantial acreage has been treated. The figures below do not include areas that were in other types of vegetation (e.g., sagebrush, or pinyon-juniper) which have burned or been treated, and which now are vegetated by grass and forbs.[3/]
</td></tr>
</table>

Indicator	Monitoring

Approximate Acreage of Grassland Affected, FY2003 - FY2010[a/]

Fiscal Year	Acres Treated	Acres Wildfire	Total Affected Acres
2003	175	20	195
2004	0	125	125
2005	15	0	15
2006	0	75	75
2007	0	115	115
2008	185	0	185
2009	50	0	50
2010	140	25	165
Total	565	360	925

[a/] Acres were estimated through GIS analysis using data for land ownership, mid-scale vegetation, wildfire perimeters, and vegetation treatment projects (this includes both mechanical and prescribed fire treatments).

Trend: Condition and trend of rangeland vegetation is described in Section 4 (*"Permitted Grazing, Range Condition and Trend"* section of this document.

Mountain Brush Types: Mountain brush (brush, snowberry, serviceberry, and mountain mahogany-bitterbrush vegetation types) communities occupy about 36,500 acres of on the Uinta National Forest. (2003 Forest Plan FEIS, pg. 3-162) Old and mature stands are typically converted to younger stands by sprouting when they burn or are cut. Since 2003, natural and human-induced disturbances have occurred on the Forest. These include fire (prescribed and/or wildland fire), and other mechanical treatments (e.g., non-commercial bullhog or felling for fuels abatement or wildlife habitat improvement). As shown in the following table, during the FY2003 thru FY2010 period, about 1,505 acres of mountain brush type(s) on the Forest experienced potential regeneration events. This represents a small percentage (~4%) of these types on the Forest. This acreage does not include peturbations in other vegetation types that may include some of these shrub species.

Indicator	Monitoring

Approximate Acreage of Mountain Brush Communities[(a)] Affected by Wildfire and Vegetation Management Activities, FY2003 - FY2010[2/]

Fiscal Year	Approximate Acreage of Mountain Brush[(a)]		
	Within Vegetation Management Treatment Units	Within Wildfires	Total Affected Acres
2003	470	140	610
2004	25	55	80
2005	0	0	0
2006	0	25	25
2007	110	245	245
2008	140	35	35
2009	175	0	0
2010	85	0	0
Total	1,005	500	1,505

(a) Includes the mountain brush, snowberry, mahogany-bitterbrush, and serviceberry vegetation types from the Forest's mid-scale vegetation GIS layer.

Mountain brush stands on the Uinta NF occupy a variety of ecological niches. In terms of fire regimes that could have occurred in these vegetation types prior to Euro-American influence on the landscape, the natural or reference fire regime is characterized primarily by stand replacement fires, Fire Regime Groups II (MFI of 0-35) and IV (MFI of 35-200 years), most likely with an average MFI around 20-50 years. Depending on the fire regime, over 20% of the vegetation would most likely exist in an early seral stage. As noted in the preceding paragraph, about 4% of the mountain brush types on the Forest have experienced perturbations over the FY2003-FY2010 period. The 4% is less than what most likely would have naturally existed for these vegetation types.

Rangeland Insects: Grasshoppers and Mormon crickets are two major insect pests affecting Uinta National Forest rangelands. USDA-APHIS is the federal agency responsible for monitoring and treating insect pests on federal lands, including those managed by the Uinta National Forest. Grasshopper and Mormon cricket

Indicator	Monitoring

populations for the five-county area containing the Uinta NF peaked in 2001-2004, and subsequently declined. In 2009 and 2010 the acreage infested with grasshoppers again increased substantially. No heavy infestations of Mormon crickets were reported on the Forest since the population declines, and no grasshopper or Mormon cricket treatments were implemented on the Forest. Acreages of heavy insect infestations in the five counties containing the Uinta National Forest are shown below:

Acreages of Heavy Grasshopper Infestations (> 8 insects/yd^2) [2/]

Area\Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Juab Co.	33,000	174,000	NR[(a)]	21,030	8,060	2,250	NR[(a)]	4,670	28,754	121,893	131,575
Sanpete Co.	157,000	183,500	268,400	142,680	118,920	56,740	3,840	3,838	28,749	129,329	181,346
Tooele Co.	5,700	74,600	161,800	39,000	2,550	16,020	6,170	3,838	9,444	90,900	49,938
Utah Co.	29,000	56,400	8,500	15,150	16,440	NR[(a)]	1,280	2,558	6,782	60,751	58,828
Wasatch Co.	3,000	65,600	7,000	17,540	25,250	NR[(a)]	NR[(a)]	NR[(a)]	1,279	5,703	1,280

Acreages of Heavy Mormon Cricket Infestations [2/]

Area\Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Juab Co.	116,000	502,500	618,900	651,500	680,550	43,160	NR[(a)]	2,559	NR[(a)]	4,377	6,837
Sanpete Co.	NR[(a)]	NR[(a)]	NR[(a)]	31,760	310	4,380	NR[(a)]	NR[(a)]	NR[(a)]	1,280	NR[(a)]
Tooele Co.	346,000	622,000	749,700	793,500	691,050	49,160	11,300	1,279	2,121	17,781	NR[(a)]
Utah Co.	500	5,650	74,600	116,200	123,800	3,780	1,280	NR[(a)]	1,280	NR[(a)]	NR[(a)]
Wasatch Co.	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]	NR[(a)]

[(a)] None Reported

1/ Derived using GIS from data sets used to estimate grazing capacity for the 2003 Forest Plan. Data layers used included land ownership and mid-scale vegetation type.

2/ SOURCE: C. Burfitt and G. Abbott. 2010. 2010 - Utah Grasshopper and Mormon Cricket Report. Utah Dept. of Agriculture and Food. Salt Lake City, UT. 10 pp.

3/ Data Unavailable.

10. Are management activities effective in preventing excessive **catastrophic fire** events?

DFC: Fire is effectively and safely reintroduced into the ecosystem wherever possible, and fuels levels and vegetation are moving towards desired future conditions. The reduction of fuels in the wildland urban interface protects homes, forest infrastructure, and sensitive watersheds from catastrophic wildfire. The Forest has implemented the National Fire Plan and associated Cohesive Strategy, President Bush's Healthy Forests Initiative, and other forest policies. Fuels treatments consist of prescribed fire, wildland fire use, mechanical treatments, biological treatments, and other approved fuels treatment techniques. These treatments play an active role in the management of forested and non-forested vegetation health, rangeland health, wildlife habitat, watershed, and social concerns across the Forest. All fuels treatment methods are utilized to improve vegetation structure and age class diversity. Concurrent with this emphasis on fuels treatments, the Forest maintains an effective fire suppression organization that utilizes the appropriate management response to fires. Assessments for determining whether hazard fuel reductions are necessary have been completed. The Wasatch Front Fuels Assessment prioritizes treatment areas across state, local, and federal boundaries.

Indicator	Monitoring
Acreage of human and naturally ignited wildland fire and wildland fire use (every 5 years)	*The 2003 Revised Forest Plan contains several sub-goals relative to fire management. Sub-goal-2-2 states: "Fire is managed in an economically efficient manner, based on resource values and risks to human life and property." Sub-goal-2-3 states: "Fire is reintroduced as an ecosystem function to move landscapes toward desired conditions." Sub-goal-2-4 states: "Priorities to protect property and natural/cultural resources are determined based on relative values to be protected, fire management costs, and risks to human (including firefighter) safety." (LRMP, pg. 2-5)* **FY2003-FY2010:** During the FY2003 thru FY2010 time period 284 fires occurred on the Forest. About 67% (n = 190) of these were lightning caused. The number of fires (ranges from 20 in FY05 to 77 in FY03) and acreage burned (ranges from 60 acres in FY05 to 8,534 acres in FY03) of wildfires has varied considerably from year to year, often in response to annual variations in fuel and weather conditions. The number and acreage of fires occurring on the Forest each fiscal year are summarized in the following table:

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
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Number and Acreage of Fires by Fiscal Year on Uinta National Forest

Fiscal Year	Lightning Caused Wildfires	Human Caused Wildfires	All Wildfires	Wildland Fire Use Fires
	Number (Acres)	Number (Acres)	Number (Acres)	Number (Acres)
2003	72	5	77 (8,175 ac)	0
2004	26	8	34 (1,863 ac)	0
2005	15 (3 ac.)	5 (57 ac.)	20 (60 ac.)	1 (1 ac.)
2006	24 (12 ac.)	18 (137 ac.)	42 (149 ac.)	0
2007	21 (8,524 ac)	14 (10 ac.)	35 (8,534 ac)	1 (1 ac.)
2008	9 (11 ac.)	17 (854 ac.)	26 (865 ac.)	0
2009	12 (39 ac.)	13 (258 ac.)	25 (297 ac.)	0 [1/]
2010	11 (181 ac.)	14 (2 ac.)	25 (183 ac.)	0 [1/]

[1/] Due to an adjustment in fire policy, there are no longer wildland fire use fires.

FY2009-FY2010:

Wildland Fire Use is defined[2/] as: *"The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in predefined, designated areas outlined in Fire Management Plans."* During the FY2003 thru FY2008 time frame, 2 wildland fire use fires encompassing 2 acres occurred on the Forest.

Reinterpretation of national fire policy in 2009[1/] eliminated *wildland fire use* as a separate category of wildland fire. There are now just two categories: *wildland fire* (unplanned ignitions) and *prescribed fire* (planned ignitions). As a consequence of this reinterpretation, direction in the Forest Plan for wildland fire use is no longer completely congruent with current national fire policy.

[1/] Kimball, A. 2009. 5100 Memo "Updated Guidance for Implementation of Federal Wildland Fire Management Policy" dated April 9, 2009.
[2/] USFS. Forest Service Manual 5105, Amendment 2100-2005-1. June 16, 2005.

</td></tr>
<tr><td>Fire condition classes (every 5 years)</td><td>

FY2003:

Fire regime condition class (FRCC) was evaluated for the Forest as part of the revision of the Forest Plan. Condition class was derived from the professional expertise of the Plant Ecologist, Fire Ecologist, Fire Management Officer, and content found in *Fire Ecology of Forest and Woodlands in Utah*[1/] and *Fire Effects Information System*[2/]. The findings presented in the FEIS for the 2003 Forest Plan are summarized below.

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Indicator	Monitoring

2003 Fire Condition Classes on the Uinta National Forest

Vegetation Type	Acres	% of Forest	Condition Class
Aspen, aspen/conifer, conifer/aspen, and aspen/forb	269,260	30	2, 3
Sagebrush/grass	160,660	18	2, 3
Englemann spruce, subalpine fir, lodgepole pine, and mixed conifer	78,690	9	2, 3
Barren land	36,840	4	N/A
Oak brush-maple and mountain brush	226,540	25	2, 3
Douglas-fir	13,750	2	2, 3
Pinyon and juniper	43,370	5	2, 3
Riparian	17,560	2	2, 3
Sagebrush/grass	25,380	3	1
Oak/mountain brush	16,690	2	1
Other conifer	4,130	<0.5	1
Aspen/forbs	2,200	<0.5	1
Douglas-fir	1,500	<0.5	1
Unknown vegetation (not mapped)	815	N/A	N/A
Total vegetation	897,385	100	N/A

FY2003-FY2010:

Twenty-five (25) Fire Regime Condition Class (FRCC) assessments were completed during the FY2003-2010 period (0 in FY2003-FY2004, 13 in FY2005, 5 in FY2006, 1 in FY2007, 3 in FY2008, 1 in FY2009, and 2 in FY2010). These assessments, mostly conducted at the 6th order Hydrologic Unit Code sub-watershed level, encompassed about 402,100 acres (about 45% of the Uinta NF). The following table summarizes the results of these assessments.

Fiscal Year	Project	Watershed	HUC#	Acres Assessed	Watershed	
					FRCC	% Departure
2005	First-Fourth Waters Burn	Cottonwood Canyon	160202020302	10,900	2	59%
		Fifth Water Creek	160202020303	13,300	2	54%
	Billies Mtn	Lower Diamond Fork	160202020307	16,300	2	58%

Indicator	Monitoring						
			Upper Spanish Fork Creek	160202020501	4,400	2	60%
			Lower Soldier Creek	160202020107	21,000	2	65%
		Vernon	E. Government Creek	160203040101	24,800	2	45%
		Tibble Fork	Middle American Fork Canyon	160202010802	19,200	3	70%
		Silver Lake	Upper American Fork Canyon	160202010801	19,200	3	72%
		Alpine Loop	N. Fork Provo River	160202030503	15,300	3	72%
		Jones Hollow	Clyde Creek – Strawberry River	140600040102	9,500	3	70%
		Bryants Fork	Mud Creek	140600040103	10,500	3	78%
		Woodland South	Bench Creek	160202030202	7,800	3	74%
			Little South Fork Provo River	160202030201	12,600	2	64%
	2006	Telephone Hollow	Willow Creek – Strawberry River	140600040101	24,600	2	63%
			Daniels Creek	160202030401	18,200	2	59%
		West Fork Sagebrush	West Fork Duchesne River	140600030101	20,100	2	55%
		Buckley Sagebrush	West Fork Duchesne River	140600030103	13,200	3	70%
		Camp Koholowo	Summit Creek	160202010301	14,600	2	53%
	2007	Log Hollow & Mill Hollow	Mill Hollow – S. Fork Provo River	160202010301	22,000	2	65%
	2008	Sharpes P-J and Sabie Mountain P-J	Sabie Creek	160203040203	20,500	3	77%
			Headwaters of Boulter Creek	160203040201			
			Vernon Hills	160203040103			
		Benmore Sage	Vernon Creek	160203040102	24,300	3	74%
		Bartholomew Canyon	Outlet Left Fork Hobble Creek	160202020403	18,800	1	25%
	2009	Springdell	Pole Canyon –	160202030504	20,500	2	53%

Indicator	Monitoring						
		South	Provo River				
			Rock Canyon - Provo River	160202030505			
	2010	West Vernon	East Faust Creek	160203040104	3,200	3	79%
			Valley Reservoir	160203050101			
			Upper Government	160203061003	17,300	2	56%
			Erickson Wash	160300050604			

1/ Bradley, Nonan and Fischer. 1992. *Fire Ecology of Forest and Woodlands in Utah.* GTR INT-287. USDA Forest Service Intermountain Research Station, Ogden, UT.
2/ SOURCE: *Fire Effects Information System.* USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Web application available at: http://www.fs.fed.us/database/feis.

11. Are **goods and services** being provided in accordance with Forest Plan goals and objectives?

DFC: Management of the Forest contributes both tangible and intangible social and economic benefits to communities. Quality of life is maintained and enhanced by factors such as the availability of a variety of recreational opportunities, the ability to view sustainable populations of wildlife and fish in quality habitats, maintenance and improvement of air quality and water quality and quantity, and the ability to retreat from fast-paced urban life in a variety of forest settings. The economic diversity of local communities is enhanced by providing sustainable and predictable levels of goods and services such as recreation, wood products, forage, and other products consistent with management direction and ecosystem health. Forest landscapes and activities contribute to a sense of place and members of the public are assured that the ecosystems of the Uinta National Forest are maintained and/or improved for the benefit of current and future generations. Timber harvest activities conducted to achieve management objectives provide opportunities for the local dependant timber industry. Grazing opportunities are maintained on 71 open cattle and sheep allotments and continue to support the livestock industry in the local communities.

Indicator	Monitoring
Allowable Timber Sale Quantity, Total Timber Sale Program Quantity, and Other Forest products (Fuelwood and Christmas Trees Permits (annually)	*Goals from the 2003 Forest Plan are listed in the table below. Fuelwood demand dropped substantially, ranging between 649 and 1,615 hundred cubic feet (CCF) per year between 1982-2002. Average demand over the 25-year period prior to approval of the 2003 Forest Plan was about 3,875 CCF. Supplies have come primarily by the Heber Ranger District. The fuelwood supply is limited by access, but is adequate to meet or exceed demand. Demand over the next few years is expected to stay about the same. The Forest Plan objective is 800-1,200 cords/year, which equates to 1,025-1,535 CCF/year. Personal use Christmas tree permits are issued on the Heber and Spanish Fork Ranger Districts. Commercial Christmas tree sales are not offered. Demand for personal use permits remains extremely high on the Heber Ranger District and permits are sold out within a few hours of going on sale.* *The ASQ under the previous Forest Plan was 1.9 MMBF/Year (~ 3,300 CCF/Yr). The ASQ and TSPQ were reduced in the 2003 Revised Forest Plan (see the following table). During the 1991-2002 period about 2,560 CCF/Yr of timber chargeable toward the ASQ was sold, and the TSPQ volume sold was about 5,460 CCF/Yr. (2001-2002 State of the Forest Report, pg. 39-40). All sales advertised during the 2003-2004 period were sold. Purchasers continue to be locally-owned, small, family-operated sawmills.* **FY2003:** About 4,528 CCF of timber, and an additional 1,024 CCF of fuelwood permits were sold in FY 2003. Much (4,140 CCF) of the timber (4,140 CCF) and fuelwood permits (undetermined amount), and all of the Christmas trees sold in FY 2003 were sold prior to approval of the Revised Forest Plan in April of 2003.

Indicator	Monitoring

FY2006:

On November 27, 2006, Correction No. 5 to the Forest Plan was issued. This corrected Objective-3-2 in to be consistent with values for ASQ and TSPQ disclosed in the FEIS and ROD for the 2003 Forest Plan.

FY2004-FY2010:

Timber sales are being sold each year on the Forest, but due primarily to budget constraints the volumes sold are less than Forest Plan objectives (see the following table). The volume sold over this period chargeable toward the ASQ was 8,632 CCF (or 71% of the average annual corrected Forest Plan objective for ASQ), and the volume sold chargeable toward the TSPQ was 11,438 CCF (or 44% of the average annual corrected Forest Plan objective for TSPQ). Most commercial sales offered on the Forest during this period have been sold when offered, although 2 sales offered in 2010 did not sell.

Fuelwood sales have remained strong, and demand has increased in recent years in response to energy prices. Also, the minimum permit size increased in 2006 from 3 to 4 cords, and consequently the volume of fuelwood sold increased. Fuelwood was not included in the ASQ or TSPQ objectives. Fuelwood sales have exceeded Forest Plan projections (143-213% of the Forest Plan objective).

Christmas tree sales have also remained strong. Permit offerings are primarily on the Heber Ranger District part of the Forest, and permits offered here continue to sell out within a few hours. Permits for pinyon and juniper Christmas trees continue to be offered on the Spanish Fork District (largely on the Vernon unit), but demand for these is limited.

Timber Products Sold by Fiscal Year on Uinta National Forest

	Allowable Sale Quantity (ASQ) [3/, 6/]	Total Timber Sale Program Quantity (TSPQ) [2/, 3/, 6/]	Personal Use Fuelwood Permits [4/]	Christmas Tree Permits (also equals # of trees) [4/]
1982-2002	N/A	N/A	1,117.3 CCF	1,863 Permits
2003 Forest Plan Objective [1/]	1,725 CCF/Year	3,745 CCF/Year	1,025-1,535 CCF	N/A
FY 2003 (post Forest Plan approval)	388 CCF [5/]	388 CCF [5/]	1,024 CCF [7/]	1,989 Permits [7/]
FY 2004	515 CCF	1,054 CCF	1,221 CCF	1,833 Permits
FY 2005	322 CCF	322 CCF	1,206 CCF	1,800 Permits
FY 2006	5,117 CCF	5,762 CCF	1,635 CCF	1,800 Permits
FY 2007	346 CCF	1,872 CCF	2,110 CCF	1,807 Permits

Indicator	Monitoring

FY 2008	2,012 CCF	2,108 CCF	2,578 CCF	2,404 Permits
FY 2009	91 CCF	91 CCF	3,023 CCF	2,401 Permits
FY 2010	229 CCF	229 CCF	3,506 CCF	2,402 Permits
Average for 2004-2010 planning period	1,233 CCF/Year [5/]	1,634 CCF/Year [5/]	2,183 CCF/Year	2,063 Permits/Year

[1/] The Forest Plan objectives are the average volume/year over the 10-year (2003-2012) planning. Objectives for timber (O-3-2 and O-3-3) are on pg. 2-17 of the 2003 Forest Plan (as corrected 11/27/2006).
[2/] Personal use firewood permits are not included in the TSPQ.
[3/] SOURCE: Periodic Timber Sale Accomplishment Report, Regional Sale Report.
[4/] SOURCE: FY Cut and Sold Report.
[5/] Does not include 4,140 CCF from sales that were advertised in FY02, and awarded in FY03 prior to approval of the revised Forest Plan).
[6/] Includes sales offered the prior FY but not awarded (i.e. sold) till the current fiscal year (see footnote 5/ above for exception).
[7/] Much of the amount reported was sold or authorized in FY03 prior to approval of the Revised Forest Plan (i.e. 10/2002 thru 3/2003).

Level of permitted livestock grazing (annually)

The 2003 Forest Plan objective (O-3-1) is "Permit approximately 100,000 Animal Unit Months (AUMs) of forage per year for use by livestock." (LRMP, pg. 2-17) Authorized use may differ from permitted use, depending on range conditions, market and economic factors, other conditions.

FY2003-FY2010:

As can be seen below, the Forest has met, and slightly exceeded the objective of permitting approximately 100,000 AUMs of livestock use. Authorized use has been less than permitted use, and generally less than the Forest Plan objective. No grazing was permitted on the Pleasant Grove Ranger District.

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>

Grazing Animal Unit Months (AUMs) by Fiscal Year on the Uinta National Forest

Grazing Season	Permitted Use [(a)]			Authorized Use [(a)]		
	Cattle	Sheep	Total	Cattle	Sheep	Total
2003	61,945	45,276	107,221	46,341	17,719	64,230
2004	61,945	45,276	107,221	54,210	37,473	92,074
2005	61,229	45,111	106,340	58,061	37,340	95,401
2006	60,906	47,561	108,467	55.920	34,696	90,616
2007	60,281	42,219	102,500	55,915	30,403	86,318
2008	61,393	40,470	101,863	58,446	36,052	94,498
2009	62,052	40,354	102,406	66,277	35,706	101,983
2010	61,864	32,991	104,860	54,776	32,991	87,737

[(a)] SOURCE: INFRA database.

</td></tr>
<tr><td>Acres leased for oil and gas exploration (annually)</td><td>

Forest Plan Subgoal-3-5 provides: "If consistent with ecosystem health and integrity, the demand for mineral and energy resources through environmentally responsible exploration, development, and production on National Forest System lands is satisfied through contributions by the Forest." (LRMP, pg. 2-17) The Forest Plan describes the desired future condition relative to oil and gas exploration and development as "Special use permits for oil and gas exploration have been issued in the past, and future proposals will be entertained. The Forest will examine and act upon formal worthy proposals with environmental considerations and apply the appropriate stipulation(s). Leasing of National Forest System lands in the high and moderate areas as identified in the Western Uinta Basin Oil and Gas Leasing FEIS (USDA 1997b) will continue to be offered competitively. That FEIS covers the following management areas: Diamond Fork (eastern side), Strawberry Reservoir (portions south of U.S. Highway 40), Upper Spanish Fork Canyon, White River, and Willow Creek. The remaining management areas were not covered in that FEIS, but will be analyzed for future land allocation." (LRMP, page 5-6)

<u>FY2003-FY2010</u>:

Acres and number of leases are shown in the following tables. Of the 898,360 acres of National Forest System (NFS) lands on the Uinta National Forest, about 207,280 acres are not legally available for the Forest Service to lease. These lands include designated wilderness areas (~58,410 acres), Strawberry Project Lands (~61,340 acres), and other lands without federal mineral rights (~32,660 acres). This leaves about 736,070 acres legally available for oil and gas leasing on the Forest. (FEIS for Uinta Oil and Gas Leasing) No oil and gas wells have been drilled on the Forest since the Forest Plan was approved.

</td></tr>
</table>

Indicator	Monitoring

Acres of Oil and Gas Leases by Fiscal Year on Uinta National Forest

Fiscal Year	National Forest System Acres[3/] (rounded to nearest 10)					
	Lease Advertised and Bid On	Lease Authorized	Lease Suspended	Lease Terminated	Bid Refunded – Lease Never Authorized	Authorized Active Leases
Pre-2003	23,000	23,000	0	0	0	23,000
2003	0	0	0	0	0	23,000
2004	118,660	0	0	0	0	23,000
2005	45,950	0	0	0	0	23,000
2006	0	138,760	0	0	0	161,760
2007	0	0	61,040	0	15,260 [1/]	100,720
2008	0	0	0	0	0	100,720
2009	0	0	10,720	0	0	90,000
2010	0	0	138,760[2/]	7,520	0	4,760

Number of Oil and Gas Leases by Fiscal Year on Uinta National Forest

Fiscal Year	Number of Leases					
	Lease Advertised and Bid On	Lease Authorized	Lease Suspended	Lease Terminated	Bid Refunded – Lease Never Authorized	Authorized Active Leases
Pre-2003	10	10	0	0	0	10
2003	0	0	0	0	0	10
2004	58	0	0	0	0	10
2005	21	0	0	0	0	10
2006	0	67	0	0	0	77
2007	0	0	29	0	6 [1/]	48
2008	0	0	0	0	0	48
2009	0	0	5	0	0	43
2010	0	0	67 [2/]	2	0	3

[1/] These leases were offered and bid on in 2005 while under protest. These leases were never issued and the bids were refunded.
[2/] These include the 29 leases previously suspended in 2007. These 67 leases were suspended in response to litigation.

Indicator	Monitoring
	[3/] Acres derived from Forest GIS database analysis with exception being 6 leases bid on and never authorized. The acres shown in the BLM LR 2000 database for these leases were used. **FY2005-2010:** One Application for Permit to Drill (APD) was filed for a location in the southeast corner of the Strawberry RFOGD near Tabbyune Creek in 2005. This APD was withdrawn in 2009 when the leasee requested a suspension of 5 lease parcels. In 2009 another APD was filed on the Westside near Indian Creek in the Strawberry Reservoir Management Area. An EIS was initiated in February of 2006 to identify National Forest System (NFS) lands within the Forest available for oil and gas leasing and to identify specific lands that will be offered to BLM to authorize leasing. The Draft EIS was released in February of 2008. The Final EIS and associated Record of Decision had not been issued as of September 30, 2010 (The time frame for this Monitoring Report). This EIS will fulfill a portion of the desired condition described for minerals on page 5-6 of the 2003 Revised Forest Plan.
Number of recreation Special Use permits (annually)	*The 2003 Forest Plan contains the following goal and sub-goal for recreation special uses: "Diverse and suitable recreational opportunities are provided responsive to public demand while maintaining ecosystem health and contributing to social and economic sustainability." (FW-Goal-6; pg. 2-18) "The current level of summer special use activity is maintained, consistent with resource capability. Opportunities for winter special use activities are evaluated." (Subgoal-6-11; pg. 2-19). The 2003 Forest Plan also contains 4 standards for recreation special uses. These pertain to providing for recreation residences, and prohibitions on issuance of outfitter and guide permits in wilderness areas on the Forest. (pg. 3-31)* **FY2003-FY2010:** Demand for recreation special use permits (e.g., summer home residences, races, group camping events, etc.) continues to be high. The number of special use permits by fiscal year is shown below:

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>

Number of Authorized Recreation Special Use Permits[1/] by Fiscal Year

Fiscal Year	Number of Recreation Special Use Permits
2003	226
2004	161
2005	182
2006	209
2007	201
2008	171
2009	305
2010	203

[1/] SOURCE: INFRA database.

</td></tr>
<tr><td>Number of lands Special Use permits (annually)</td><td>

The 2003 Forest Plan does not contain any general goals or objectives specific to lands special use permits. The Forest Plan does contain a management prescription category (Rx = 8.2) for communication sites and utility corridors, and contains several standards and guidelines that provide direction for mitigating resource impacts from authorized special uses (e.g., raptor protection on powerlines).

FY2003-FY2010:

Demand for lands special use permits (e.g., for communication sites, powerlines, utility corridors, etc.) continues to be high. The number of special use permits by fiscal year is shown below:

Number of Lands Special Use Permits[1/] by Fiscal Year

Fiscal Year	Number of Lands Special Use Permits
2003	175
2004	178
2005	170
2006	190
2007	195
2008	190
2009	192
2010	210

[1/] SOURCE: INFRA database.

</td></tr>
</table>

Indicator	Monitoring
	FY2009: On August 8, 2005, the *Energy Policy Act of 2005* (Act) [Public Law 109-58] was signed. Section 368 of the Act included direction to designate corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on federal land in the 11 contiguous Western States. The Act provided further direction to take into account the need for upgraded and new electricity transmission and distribution facilities to improve reliability, relieve congestion, and enhance the capability of the national grid to deliver electricity. On January 14, 2009, Under-Secretary Mark Rey approved a Record of Decision (ROD) designating corridors on National Forest System lands in 10 of the 11 contiguous western states. The ROD also amended the Forest Plans to include (1) the identification of specific Section 368 energy corridors by centerline, width, and compatible energy uses and restrictions (such as pipeline only or electricity transmission with a restricted tower height); and (2) the adoption of mandatory interagency operating procedures that would be implemented on a corridor- and project-specific basis. This decision included three 3,500-foot wide corridors in the Diamond Fork, Strawberry Reservoir, Upper Spanish Fork Canyon, Vernon, and Willow Creek Management Areas on the Uinta National Forest. The 3 designated corridors were: #66-209, #66-212, and #66-259. The ROD noted that corridor 66-209 was approved for electric transmission lines only.

12. Are we providing a diversity of **recreational opportunities** while protecting natural resources? Are conflicts between user groups minimal?

DFC: Summer use dispersed recreation management plans are developed. Developed recreation sites are managed to meaningful measures standards. Recreation special uses have site plans and are managed to standard. Travel management plans have been completed, and motorized trails have been built or reconstructed to meet trail standards. The portions of the Bonneville Shoreline Trail that are on the Forest have been completed. Off-highway vehicle (OHV) and all-terrain vehicle (ATV) use is limited to existing roads and trails, reducing indiscriminate use that causes resource damage in critical watersheds and habitats.

Indicator	Monitoring
Acreage with approved Travel Management Plan (every 5 years)	The 2003 Revised Forest Plan describes the goals and desired condition for travel management plans: • **Subgoal-6-8:** *"An integrated trail system that provides a variety of recreational opportunities is identified through a trail travel management plan..."* (pg. 2-19) • **Desired Condition, Recreation:** *"Travel management plans have been completed, and motorized trails have been built or reconstructed to meet trail standards."* (pg. 5-5) **FY2003:** The Forest Plan was implemented in July 2003. During the remaining months of FY 2003 no travel management plans were developed. **FY2004:** During FY 2004 no new travel management plans were developed. Most of the effort in this area was to correct the Forest's summer Travel Map in response to a Forest Plan appeal and litigation. **FY2005:** No new travel management plans were developed. In 2005 a revised travel map was issued for the Forest (covered the entire Uinta NF) in response to a Forest Plan appeal and litigation. The revised travel map updated the pre- Forest Plan revision 1988 travel map. The updates were limited to those where appropriate NEPA documents could be found authorizing the change (addition or deletion of a travel route, change in authorized use on a specific travel route, and general area-wide changes in authorized uses [i.e., prohibition on off-designated-route motorized vehicle use for game retrieval, over-snow restrictions, etc.]). It also included minor map corrections (such as better mapping depictions of the location, length, etc. of a road or trail). In FY2006 no new travel plans were completed, and no changes to the 2005 travel plan were approved.

Indicator	Monitoring
	<u>FY2007</u>: The Forest produced a 8/12" x 11" format Motor Vehicle Use Map (MVUM) that shows all of the designated motorized travel routes on the Forest, both roads and trails. Because an existing travel management decisions provided adequate system of designated routes and areas and restrict motor vehicle use to the designated system, the 2005 decisions were used to produce the MVUM. On August 10, 2007, a decision for *"Winter Motorized Use Forest Plan Amendment and Travel Management Environmental Assessment"* was approved. This amendment made the following changes to travel management direction for the Forest: • Changed the definition of snowmobile in the Forest Plan to be consistent with Travel Management Rule (TMR); • Closed the Chicken Springs area (~1,010 ac) at Strawberry Reservoir to all winter cross-country motorized vehicle use to protect sage grouse using this area; • Except for about 16,650 acres at Currant Creek Reservoir, Vernon Reservoir, and most of Strawberry Reservoir (except the Chicken Springs area) hat would remain open to ATV use for ice fishing access during a December 1st to March 31st time frame, discontinued allowing cross-country over-snow travel by motorized vehicles other than "*over-snow vehicles*" (as defined by the TMR (i.e. snowmobiles)). This eliminated cross-country over-snow travel by any motor vehicle not designed for travel on snow or ice and steered and supported in whole or in part by tires and low pressure tires.); • Seasonally close (12/1 – 3/31) sections of 9 roads (included 18 miles previously designated open to ATV use, and 21 miles of road open to motor vehicles) to vehicles other than "over-snow vehicles" to avoid winter motorized vehicle user conflicts and maintain the investment expended on grooming snowmobile trails; and • Seasonally (12/1 – 3/31) opened 4.9 miles of road to winter ATV use. **<u>FY2008 - FY2010</u>:** No new travel plans were completed. MVUMs covering the entire Uinta NF were produced annually.
Miles of non-motorized trail (annually)	Subgoal-6-8 in the 2003 Revised Forest Plan describes the goal to for trails on the Forest: *"An integrated trail system that provides a variety of recreational opportunities is identified through a trail travel management plan. This system incorporates the Great Western and Bonneville Shoreline Trails."* (pg. 2-18)

Indicator	Monitoring
	The Uinta-Wasatch-Cache National Forest is undertaking a multi-year project to improve the accuracy of road and trail databases and associated GIS information and maps. Consequently, the numbers of miles of trails reported have been changing and are likely to continue to change until this effort is complete. Actual on the ground differences in the number of miles of trails are noted. **FY2003:** GIS analysis of the Forest's trails data indicates there are about 285 miles of non-motorized trail on the Forest. This data is based on the 2003 Uinta National Forest Travel Map. The 2003 Revised Forest Plan (FEIS pg. 3-538) reported 275 miles. **FY2004:** GIS analysis of the Forest's trails data indicates there are about 248 miles of non-motorized trail on the Forest. This reflects some data correction/updates, and the results of an appeal and subsequent litigation of the 2003 Forest Plan. In response to an appeal and subsequent litigation of the 2003 Revised Forest Plan, about 31 miles of trail previously identified as non-motorized was changed to motorized (its status prior to changes during the 1988 to 2004 time period). No new trail was constructed, and no trail was decommissioned. **FY2005:** GIS analysis of the Forest's trails data indicates there are about 273 miles of non-motorized trail on the Forest. The change in trail mileage from 2004 is due in part to the travel map revision process, and to the methods used to calculate each trail length. In addition, about one mile of trail was added within the Diamond Fork Campground, called the Diamond Fork Discovery Trail. Just over one mile of trail was also added to the Bonneville Shoreline Trail above Lindon. **FY2006 – FY2007:** The Forest continued a multi-year project to improve the accuracy of trail data bases and associated GIS information and maps. Updated trail mileages were not reported. **FY2008 – FY2010:** The Forest continued the multi-year project to improve the accuracy of road and trail databases and associated GIS information and maps. The miles of trail reported in the Forest Service's INFRA data base by designed use is shown below.

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>

National Forest System Trail Mileages[a]
Uinta National Forest
by Designed Use[b] and Inventory Year

Designed Use[b]	Inventory Year	
	FY2008	FY2010
Bicycle	15	26
Hiking	574	562
Pack and Saddle	20	158
Unspecified	7	0
Total	**616**	**746**

(a) SOURCE: INFRA Reports (GS Trails V Report for FY2010)

(b) NOTE: Use is not restricted to the designed use. Other user types may also use trails designed for another use unless prohibited by regulation or order. (e.g., horseback use can occur on most trails designed for hiking and bicycyle s. Bicycles can use most trails, except those in designated wilderness areas where this use is prohibited.)

Comparing the mileages reported in the table above to those reported in FY2003-FY2005 reveals large differences. These differences are almost entirely attributable to data base and mapping corrections, and not to construction of new trails.

</td></tr>
<tr><td>Miles of motorized trail and road opportunities (annually)</td><td>

The goal for motorized recreation opportunities described in the 2003 Revised Forest Plan is to have Travel Plans in place that provide an integrated trail system that provides a variety of recreation opportunities, including a comprehensive motorized transportation system (may include classified roads) accommodating non-street legal vehicle use.(Subgoal-6-8 and Subgoal-6-9, pg. 2-19)

FY2003 FY2010:

The Forest is undertaking a multi-year project to improve the accuracy of road and trail databases and associated GIS information and maps. Consequently, the numbers of miles of trails and roads reported have been changing and are likely to continue to change until this effort is complete. The following table depicts the miles of Forest Service roads and trails open for motorized use on the Uinta National Forest.

</td></tr>
</table>

Indicator	Monitoring

Miles of Forest Service Roads[(a)] and Trails on Uinta National Forest Open for Use by OHV's

Fiscal Year	Roads [(a)]	Trails	Total	Comments
2003	632	266	898	Based on 2003 Uinta National Forest Travel Map. The FEIS for the 2003 Forest Plan (pg. 3-358) used 2002 data and reported 325 miles of trails. The difference reflects mapping/data base corrections as the on-the-ground mileage did not change.
2004	629	316	945	Increase in trail miles from FY2002 resulted from a decision on Forest Plan appeal/litigation that reopened about 31 miles of trail to motorized use. Other than the 31 miles, the actual system on-the-ground open to motorized use did not change. The other changes in mileage are due to GPS-based refinements to the data base.
2005-2006	614	301	915	The difference in miles from FY2004 is due in part to a reduction in mixed use roads. In addition, the Monk's Hollow ATV Trail added 1.2 miles of new trail and 1.5 miles of unclassified road now classified as a system trail. The other changes in mileage reflect ongoing GPS-based refinements to the data base.
2007-2010	615	302	917	The Forest published annual Motorized Visitor Use Maps. The mileages correspond to those maps. Changes in mileage reflect ongoing GPS-based refinements to the data base.

[(a)] With Mixed Use (including OHVs) Authorized

In FY2007 the Forest began producing a Motor Vehicle Use Map (MVUM) that shows all of the designated motorized travel routes on the Forest, both roads and trails.

On August 10, 2007, the Forest Supervisor issued a decision for *"Winter Motorized Use Forest Plan Amendment and Travel Management Environmental Assessment"*. Relative to motorized trail and road opportunities, this decision seasonally closed (12/1 – 3/31) sections of 9 roads (18 miles previously

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>designated open to ATV use, and 21 miles of road open to motor vehicles) to vehicles other than “over-snow vehicles” to avoid winter motorized vehicle user conflicts and maintain the investment expended on grooming snowmobile trails; and seasonally (12/1 – 3/31) opened 4.9 miles of road to winter ATV use.

Though over 300 miles of Forest Service trails on the Forest are open to non-street legal ATVs and/or motorcycles (see the preceding table), only part of these trails were designed specifically for this motorized use (see the following table). The other trails designated open for motorized use were designed originally for other uses. The increase in mileage from FY2008 to FY2010 reflects corrections to the trails data base, and reconstruction of existing designated routes (i.e., not an actual increase in the miles of trail open to this use on the ground) to better accommodate ATV use occurring on the trail.

National Forest System Trail Mileages[a]
Uinta National Forest
by Designed Use[b] and Inventory Year
<table>
<tr><th rowspan="2">Designed Use[b]</th><th colspan="2">Inventory Year</th></tr>
<tr><th>FY2008</th><th>FY2010</th></tr>
<tr><td>ATV</td><td>8</td><td>30</td></tr>
<tr><td>Motorcycle</td><td>70</td><td>70</td></tr>
<tr><td>Total</td><td>78</td><td>100</td></tr>
<tr><td>Miles Open for Motorized Use in Approved in Motor Vehicle Use Maps</td><td>302</td><td>302</td></tr>
</table>
[a] SOURCE: INFRA Reports (GS Trails V Report for FY2008 and FY2010)
NOTE: Use is not restricted to the designed use. Other user types may also use trails designed for another use unless prohibited by regulation or order. (e.g., horseback use can occur on most trails designed for ATVs or motorcycle s.)</td></tr>
<tr><td>Miles of trails groomed for winter use (annually)</td><td>The goals for winter recreation opportunities described in the 2003 Revised Forest Plan are to provide opportunities for non-motorized winter recreation activities (Subgoal-6-5, pg. 2-18), and to provide viable motorized winter use opportunities by maintaining use of existing trails and play areas (Subgoal-6-10, pg. 2-19)

The Forest is undertaking a multi-year project to improve the accuracy of trail database and associated GIS information and maps. Consequently, the miles of trails reported have been changing and are likely to continue to change until this effort is completed.</td></tr>
</table>

Indicator	Monitoring
	As illustrated below, the subgoals referenced above are being met. **FY2003:** The 2003 Forest Plan FEIS reported there are about 155 miles of trail (140 miles of designated snowmobile trail and 15 miles of designated cross-country skiing/snowshoe trails) groomed for winter use on the Uinta NF. (Pg. 3-538) This figure did not include all miles groomed by other organizations and Utah State Parks and Recreation for both snowmobiles and cross-country skiers. **FY2004 - FY2007:** GIS analysis of the Forest's trails data indicates there are about 248 miles of trail groomed for winter use on the Forest. This includes miles groomed by the Forest Service and private organizations and Utah State Parks and Recreation for both snowmobiles [218 miles] and cross-country skiers [30 miles]. **FY2007:** The decision for *"Winter Motorized Use Forest Plan Amendment and Travel Management Environmental Assessment"* was approved. Relative to groomed winter trail opportunities, this decision seasonally closed (12/1 – 3/31) sections of 9 roads (18 miles previously designated open to ATV use, and 21 miles of road open to motor vehicles) to vehicles other than "over-snow vehicles" to avoid winter motorized vehicle user conflicts and maintain the investment expended on grooming snowmobile trails. **FY2008 – FY2009:** The Forest continued the multi-year project to improve the accuracy of the trails database and associated GIS information and maps. The miles of trail reported in the Forest Service's INFRA data base by "designed use" is shown in the following table:

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
<tr><td></td><td>

Non-Motorized Trail System Statistics, FY2008

Designed Use	System Trail Miles[(a)]
Snowmobile	274
Cross-Country Skiing/Snowshoe	37
Subtotal – Trails Designed for Winter Use	**311**

(a) Data does not differentiate groomed from ungroomed, thus it is uncertain how many miles were actually groomed.

<u>FY2010</u>:

The Forest continued the multi-year project to improve the accuracy of the trails database and associated GIS information and maps. The miles of trail currently reported in the Forest Service's INFRA data base by designed use is shown below:

Non-Motorized Trail System Statistics, FY2010

Designed Use	System Trail Miles		
	Regularly Groomed	Marked – Not Regularly Groomed or Not Groomed	Total
Snowmobile	240	93	333
Cross-Country Skiing/Snowshoe	22	50	72
Subtotal – Trails Designed for Winter Use	**262**	**133**	**405**

(a) SOURCE: INFRA Reports (GS Trails V Report for FY2010)

1/ Ferebee, Brian. 2007. Decision Notice and Finding of No Significant Impact, Winter Motorized Use Forest Plan Amendment and Travel Management Environmental Assessment (Approved August 10, 2007). Uinta National Forest. Provo, UT. 7 pg.

</td></tr>
<tr><td>Trailheads maintained for winter use (annually)</td><td>The 2003 Revised Forest Plan does not contain any goals or objectives specific to this monitoring item. However, it does contain objectives to provide opportunities for winter recreation use (see the preceding</td></tr>
</table>

Indicator	Monitoring
	monitoring item). **<u>FY2003 – FY2005</u>:** Fourteen (14) trailheads maintained for winter use on the Uinta NF. Three are specifically designated for cross-country skiing. **<u>FY2006 – FY2007</u>:** Nineteen (19) trailheads were maintained for winter use on the Uinta NF. The increase of 5 trailheads reflects trailheads where restrooms were open for winter use with only snowmobile access. **<u>FY2008 – FY2010</u>:** Eighteen (18) trailheads were maintained for winter use, which is a decrease from previous years. One trailhead is no longer maintained for winter use by one of our partners because of lack of funds.
Campground capacity (annually)	The 2003 Revised Forest Plan contains 2 subgoals (Subgoal-6-1 and Subgoal-6-2) related to campground capacity. These describe the desire to provide for an increasing number of users within the capability of the resource by maintaining and improving existing developed recreation sites in their current locations, and emphasizing management of dispersed recreation. (Pg. 2-18) In addition, Forest Plan Objective-6-1 called for reconstruction of Timpooneke, Lodgepole, and Little Mill Campgrounds, and the Diamond Fork Group Campground by 2010. (pg. 2-20) Several campgrounds have been partially or totally reconstructed since 2003. Some adjoining campgrounds have been consolidated into one (e.g., Diamond and Palmyra are now just considered one campground, and this campground includes sites from both of the original campgrounds. Consequently, though the number of campgrounds is reported below, the capacity in Persons-At-One-Time (PAOT) is a more useful indicator of this monitoring element. **<u>FY2003</u>:** Reconstruction of Lodgepole Campground was substantially completed. 12,581 PAOTS (Persons At One Time); 29 campgrounds were open for use. **<u>FY2004</u>:** 12,281 PAOTS; 28 campgrounds were open for use. This reflects temporary closure of Maple Lake Camping and Picnicing Area for reconstruction and temporary closure of Rock Canyon Campground

Indicator	Monitoring
	because its water system does not meet State Water Quality Standards. It also includes closure of 6 sites to overnight camping at Little Mill Campground in order to reduce the potential threat of rolling rocks. **FY2005:** 12,411 PAOTS; 32 campgrounds were open for use. Rock Canyon Campground remains closed, but the Maple Lake Camping and Picnicing Area has been reopened. In addition, three areas that were used by dispersed campers, but without facilities, were improved. These areas now include toilets, picnic tables, and fire rings. The 3 areas were Dry Canyon (middle Diamond Fork), Sawmill Hollow (upper Diamond Fork), and Unicorn (Sheep Creek). **FY2006 – FY2007:** Information not reported. **FY2008:** Completed reconstruction of Little Mill Campground, and construction of Diamond Fork Group Campground. Data in the INFRA data base indicates the capacity of the 43 campgrounds open for use on the Uinta NF is 13,581 PAOTs. Capacity at the 5 group campgrounds was 875 PAOTs, and in the other 38 campgrounds was 12,706 PAOTs. **FY2009:** Information not reported. **FY2010:** Data in the INFRA data base indicates the capacity of the 42 campgrounds open for use on the Uinta NF is 13,321 PAOTs. Capacity at the 4 group campgrounds was 775 PAOTs, and in the other 38 campgrounds was 12,706 PAOTs. Demand continues to exceed design capacity for developed recreation sites on peak weekends and holidays. Popular campgrounds that would fill to beyond capacity by Friday morning before a holiday weekend in recent years, now fill to beyond capacity on Wednesday or Thursday prior to a holiday weekend. Some visitors are not able to recreate in the developed location they prefer. Timpooneke, Lodgepole, and Little Mill Campgrounds, and the Diamond Fork Group Campground have been reconstructed/constructed and are again open for use. Forest Plan Objective-6-1 has been met.

Indicator	Monitoring
Developed recreation sites meeting accessibility (standards (every 5 years)	The Architectural Barriers Act of 1968 (ABA) and Section 504 of the Rehabilitation Act of 1973 (Section 504) require newly constructed or altered facilities to be accessible, with few exceptions. The applicable standard for new construction and alteration of Forest Service facilities under these laws is the Architectural Barriers Act Accessibility Standards (ABAAS). ABAAS addresses some recreation facilities, but does not address camping and picnicking areas and, outdoor recreation access routes, beach access routes, and pedestrian hiking trails. In 1999, the Forest Service developed internal guidelines for both trails and outdoor recreation facilities the guideline are Forest Service Accessibility Guidelines (FSORAG) and Forest Service Trail Accessibility Guidelines (FSTAG). The FSORAG addresses outdoor recreation access routes, beach access routes, camping and picnicking areas, and other constructed features. Pedestrian hiking trails are addressed in the FSTAG. The goal is to ensure integration of all people, without separate or segregated access for people with disabilities. **FY2003 – FY2010:** Replacement and construction of facilities is ongoing with the intent to provide for accessibility. For example, during the 1998 thru 2003 time period the Forest replaced 57 of the 214 toilets with accessible units, and two family campgrounds were rebuilt to make them accessible facilities. In FY2004 Two picnic sites in the North Fork of American Fork Canyon have been rebuilt to better accommodate accessibility needs. The following table summarizes data from the INFRA data base for the Uinta National Forest. Data for FY2003-FY2006 was incomplete, particularly in regards to accessibility as this was a new field in the INFRA database. This data base was, and continues to be updated/corrected, the Forest conducts inventory and site condition surveys. A Camp unit or picnic unit is considered “accessible when: • the unit met the accessibility guideline required when it was constructed or altered, • has accessible furnishings and parking; • a firm and stable surface with accessible grades; • cross slopes and clear passage; • is to an accessible water source, if provided at the site; and • is connected by an accessible route to an accessible toilet if provided at the site. The number of accessible units reported below represents units within developed recreation areas that are considered “accessible”. In addition to the units reported below, there are also many units that are

Indicator	Monitoring
	accessible but accessible access to restrooms and/or water hydrants is not available and/or has not been verified. These units are not included in the numbers reported below. Subject to the availability of funds, the Forest continues to work to increase the number of fully accessible units.

Accessible Developed Recreation Facilities[(a)(c)] on the Uinta National Forest

Fiscal Year	2003		2004		2006		2008		2010	
Developed Recreation Area Type	# Areas	# Accessible Units	# Areas	# Accessible Units	# Areas	# Accessible Units	# Areas[(b)]	# Accessible Units	# Areas	# Accessible Units
Family campgrounds	27	7	27	17	30	20	35	23	32	23
Family picnic areas	8	1	8	6	8	6	10	4	10	4
Group campgrounds	4	0	4	4	4	4	5	1	4	1
Group picnic grounds	3	0	3	1	3	3	3	2	3	2
Trailheads	26	3	26	11	26	13	79	7	79	7
Visitor/interpretive sites	10	4	10	7	10	9	7	5	6	5
Fishing access	14	2	14	7	14	7	14	2	13	2
Boating access	5	0	5	3	5	3	5	0	5	0
Nordic ski areas	2	0	2	2	2	2	2	0	2	0
Snow parks	6	2	6	6	6	6	6	0	7	0
Observation points	7	6	7	6	7	6	8	0	7	0
TOTAL	**112**	**25**	**112**	**70**	**115**	**79**	**174**	**44**	**168**	**44**

(a) SOURCE: INFRA data base Recreation Facility Reports. The numbers reported are for sites open for use during the reporting year. The number may vary from year to year as sites are closed for repair or reconstruction.

Indicator	Monitoring
	(b) Most of the large increase in number of areas reported (as compared to FY2006) is due to inclusion of additional existing trailheads in the INFRA data base. These were existing facilities, and were not newly constructed. In addition 3 dispersed camping areas were erroneously reported as campgrounds in 2008. This was corrected for the 2010 report. (c) An "*Accessible Unit*" is defined as one in which each camp unit or picnic unit met the accessibility guideline.
Day-use developed site capacity (annually)	The 2003 Revised Forest Plan contains a subgoal (Subgoal-6-1) for developed recreation. This goal is: *"An increasing number of users are accommodated within the capability of the resource by maintaining and improving existing developed recreation sites and emphasizing management of dispersed recreation."* (pg. 2-18) **FY2003:** 17,405 Persons At One Time (PAOTs). **FY2004:** 17,254 PAOTs. This is due to temporary closure of Maple Lakes Picnic Area and Campground for reconstruction. **FY2005:** 17,351 PAOTs. This is due to reopening of Maple Lakes Picnic Area and Campground and addition of a trailhead at Grove Creek on the eastern edge of Pleasant Grove. In addition, three areas that were used by dispersed campers, but without facilities, were improved. These areas now include toilets, picnic tables, and fire rings and are included in the campgrounds capacity estimates reported previously. The 3 areas were Dry Canyon (middle Diamond Fork), Sawmill Hollow (upper Diamond Fork), and Unicorn (Sheep Creek). **FY2006 – FY2007:** Information not reported. **FY2008 – FY2010:** Capacity of developed day-use sites is shown on the following table.

<table>
<tr><th>Indicator</th><th>Monitoring</th></tr>
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Developed Day-Use Site Capacity (PAOTs)
Uinta NF, FY2008 and FY2010

SITE TYPE	FY2008 Number	FY2008 PAOTs	FY2010 Number	FY2010 PAOTs
Boating/Fishing Access Site	19	7,585	18	7,354
Picnic/Day Use Areas	25	1,954	24	1,979
Information Site	11	1,035	12	634
Observation Site	8	171	7	161
Nordic Ski Area/Snow Play Area	8	1,578	9	1,628
Trailhead	79	3,543	80	3,639
Grand Total	**150**	**15,866**	**150**	**15,395**

The small drop in capacity from 2003 is due to better quality data collected during the Recreation Facility Analysis in 2007.

</td></tr>
<tr><td>Scenery Management Objectives compliance (every 5 years)</td><td>

The Forest Plan states that resource uses or activities should meet the assigned objectives for scenery management and that in the short-term there may be activities that produce impacts not meeting planned scenery objectives, yet facilitate a higher level of scenic quality in the long-term.

FY2003:

The **Silver Meadows Fence** involved construction of a fence to protect a rare plant species. The project area is adjacent to a road, and has an assigned visual quality objective of maximum modification. A buck and pole fence was used as it requires minimal ground disturbance and uses native materials that borrow aesthetically from the surrounding environment. The project complies with Forest Plan direction, which defines maximum modification as:

> Management activities of vegetative and landform alterations may dominate the characteristic landscape; however, when viewed as background, the visual characteristics must be those of natural occurrences within the surrounding area or character type. When viewed as foreground or middleground, they may not appear to completely borrow from naturally established for, line, color, or texture. Alterations may be out of scale or contain detail that is incongruent with natural occurrences as seen in foreground or middleground (2003 Forest Plan, Glossary-34).

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Indicator	Monitoring
	Most range projects on the Forest have limited obvious impacts on visual quality. However, structural range improvements can create more noticeable visual impacts. The **Strawberry River Exclosure** was approved and constructed. This fence is located near a road, and is in an area with an assigned visual quality objective of partial retention. A buck and pole fence was used as it requires minimal ground disturbance and uses native materials that borrow aesthetically from the surrounding environment. The project complies with Forest Plan direction, which defines partial retention as: Management activities remain visually subordinate to the characteristic landscape. Management activities should repeat form, line, color, or texture common to the characteristic landscape; however, structures can introduce form, line, color, or texture that are found infrequently or not at all in the characteristic landscape. Reduction in form, line, color, and texture to meet Partial Retention should be accomplished as soon after project completion as possible or, at a minimum, within the first year after project completion (2003 Forest Plan, Glossary-33). **FY2004:** The **Springville Crossing Enclosure** involved construction of a fence to protect a one-half mile of riparian habitat. The project area is adjacent to a road, and has an assigned visual quality objective of maximum modification. A buck and pole fence was used as it requires minimal ground disturbance and uses native materials that borrow aesthetically from the surrounding environment. The project complies with Forest Plan direction for maximum modification. The **Reservoir No. 1 Restoration** project involved reclamation of a reservoir into a wetland and surrounding uplands. Landform shaping and revegetation exemplify an excellent job of blending with the natural landscape. The pond does repeat characteristics of natural water forms found in the western landscape. This restoration effort enhances the landscape attractiveness and facilities a higher level of scenic quality in the long term. The project complies with Forest Plan direction, which defines modification as: Management activities may visually dominate the original characteristic landscape. However, activities involving vegetative and landform alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Additional parts of these activities such as structures and roads must remain visually subordinate to the proposed composition. *In summary, this broad objective allows for most forms of management activity including those such as structures which are more visually obtrusive, provided they are designed to*

Indicator	Monitoring
	fit the context of the natural surroundings at all viewing distances. (2003 Forest Plan, Glossary-34). Development of the **Three Forks Culvert Parking Lot** included installation of a seventeen foot arch culvert in Diamond Fork Creek to create vehicular access for Trailhead parking. The size and color of the culvert is very apparent to the casual forest visitor, and does not blend in with the natural landscape characteristics that are common to the Diamond Fork Creek. The project does not comply with Forest Plan direction, which defines retention as: Management activities may only repeat the form, line, color, and texture frequently found in the characteristic landscape. Changes should not be evident to the casual forest visitor, and all retention activities to restore the area to a naturally appearing condition should be accomplished either during the operation or immediately after. *In short, a visitor to the Forest should not notice the management activity.* Logs were placed in the floodplain area, but no boulders and limited vegetation were found on the site. Landscaping with boulders, native trees, shrubs and seedlings that blend and mimic a natural stream setting would improve visual quality here. This will occur over time as vegetation re-establishes around the culvert. **FY2005:** The **Silver Meadows Fence** involved construction of a fence to protect a rare plant species. The project area is adjacent to a road, and has an assigned visual quality objective of maximum modification. A buck and pole fence was used as it requires minimal ground disturbance and uses native materials that borrow aesthetically from the surrounding environment. Monitoring found that the project exceeds Forest Plan direction of maximum modification and currently meets retention. **Halls Fork Prescribed Burn** management activities are not visually evident to the casual visitor in the foreground. No visual deviations from the naturally evolving landscape scenic quality. Attributes monitored include natural soil color, vegetation patterns, emerging ground cover, and landforms. The project complies with Forest Plan direction. **Questar Pipeline** completed replacement of an existing 18-inch pipeline from Springville to Provo, Utah in 2004. This human management activity follows and repeats forms, lines, colors and textures that are distinctly found in the naturally evolved landscape character being viewed. There are no evident

Indicator	Monitoring
	changes in the size intensity, direction or pattern of the surrounding landscape character. The project complies with Forest Plan direction. **Rocky Top Timber Sale** would be considered to be natural-appearing by most casual visitors. Closer inspection reveals some remaining brush piles further back in the newly opened stands. When the brush and skids trails are removed or scattered as part of sale closure, it will provide a natural-appearing scene to most visitors. It meets the partial retention visual quality objective and complies with Forest Plan direction. **FY2006:** **Twin Peaks Allotment – Upper Strawberry EIS.** Monitoring on this sheep allotment indicated that grazing here has not resulted in impacts visually evident to the casual visitor. The **Upper Murdock Timber Sale** was also visited during monitoring, but no results pertaining to scenery were reported. **FY2007:** The **Little Mill Campground** was monitored. Monitoring found that this reconstructed campground meet the intent of Forest Plan for scenery. Although the campground is located in a VQO of Retention on the VQO map in the FP because of its adjacency to a sensitivity level one travel route it is in the foreground and the surrounding landscape is unique. The map scale is so large that a 300 foot strip of Parcel Retention would not be evident. When the FP is updated using the Scenery Management System a more detailed map will be produce that can better reflect the intent of the FP for developed existing develop facilities. **FY2008 – FY2010:** No monitoring for scenery was reported.

Indicator	Monitoring
	FY2003 – FY2010: The Uinta National Forest continues its cooperative agreements with Juab, Tooele, Utah, and Wasatch Counties for law enforcement on National Forest System lands. In 2004 the Forest Service began placing increased emphasis on *"Four Threats"* to keeping National Forests and Grasslands healthy. One of the *'Four Threats'* was *"Unmanaged Recreation*", a component of which is inappropriate OHV use. In FY2005 a new Uinta National Forest Travel Map was made available to the public. There was a summer and a winter version of this. These included information about travel management, principles of tread lightly, and Leave No Trace. The map also emphasized that use of ATV's off of designated routes for game retrieval was no longer allowed on the Uinta National Forest. On November 9, 2005 a new Travel Management Rule[1/] was approved. Among other things, this rule required National Forests to develop a Motorized Vehicle Use Map and to use that as a basis for informing the public as to which routes were open or not for motorized use, and to use that as a basis for enforcing travel management direction compliance (not including over-snow vehicles). The Uinta National Forest published MVUMs annually from FY2006 thru FY2010. The following table shows OVH-related law enforcement violations recorded by fiscal year. Violations can be problematic since the intensity of law enforcement available for wilderness compliance may vary significantly from year to year in response to budget, staffing, and other priority needs.

Indicator	Monitoring
	Law Enforcement OHV Violations Recorded[(a)] **Uinta NF, FY2003 – FY2010**

Fiscal Year	Incident Reports	Warnings	Violation Notices	Comments
2003	55	137	157	Static trend from previous year.
2004	110	129	272	Increase reflects agency-wide emphasis on "unmanaged recreation", and element of which is OHV enforcement.
2005	117	20	84	
2006	41	No Data	25	Incomplete data. Data available for only Pleasant Grove Ranger District.
2007	132	No Data	156	
2008	39	No Data	170	
2009	9	No Data	95	
2010	5	No Data	130	

[(a)] SOURCE: Law Enforcement data base queries.

1/ Department of Agriculture, Forest Service. 11/9/2005. 36 CFR Parts 212, 251, 261, and 295, RIN 0596-AC11, Travel Management; Designated Routes and Areas for Motor Vehicle Use. Published in: Federal Register, Vol. 70, No. 216, pg. 68264-68288. Washington, DC. 24 pg.

The 2003 Revised Forest Plan contains one goal, with an associated subgoal pertaining to wilderness management. FW-Goal-9 states*: "Opportunities for recreational, aesthetic, and educational experiences are provided while conserving special environmental, cultural, social, and/or scientific values in protected areas (e.g., congressionally designated wilderness; proposed wilderness; wild, scenic, and recreational river corridors; research natural areas; and caves).*" The associated Subgoal-9-1 further provides: *"Wilderness area management protects biological and physical resources and wilderness values while accommodating recreation use."* (Pg. 2-23)

During the FY2003 thru FY2005 period, law enforcement violations were used as an indicator of compliance with wilderness direction. Since 2005 the Forest has used the Chief's "Ten Year Wilderness Stewardship Challenge" scorecard rating as a measure of wilderness stewardship.

Indicator	Monitoring

FY2003 – FY2005:

Law Enforcement Violations Within Designated Wilderness – The following table shows law enforcement violations in wilderness recorded by fiscal year. Violations can be problematic since the intensity of law enforcement available for wilderness compliance may vary significantly from year to year in response to budget, staffing, and other priority needs.

Law Enforcement Wilderness Violations Recorded[(a)]
Uinta NF, FY2003 – FY2010

Fiscal Year	Incident Reports	Warnings	Violation Notices	Comments
2003	0	0	0	
2004	1	1	0	
2005	25	2	1	The increase in incident reports is due to increased patrols, and to citizens alerting law enforcement of potential violators.
2006	5	No Data	1	
2007	0	No Data	3	
2008	0	No Data	3	
2009-2010	0	No Data	0	

[(a)] SOURCE: Law Enforcement data base queries.

FY2006 – FY2010:

Ten Year Wilderness Stewardship Challenge - The Forest Service began using the "Chief's Ten Year Wilderness Stewardship Challenge" to monitor the effects of management on wildernesses and to bring them to a standard of management that reflected good stewardship. The goal of this challenge is to have all wilderness areas meeting or exceeding the "minimum stewardship level" by 2014, the 50th anniversary of the Wilderness Act. Ten variables are scored: (1) Fire Plans, (2) Invasive Plants, (3) Air Quality, (4) Education Plans, (5) Opportunity for Solitude, (6) Recreation Site Inventory, (7) Outfitter-Guide, (8) Adequate Plan Standards, (9) Baseline Workforce, and (10) Information Management. The scores given each of the Wilderness Areas on the Uinta NF are reported in the following table.

Indicator	Monitoring

Ten Year Wilderness Stewardship Challenge Scores
Uinta NF, FY2006 – FY2010

Fiscal Year	Wilderness	Overall Score[(a)]	Met Minimum Stewardship Level[(a)]
2006	Lone Peak	61	Yes
	Mt. Nebo	59	No
	Mt. Timpanogos	82	Yes
2007	Lone Peak	66	Yes
	Mt. Nebo	62	Yes
	Mt. Timpanogos	74	Yes
2008	Lone Peak	62	Yes
	Mt. Nebo	64	Yes
	Mt. Timpanogos	62	Yes
2009	Lone Peak	70	Yes
	Mt. Nebo	64	Yes
	Mt. Timpanogos	62	Yes
2010	Lone Peak	72	Yes
	Mt. Nebo	64	Yes
	Mt. Timpanogos	62	Yes

[(a)] SOURCE: Annual INFRA "Wilderness Performance Measure Accomplishment Report"

Wilderness Visitor Use – Analysis of National Visitor Use Monitoring (NVUM) data indicates wilderness use on the Uinta NF decreased from 64,600 visits (the entry of one person to participate in recreation activities at one or more sites for an unspecified period of time) in 2002 to about 57,500 visits in 2007, a drop of 11 percent.[1/] Over the same period total visits on the Uinta NF increased by 6 percent, and wilderness visits on the adjoining Wasatch-Cache National Forest increased 130 percent. The reason for the difference is unknown.

[1/] Lucas, L. 2008. Recreation Visitor Use, Uinta-Wasatch-Cache National Forest. Unpublished report dated 9/24/2008. Uinta-Wasatch-Cache NF. Salt Lake City, UT. 1 pp.

Indicator	Monitoring
Non-Forest Service participant assistance in compliance, education, and enforcement (every 5 years)	The 2003 Revised Forest Plan provides direction on the desired outcomes for and parameters as to how management and activities would be conducted. The 2003 Revised Forest Plan did not address the means for achieving that (i.e., what specific vehicle [e.g., agreement, contract, etc.] and whether it would be done by Forest Service employees or non-Forest Service participants). However, the 2003 Revised Forest Plan does contain on Forest-wide goal (FW-Goal-9), 2 subgoals (Subgoal-6-13 and Subgoal-9-6) and one objective (Objective-9-3) specifically addressing for information and education. (Pgs. 2-9, and 2-23 thru 2-24) These describe the desire to provide opportunities through a variety of communication methods for interpretation and educational experiences. **FY2003 – FY2010:** Many partners teamed with the Forest to provide public outdoor education. These included the National Wild Turkey Federation, Sportsmen for Fish and Wildlife, Hawk Watch International, Boy Scouts of America, Tread Lightly Inc., Utah Society of Environmental Education, Brigham Young University, Nebo School District, North Fork Homeowner's Association, Environmental Protection Agency, U.S. Fish and Wildlife Service, Bureau of Land Management (BLM), State Lands, Fish and Forestry, Alcoa, Neway, and Utah Division of Wildlife Resources (UDWR). These partners provided individuals who educate the public at events including Jake's Day, Strawberry Wildlife Festival, Strawberry Kokanee Days, Women in the Outdoors, National Public Lands Day, and Kids with Disability Fishing Day. Representatives from these groups helped to provide information to students in the Diamond Fork Youth Forest and taught private landowners adjacent to the Forest how to reduce fuels and decrease the risk of wildfire. The Strawberry Visitor's Center on the Heber District served as a key point of contact for visitors. The Center also had a number of active partners who used it to disseminate educational and compliance information. For example, in January of 2004 the Visitor's Center partnered with Utah State Parks and Recreation, the Utah Snowmobile Association, Wasatch County Fire Department, Life Flight, and Wasatch County Search and Rescue to present the Multi-Agency Search and Rescue Day where snowmobile, fire, and avalanche safety, and winter recreation regulations were taught. The Visitor's Center staff also taught the correct use of OHVs and snowmobiles during the winter months, including public land use laws and policies. In the early spring, the Visitor's Center partnered with the UDWR for a six week event that focused on cutthroat trout spawning. Several thousand people attended this event each year, and learned about Strawberry Reservoir area fish and their life cycles. It was also used as an opportunity to remind visitors about outdoor recreation ethics as they gear up for summer. In July, the Center emphasized programs on illegal fireworks, lightning safety, and the beneficial role that fire plays in ecosystems. Partners included local firefighting organizations.

Indicator	Monitoring
	The Strawberry Visitor's Center also partnered with the UDWR for Kokanee Salmon Days which was held annually in the spawning season in September and October. Event partners included the Friends of Strawberry Valley, UDWR, State Parks and Recreation, Wasatch County, Tracy Aviary, Daniels Summit Lodge, Strawberry Angler's Association, Central Utah Water Conservancy District, Leave No Trace, Coast Guard Auxiliary, Utah Chapter of the Audubon Society, and Backcountry Horsemen. The event taught about the ecology and long-term resource management of the area. In October the Center emphasized legal and proper hunting techniques, particularly O.H.V. rules and regulations. The Visitor's Center taught how to identify which types of trees are legal to cut as Christmas trees. They also taught where Christmas tree cutting is legal, and the clothing and equipment needed to safely cut trees in winter conditions. The Forest had annual cooperative agreements with Juab, Tooele, Utah, and Wasatch Counties for law enforcement. These agreements provided funds to these counties for their assistance in patrolling National Forest System lands. The Timpanogos Emergency Response Team (TERT) typically made approximately 55-110 contacts on Mount Timpanogos each weekend about staying safe and following rules to protect wilderness values. Timpanogos Cave National Monument and the Forest are partners in a Federal Lands Recreation Enhancement Act (FLREA) Project [previously a *"Recreation Fee Demonstration Project"]* in American Fork Canyon. The National Park Service (NPS) contributed seasonal employees who provided maps, safety information, wildlife information, and answers to the public's questions. Additionally, the NPS provided a supervisor who worked directly with the fee booths. The Timpanogos Cave Visitor's Center also provided educational information to people using National Forest System lands. NPS personnel participated in campfire patrols in the canyon and in educating scouts and the public about the Leave No Trace program, fire restrictions, and fire safety. The NPS Junior Ranger program was used to educate children. Interpretive specialists provide educational programs at Cascade Springs interpretive site and Granite Flat campground. **Additional Year-Specific Findings:** FY2003: The Bureau of Land Management (BLM), Utah State Parks, Utah Division of Wildlife Resources, Wasatch County, Utah County, and Juab County assisted the Forest in two OHV patrols. Two volunteers contacted other Forest users while working on mountain bike trails to encourage them to follow rules.

Indicator	Monitoring
	NPS personnel conducted 45 summer campfire programs at which people camping on the Uinta NF were welcome. FY2004: The Strawberry Visitor's Center hosted over 20,000 people. About 6,000 people visited the Visitor Center to view spawning cutthroat trout and learn about Strawberry Reservoir area fish and their life cycles. In September, 4,927 people entered the Visitor's Center to learn about the salmon, and see the other interpretive exhibits, as well. FY2005: Pleasant Grove Ranger District partnered Utah Country, Wasatch County, Utah State Parks & Recreation and Utah Division of Wildlife Resources to enforce O.H.V. regulations within the American Fork Canyon – Alpine Loop High Impact Recreation Area (HIRA). The new Federal Lands Recreation Enhancement Act (FLREA) directed a compliance review of the American Fork Canyon Recreation Fee Program by March 11, 2005. As a result of that review the HIRA was found to be compliant with the intent of the Recreation Fee Program authorized by FLREA and therefore could continue to collect monies to enhance the recreation program within the HIRA. The three dollar – three day permit fee remained the same; this is the same rate first charged when the program began. Pleasant Grove RD continued to provide environmental education to 5th grades students attending the Alpine School District, Clear Creek Outdoor Education Camp. Students receive information about forest health, Leave No Trace, wildland fire, and the four threats. Approximately 2,000 students participated in the weekly educational presentation. Over 910 students, teachers, and parents were involved in an all-day outdoor education program at South Fork Park in which Forest Service representatives from PGRD provided exercise which participants learned about the Four Threats to the Health of the Nation's Forests and Grasslands and Leave Not Trace ethics. Visits to the Strawberry Visitor's Center increased to over 23,000 people. FY2008: The Uinta and Wasatch-Cache National Forests were administratively consolidated. A Forest-wide Information and Education team was formed with representatives from each district to develop a strategy for interpretation and education programs aligned with the goals and objectives in the Forest Plans. The strategy addressed incorporating information and education into all program areas and increase outreach programs to underserved communities, especially youth.

Indicator	Monitoring
	The Forest is the recipient of a *"More Kids in the Woods"* grant for the Diamond Fork Youth Forest. FY2009: The Forest outreached to over 8,000 underserved youth through programs including: Get Outdoors Day, Diamond Fork Youth Forest, Afterschool Club, Natural Resource Field Days, Cottonwood Canyons Foundation, Nature's Outdoor World, Junior Ranger, and Kids with Disabilities Fishing Day. Youth were given "hands-on" opportunities to learn about animal adaptation, historic and cultural uses of the Forest, watershed, ecosystems and human connections, role of ire in ecosystems, lands stewardship, healthy outdoor activities, Leave No Trace and Tread Lightly. Rees Elementary, Spanish Fork, Utah, received the National Volunteer Program Award for significant contributions to the Diamond Fork Youth Forest projects. FY2010: Education efforts have been expanded to include interpretive programs within recreation fee areas, partnerships with educational institutions and organizations, and nature camps for youth. The Forest website is now used to provide educational materials such as Tread Lightly, Leave No Trace, wilderness messages, and opportunity listings for "hands-on" management of national forest lands through volunteer projects. There is a current effort to develop an interpretive and educational strategy for the American Fork Canyon/Alpine Loop Recreation Fee Area. Strawberry Valley now includes two interpretive trails, with signs, and programs supported by partners such as the Utah Division of Wildlife Resources, U.S. Fish and Wildlife Service, Trout Unlimited, The Nature Conservancy, and local businesses. The Timpanogos District of the Utah Parks Council, Boy Scouts of America (BSA), joined with Forest personnel to complete a critical conservation project along the Wasatch Front. The project celebrated the 100-year anniversary of the BSA and targeted the restoration and improvement of critical watershed from American Fork Canyon to Provo Canyon. Forest Service personnel were joined by 750 scouts and their leaders to complete trail maintenance, inventory, closure, and reseeding of illegal motorized routes, noxious weed removal, and general clean-up around trailheads. Cub Scouts delivered educational flyers to homes adjacent to the Forest to inform residents of the importance of protecting watersheds. The Forest is the recipient of the More Kids in the Woods grant for the Experience Now! Program that provides outdoor opportunities for kids with disabilities. With the development of new types of communication technology the Forest is now relying on

Indicator	Monitoring
	web sites, partner networks, recreation outlets, and combining information with other agencies in order to reach more audiences and reduce costs. Visitors are able to access the Forest web site during weekends and evenings when the offices are closed. Partnerships with State Parks and Recreation and REI provide maps and publications increasing the number of outlets visitors can obtain information.

13. Is **adequate access** to and across the Forest being provided?

DFC: Miles of classified roads remain relatively unchanged. The Forest is well accessible with many roads in place and functioning for many years. Roads (particularly arterial and collector roads) are maintained and constructed to a standard that is providing a safe economical facility. Local roads provide access to and through the area. Ecosystem integrity, public safety, and available funding are in balance with access needs and desires to maintain a minimum road system. When possible, roads or portions of roads that have negatively affected watershed and aquatic conditions are relocated or hardened.

Indicator	Monitoring
Miles of classified road (annually)	*Forest Plan Goal-8 notes that the Forest transportation system is safe and responsive to public needs and desires; has minimal adverse effects on ecological processes and ecosystem health, diversity, and productivity; and is in balance with needed management actions. Sub-goal-8-2 further provides that the Forest will continue to look for opportunities to realign transportation systems to reduce impacts on the environment, particularly out of riparian areas to upland areas.* (LRMP, pg. 2-21)
Miles of classified road open for public use (every 5 years)	
Miles of new road construction (annually)	

FY2003-FY2010:

The miles of classified road, classified road open for public use, new road construction, classified roads reconstructed or relocated, and classified road maintained during this time period are summarized in the following table:

Fiscal Year	Classified[1/] Road (Miles)				
	Total[2/]	Open for Public Use	New Road Construction[3/]	Reconstructed or Relocated[4/]	Maintained[5/]
2003	1,217	1,121	0	9.1[8/]	481
2004	1,222[6/]	1,129[6/]	0	15.0[9/]	503
2005	1,218[7/]	1,128[7/]	0	8.6[10/]	453
2006	1,221[11/]	1,125[11/]	0	5.4[12/]	120
2007	1,224[11/]	1,127[11/]	1.0	6.6[13/]	306
2008	1,228[11/]	1,130[11/]	0.4	8.4[10/]	370
2009	1,207[14/]	1,059[14/]	0	39.0[15/]	384
2010	1,208[16/]	1,059[16/]	0	23.0[15/]	363

1/ The November 9, 2005, Travel Management Rule redefined roads into two categories called "*Authorized*" (previously called *"Classified")* and "*Unauthorized*" (previously called *"Unclassified").*

2/ Forest Plan objective O-8-1 states*: "There are approximately 1,325 miles of classified roads that provide access to and*

Indicator	Monitoring
	through the Forest." (LRMP, pg. 2-22) 3/ Forest Plan objective O-8-1 states*: "By 2013 it is anticipated that approximately 5-15 miles of new classified roads may be constructed."* (LRMP, pg. 2-22) 4/ Forest Plan objective O-8-1 states*: "By 2013 approximately 40-75 miles of classified roads may be reconstructed and/or aligned."* (LRMP, pg. 2-22) 5/ Forest Plan objective O-8-2 states*: "By 2013 annual and recurrent maintenance will range from 15-25 percent of inventoried, classified roads."* (LRMP, pg. 2-23) 6/ During FY 2004 the forest reexamined the inventory of system roads. Where discrepancies in uses between previous Forest Travel Maps were identified, those roads were researched to find the most recent, documented use. The road inventory was updated to reflect this. This has increased the accuracy of classified road inventory. 7/ The decrease from 2004 reflects a continued effort to more accurately identify road miles. 8/ An additional 8 miles were identified under deferred maintenance for access improvement. 9/ Five miles of road were reconstructed or relocated in the Red Creek Mountain area by the Uinta National Forest. In addition, the Central Utah Water Conservancy District reconstructed 0.3 miles of road at Springville Crossing and timber operators reconstructed 9.7 miles of road in the Soapstone area. 18.3 miles of the Squaw Peak Road received heavy maintenance work. 10/ Includes 0.8 miles reconstructed by timber purchasers 11/ More accurate mapping. 12/ 4.2 miles environmental restoration, 0.5 miles improved access, 0.7 miles timber purchasers 13/ 0.1 miles improved access, 3.0 miles heavy deferred maintenance, 3.5 miles timber purchaser 14/ Data based on last snapshot of roads data base completed on 8/17/09 inconsistent with prior years due to consolidation of Uinta and Wasatch-Cache National Forest data bases. 15/ Large increase in road improvement due to ARRA (stimulus) funding. 16/ Data snapshot complete on 4/16/10. Inconsistent with prior years due to consolidation of Uinta and Wasatch-Cache National Forest data bases. The Forest classified (i.e., authorized) road system is being managed in accordance with Forest Plan goals and objectives.
Miles of classified roads reconstructed or relocated (annually)	
Miles of classified road maintained (annually)	

Miles of unclassified road decommissioned (annually)

Forest Plan Subgoal-8-4 expands on FW-Goal-8 (See the preceding section) stating that: "Non-beneficial and/or unauthorized roads and trails are decommissioned, obliterated, or rehabilitated if they do not meet resource objectives or provide necessary access to facilities or inholdings."

FY2003-FY2010:

The miles of unclassified road decommissioned, and total miles on the Forest are summarized below:

Fiscal Year	Unclassified[1/] Road (Miles)	
	Estimated Total[2/]	Decommissioned[2/]
2003	155[3/]	4
2004	155[3/]	5
2005	221[4/]	3
2006	221[5/]	3
2007	221[5/]	4
2008	221[5/]	3
2009	221[5/]	14
2010	221[5/]	10

1/ See footnote 1/ in the preceding section.

2/ Forest Plan Objective-8-4 states: *"By 2018 decommission, obliterate, or rehabilitate at least 25-30 miles of non-beneficial and/or unauthorized roads and trails as identified through the transportation analysis."* (LRMP, pg. 2-23)

3/ Inventory is incomplete. An effort is underway to identify the miles of unauthorized road. The Forest has been preliminarily identifying unclassified roads from Digital Orthophoto Quads, and then ground-truthing them with on-site visits.

4/ Inventory is incomplete. Areas inventoried include the Soapstone, American Fork Canyon and Vernon areas.

5/ No additional inventories completed after 2005.

Miles of unclassified road (every 10 years)

User-developed unclassified (i.e., unauthorized) roads continue to be developed on the Forest. The Forest is working to minimize this occurrence, but some user-developed roads continue to be created. When apprehended, creators of these roads are being prosecuted. Since user-created unauthorized roads continue to be developed, the inventory of these is not static. Efforts to complete a more comprehensive inventory of unauthorized roads are underway; however, recent efforts and funding have focused on the Wasatch-Cache portion of the Uinta-Wasatch-Cache National Forest. Obliteration of roads is ongoing. Through cooperative efforts with partners (e.g., Utah Division of Wildlife Resources), funding has been secured to obliterate many miles of roads. This is an ongoing effort.