

**UINTA NATIONAL FOREST  
FOREST PLAN  
BIENNIAL MONITORING REPORT  
2016-2017**

## **INTRODUCTION**

The 2012 planning rule, which is found in the Code of Federal Regulations at 36 CFR 219, guides forest plan monitoring across the Forest Service. The Uinta-Wasatch-Cache National Forest conformance strategy focuses on addressing the purpose of the forest plan monitoring program as described in 36 CFR 219.12(a)(1), which includes the need for monitoring information that enables the responsible official to determine if a change in plan components determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed. The Biennial Monitoring Report evaluates new information gathered through the plan monitoring program and relevant information from the broader-scale strategy and makes this information available to the public. The monitoring evaluation report must indicate whether or not a change to the plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The biennial monitoring evaluation report is used to inform adaptive management of the plan area. Any testing of assumptions, another rule-stated purpose of monitoring, would be addressed where relevant to one of the four determinations to be made.

This report presents monitoring information for 2016-17 and is organized in two main parts. The first part is a discussion of four determinations from the which include whether or not a change to the plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The second part presents findings for each monitoring question in the monitoring plan and the data source and monitoring result for each indicator for each monitoring question. The monitoring questions and associated indicators address each of the eight requirements which are noted at 36 CFR 219.12(a)(5).

The Uinta NF Forest Plan is 15 years old and revision is projected to occur in 10 years from now. The analysis of the management situation will be developed at that time. Over the past 15 years there have been several amendments and corrections to the Forest Plan that are presented in Appendix 1.

## **DETERMINATIONS FROM THE BIENNIAL EVALUATION**

Based on evaluations that were conducted, the following are the determinations for adaptive management, per 36 CFR 219.12(d)(2):

- ***NEED FOR CHANGING THE FOREST PLAN***  
*Monitoring has not indicated a need for changing the Uinta National Forest Plan.*
- ***NEED FOR CHANGING MANAGEMENT ACTIVITIES***  
*Monitoring has not indicated a need changing management activities.*
- ***NEED FOR CHANGING THE MONITORING PROGRAM***  
*Monitoring has not indicated a need for changing the monitoring program.*
- ***NEED FOR CONDUCTING AN ASSESSMENT TO DETERMINE PRELIMINARY NEED TO CHANGE THE PLAN***

*Monitoring has not indicated a need for conducting an assessment to determine preliminary need to change the plan.*

## **INFORMATION ON MONITORING QUESTIONS AND INDICATORS**

**Monitoring Question #1 Education-Information:** Are we delivering key education/ enforcement messages to Forest employees and users? (Key Focus Areas are: OHV use, recreation user ethics, fire's role/hazardous fuels, noxious weeds, watershed health).

**Finding:** *No changes are needed. The Uinta NF delivers key education/enforcement messages to the Forest employees and users.*

**Indicator #1 - Number of key messages.**

**Data source:** *Uinta-Wasatch-Cache NF Public Affairs Officer, forms completed by teachers at the Diamond Fork Youth Forest, responses of users of the Uinta NF to questions asked by Forest Service field personnel regarding whether users know the key messages that are on kiosks, and on Forest Service website and social media.*

**Monitoring result:** *Twenty five key messages were delivered. These messages come from the UWCNF Forest Communication plan that is tied to annual themes and key messages from the Forest Service Chief's office, key messages developed for the Diamond Fork Youth Forest and for the Salt Lake watersheds in cooperation with Salt Lake County and Salt Lake City. Feedback from teachers at the Diamond Fork Youth Forest resulted in modifications to the original messages. A majority of users know the key messages and respond to messages that directly affect the user experience.*

**Monitoring Question #2 What is visitor satisfaction on Forest Service lands?**

**Finding:** *No changes are needed. Evaluation will be made for 2019 Forest Plan monitoring report.*

**Indicator #1 - Level of visitor satisfaction.**

**Data source:** *Information on level of visitor satisfaction is the National Visitor Use Program survey that was completed in 2017.*

**Monitoring result:** *The results are not yet available for the Forest to use. Information on this indicator is expected to be assessed in 2018 for the 2019 Forest Plan monitoring report. If the information is not completed by that time an assessment will be made from experiences that Forest Service employees have when they are in contact with the public.*

**Monitoring Question #3 Is adequate access to and across the Forest being provided?**

**Finding:** *No changes are needed. Access is adequate.*

**Indicator #1 - Miles of classified road open for public use, miles of motorized trail, miles of non-motorized trail.**

**Data source:** *Uinta-Wasatch-Cache NF Motor Vehicle Use Map.*

**Monitoring result:** *At the end of FY 2017, the miles of classified roads open for public use were 1,593, miles of motorized trails were 140, and miles of non-motorized trail are 715. In 2017, 10.9 miles of road were closed in the Vernon area because these were roads were not needed since other existing roads lead to the same places. The trend is a slight decrease in the number of roads on the Uinta NF planning area.*

**Monitoring Question #4 Are vegetation conditions stable or moving toward desired future conditions?**

**Finding:** *No changes are needed.*

**Indicator #1 Forested Vegetation –Extent of insect/disease infestations.**

**Data source:** *Forest Health Protection Annual Aerial Detection Survey 2016.*

**Monitoring result:** *Insects and disease have caused several thousand acres of spruce and subalpine-fir on the plan area 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. From 2016-2017, the average trees/acre that have been killed each year are 1.0 to 6.5 spruce and subalpine-fir, 2 to 5 Douglas-fir, and 1 to 6.5 White Fir. These are typically large, mature or old trees, and smaller young trees are not usually killed.*

**Monitoring Question #5 Fuels Reduction: Are fuels reduction projects protecting property, human health and safety, and reducing the potential for unwanted fire effects (in the Wildland Urban Interface (WUI) and non-WUI)?**

**Finding:** *No changes are needed. Although there are only a few examples on the Uinta NF between 2016-17 where a wildfire has burned through a fuels reduction, fuels reduction treatment projects have reduced the fire intensity particularly projects that have had enough time to establish young vegetation in the project area.*

**Indicator #1 Acres of hazardous fuels reduction in WUI and non-WUI.**

**Data source:** *UWCNF Fuels treatment reports*

**Monitoring result:** *From 2016-2017, the Uinta NF implemented 7,508 acres of fuels reduction treatments.*

**Indicator #2 Fire behavior and opportunities for suppression.**

**Data source:** *UWCNF Fuels treatment reports*

**Monitoring result:** *Two fires burned into fuels treatments: the West Government Creek fire in 2016 and the Tank Hollow fire in 2017. On West Government Creek fire, fire intensity and heat was reduced significantly when the wildfire burned into a fuels treatment area. The fire shifted to a low intense backing fire as opposed to a devastating crown fire. The treatments also helped suppression efforts significantly. Suppression resources were able to use direct attack and drive off-road because the juniper had been removed, minimizing the size of the fire and the negative fire effects outside of the fuels treatments. The Tank Hollow fire burned into the Sheep Creek Fuels Treatments Area where lop*

and scatter and mastication treatments of pinyon-juniper occurred earlier in the same year. Fire behavior was more intense in the fuels treatments because there was more fuel on the ground, but the fire remained a slow moving surface fire and did not get up into any crowns. This type of fire behavior allowed for more fire management options to be considered and improved firefighter safety.

**Monitoring Question #6 Fire Management: Are natural ignitions being managed to accomplish resource management objectives?**

**Finding:** *No changes are needed. Conditions must be favorable in order to manage fires for resource objectives, many of which are outside of our control (such as weather, available resources, and fire location). Therefore the percentage of natural ignitions that can be managed for resource objectives may vary significantly from year to year. However the goal is to see a long-term trend of increasing the percentage of fires with resource objectives.*

**Indicator #1 Percent of natural ignitions with identified resource management objective.**

**Data source:** *UWCNF Fuels treatment reports*

**Monitoring results:** *In 2016-2017, 30% of natural ignitions were managed to accomplish resource management objectives on the Uinta NF.*

<i>Data on natural ignitions that were managed to accomplish resource benefits.</i>			
	<i>2016</i>	<i>2017</i>	<i>Total</i>
<i>Number of Fires with Resource Objectives</i>	<i>7</i>	<i>1</i>	<i>8</i>
<i>Percent of Fires with Resource Objectives</i>	<i>35</i>	<i>14</i>	<i>30</i>

<i>Data on natural ignitions and resource benefits for 2016 and 2017.</i>			
	<i>2016</i>	<i>2017</i>	<i>Total</i>
<i>Number of Natural Ignitions</i>	<i>20</i>	<i>7</i>	<i>27</i>
<i>Acres of Natural Ignition</i>	<i>9,215</i>	<i>11,068</i>	<i>20,283</i>
<i>Acres with Resource Benefit</i>	<i>4,840</i>	<i>8,232</i>	<i>13,072</i>
<i>Percent of acres with Resource Benefit</i>	<i>53%</i>	<i>74%</i>	<i>64%</i>

**Indicator #2 Percent of natural ignition acres with resource benefit.**

**Data source:** *UWCNF Fuels treatment reports*

**Monitoring results:** *In 2016-2017, 64% of natural ignitions were beneficial for natural resources on the Uinta NF planning area.*

**Monitoring Question #7 Rangeland Management: What is the extent of the change of ecological conditions due to invasive species? Do rangeland plant communities have desired species composition and is ground cover adequate?**

**Finding:** *No changes are needed. Although some weed infestations are increasing on the Uinta NF, the Forest has been making efforts to control weeds on the planning area. Riparian areas and upland conditions of range allotments are stable to improving.*

**Indicator #1 Estimated acres infested with noxious weeds.**

**Data source:** *Comparison of 2016-2017 visual observations and/or treatment reports from seasonal USFS crews to noxious weed inventories conducted by Utah State University in 2008 on Pleasant Grove Ranger District (RD) and in 2010 on Heber-Kamas RD and Vernon Unit (Sheep Rock Mountains) of the Spanish Fork RD. Data for noxious weed treatment area is from Forest Service FACTS database.*

**Monitoring results:** *The table below presents the acres of noxious weed inventory by Utah State University (USU) and acres of noxious weed treatment in years 2016 and 2017. The most complete noxious weed inventory was conducted by USU in 2008 on Pleasant Grove RD and in 2010 on Heber-Kamas RD and Vernon Unit (Sheep Rock Mtns) of the Spanish Fork RD. The main targeted areas to inventory were selected roads and trails. In 2008 on the Spanish Fork RD, weed species found in the earliest stages of invasion had fewer than 10 infestations that totaled less than 1 acre. On the Pleasant Grove RD, species for which full inventories were conducted, the five most abundant weed species were found along all of the major roads within the District as well as on many of the hiking trails. It was noted that the designated wilderness areas above 8,500 feet contained few of the targeted weed species. On the Heber RD, weed species found in the earliest stages of invasion had fewer than 10 infestations that totaled less than 1 acre.*

<b>Acres of Noxious Weed Inventory and Treatments</b>				
<b>Ranger District</b>	<b>USU Inventories</b>		<b>Weed Treatment Acres</b>	
	<b>Inventoried Acres</b>	<b>Weed Infested Acres</b>	<b>2016</b>	<b>2017</b>
<b>Pleasant Grove</b>	7,114	618	2,094	1,360
<b>Heber</b>	13,658	586	896	1,454
<b>Spanish Fork</b>	5,174 <sup>1</sup>	19 <sup>1</sup>	1,296	534
<b>Totals</b>	25,946	1,223	4,286	3,348

<sup>1</sup> Inventory on Vernon Unit only.

*On the Pleasant Grove RD, current infestation data was gathered in 2017 during weed treatments. No other inventories were conducted in 2016-2017. The results indicate that previously inventoried noxious weed populations, (data from 2002 through 2009), no longer show accurate area extents of the populations. From visual and/or treatment reports by seasonal USFS crews, weed infestations appear to have weed populations appear to have grown exponentially. Weeds are treated using herbicide, mechanical treatments, and bio-control agents.*

**Indicator #2 Riparian and upland condition and trend.**

**Data source:** *Information for riparian and upland condition and trend is based on reviews of best management practices for range allotments.*

**Monitoring results:** *In 2016, the North Mud Creek allotment was monitored for implementation and a riparian pasture was monitored for implementation and effectiveness. Both allotments had best management practices fully implemented and in the riparian pasture, ground cover was improving and no evidence of erosion or sedimentation of streams. In riparian pasture, the only deficiency noted was stray cows gaining access to pasture during rest periods. This is known to happen when Forest users fail to close gates on roads/trails. Another suspected cause is private landowner of adjacent property or adjacent allotments has a poorly maintained fence, which allows both unauthorized cows to gain access to FS allotment as well as authorized cows from adjacent FS allotment to gain access.*

**Monitoring Question #8 Are Forest management activities and natural events affecting the ecological conditions indicated by the status of Focal species?**

**Findings:** *No changes are needed. For conditions indicated by goshawk, the trend appears to be increasing. For conditions indicated by cutthroat trout, more information is needed because of the variability in the population survey results within the same drainage, and habitat and climatic conditions at the survey sites. Cutthroat trout population surveys will continue to be conducted on the Uinta NF in 2018-2019.*

**Indicator #1 Active Goshawk territories.**

**Data source:** *Comparison to current inventory of territories based on Survey protocols for the UWC NF that have been adapted from the Northern Goshawk Inventory and Monitoring Technical Guide (Woodbridge & Hargis, Northern goshawk inventory and monitoring technical guide, 2006).*

**Monitoring results:** *Currently there are 12 known territories on the Uinta planning area of the Uinta-Wasatch-Cache National Forest. The Forest Plan requires that one-third of the territories be monitored every year. In general, goshawk territory occupancy fluctuates annually. Forest management activities do not appear to be impacting goshawk territories due to mitigation of new projects by limiting activities during breeding and fledging periods.*

*The analysis indicates an overall increasing trend in occupancy from 2001 to 2017. In 2014, the percent of monitored territories that were occupied was 100%. This was not a true representative number in that the territories chosen for survey were ones where there was known occupancy in the past. In 2015, the territories chosen for survey were a more random selection, giving us a high percentage of occupancy, and a more accurate picture of the overall trend. In 2016, half of the eight territories surveyed were occupied. There was a slight increase in 2017, with 5 of the 8 territories being occupied.*

*Over the years, several territories have been dropped from surveying after being unoccupied for 7 years. Newly discovered territories have taken their place, keeping the number of known territories in the Uinta Planning Area at a fairly consistent 12-14 territories. Given that the unoccupied territories are being replaced with occupied territories, the trend appears to be increasing.*

**Indicator #2 Cutthroat Trout population estimates.**

**Data source:** *In 2016-17, Colorado cutthroat trout surveys were conducted on 14 reaches of streams in Carrant Creek, Soldier Creek and the White River drainages that are located on the southeast part of the Uinta NF.*

**Monitoring results:** *In 2016, the population is down in the Currant Creek drainage. Field observation suggests that low water from 4 years of drought, combined with concentrated grazing and one degrading stream crossing may be playing a role. Habitat conditions were generally good, but data indicates that streams have high fine sediment loads and may be trending towards embeddedness.*

*The BCT populations in the two sites in the Soldier Creek drainage are relatively stable. A monsoon event during 2013 effected the Soldier Creek proper, resulting in a near total fish kill, recovery has been impressive. One highlight of at the Soldier Creek site was the number of southern leatherside chub encountered. Though not a FS they are a Forest Service sensitive species. 110 individuals were captured during electro-fishing. Though this species occupies Soldier Creek they have never been sampled in this reach.*

*Tie Fork population shows to be on a downward trend, but this could be misleading. There are 4 historic sampling reaches in the creek, of which 3 have been abandoned because vegetation growth makes the sites inaccessible. The remaining site was inaccessible due to vegetation growth, beaver dams and unfishable because of its depth. A new site was selected that should be viable for years to come and more representative of the entire stream.*

*Although The White River Colorado cutthroat population appears to be stable or on a downward trend, habitat is in fair condition other than high levels of fine sediments that are present in the stream. White River is aptly named for the fine particulate clay that stains the streams within the drainage. This was readily apparent during 2017 as daily monsoonal rains mobilized sediment and their minerals, increased stream flow and mucked up the roads. Higher turbidity and increased specific conductivity may have influenced the efficiency of the electro-fishing equipment and made one site inaccessible. The fish encountered were healthy. The downward trend in fish populations at two sample sites appear influenced by adverse weather during sampling and inferences form the data may not reflect normal conditions.*

#### **Monitoring Question #9 Is there a change in species distribution across the Forest?**

**Finding:** *No changes are needed.*

**Indicator #1** **Change from cold water to warm water species, change in terrestrial vegetation and species distribution.**

**Data source:** *Field observations of aquatic habitat and fish population surveys*

**Monitoring results:** *There is no indication of a change from cold to warm water species. There have been increases in riparian terrestrial vegetation due to willow growth in many areas and increased beaver activity. There is no indication of a change in terrestrial species distribution.*

#### **Monitoring Question #10 Are Forest management activities and/or natural events affecting ecological conditions that contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of concern?**

**Finding:** *No changes are needed. For conditions indicated by goshawk and fish surveys and for other federally listed threatened and endangered species, conserve proposed and candidate species, the ecological and population trends appears to be stable or increasing.*

**Indicator #1 Mature forest conditions and population estimates (e.g, Northern goshawk).** *See Monitoring Question # 8, Indicator #1.*

**Indicator #2 Aquatic and riparian condition: In-stream channel conditions and population estimates (e.g, Bonneville cutthroat trout and Colorado River cutthroat trout).** *For fish abundance and condition surveys see Monitoring Question # 8, Indicator #2.*

**Indicator #3 Habitat that contains other federally listed threatened and endangered species, conserve proposed and candidate species – Documentation of alterations in habitat due to management actions and natural events.**

**Data source:** *Forest service Watershed Improvement Tracking database.*

**Monitoring results:** *Forest management activities that alter habitat to help to help other federally listed threatened and endangered species, conserve proposed and candidate species are about 2,000 acres of vegetation treatments and 20 miles of road closures to enhance sage grouse habitat.*

**Monitoring Question #11 Are Forest management activities and natural events affecting the ecological conditions of terrestrial and aquatic ecosystems?**

**Finding:** *No changes are needed. Forest management activities and natural events in 2016 and 2017 that changed ecosystem conditions has occurred on a small percentage of the Uinta NF (fuels treatments – 7,508 acres or 0.8%, timber treatment – 451 acres or 0.05%, natural fire ignitions - 20,283 acres or 2.3%, insect and disease – several thousand acres). Timber lands are fully stocked or will regenerate naturally, and wildfire has resulted in very little severe soil impact (12 acres). Very little impact to soil resources have resulted from these activities and these activities are sustaining the ecosystems on the Uinta NF. Most of these activities affected the terrestrial ecosystem by setting the seral stage of the vegetation to an earlier stage, improving watershed conditions by increasing ground cover, and improving sage grouse habitat. Aquatic ecosystems have been positively affected by improving the forest infrastructure such as replacing a bridge in Diamond Fork to better match the flow properties of the stream, and maintaining roads that result in less sedimentation to streams. Natural events such as insect and disease and wildfire affected terrestrial ecosystems by setting back the seral stage of spruce and juniper vegetation stands.*

**Data source for all indicators:** *See Monitoring Question # 4, Indicator #1, Monitoring Question #5, Indicators #2, Monitoring Question # 6, Indicators #1 and #2, Monitoring Question # 7, Indicators #1 and #2, Monitoring Question # 8, Indicators #1 and #2 and the Utah 2016 Integrated Report (303(d) and 305(b) reports).*

**Indicator #1 Aquatic habitat conditions.**

**Monitoring results:** *For fish abundance and condition surveys see Monitoring Question # 8, Indicator #2. Water quality may indicate natural and/ or man-caused conditions that affect aquatic habitat. The Utah 2016 Integrated Report (303(d) and 305(b) reports) gives an assessment of water quality*



303(d) listed water bodies from Utah Division of Water Quality 2016 303(d) list.			
<i>Ranger District</i>	<i>Analysis Unit ID</i>	<i>Analysis Unit Description</i>	<i>Parameter</i>
<b>Pleasant Grove RD</b>	UT16020201-015 00	Dry Creek-Alpine	pH
	UT16020203-013 00	Provo Deer Creek	OE Bioassessment <sup>1</sup>
<b>Heber RD</b>	UT14060003-019 00	North Fork Duchesne	Aluminum, Dissolved
	UT14060004-013 00	Strawberry-4	Dissolved Oxygen; pH
	UT14060004-015 00	Currant Creek Upper	Dissolved Oxygen
	UT16020203-009 00	Main Creek-1	OE Bioassessment; E. coli
	UT16020203-010 00	Main Creek-2	E. coli <sup>1</sup>
	UT16020203-026 00	Heber Valley	Temperature
<b>Spanish Fork RD</b>	UT16020201-005 00	Salt Creek-2	pH
	UT16020201-014 00	Currant Creek-Juab Valley	Temperature
	UT16020202-003 00	Hobble Creek-1	pH
	UT16020202-012 00	Soldier Creek-1	Temperature
	UT16020202-027 00	Beer Creek	OE Bioassessment; Total Ammonia

<sup>1</sup> OE means Observed versus Expected and E. coli. is a bacteria indicator species.

conditions in streams and lakes in Utah. This report lists several streams on the Uinta NF that are classified as not supporting its beneficial use as shown in the table below. These streams listed as not supporting and are rated as low priority for TMDL assessment by Utah division of Water Quality.

#### **Indicator #2 Riparian ecosystem conditions.**

**Monitoring results:** Very little change has occurred to riparian areas on the Forest and management activities have avoided impacts to these areas.

#### **Indicator #3 Forested Terrestrial ecosystem conditions.**

**Monitoring results:** In 2016, natural and human-induced regeneration events have occurred on the forest. These events 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). This area accounted for 3,867 acres of land treated. The majority of these treatments occurred on the Spanish Fork District with 3,416 acres of fuels projects completed mainly in juniper stands. These treatments account for approximately 0.4% of the total 884,726 acres managed on the Uinta National Forest. In fiscal year 2017, the forest planted trees on 182 acres at Clyde Creek. There are approximately 70 acres left to be planted and the remaining reforestation needs should be met by doing stocking surveys and certifying that they have been fully stocked by natural regeneration.

**Indicator #4 Non-forested terrestrial ecosystem conditions.** See Monitoring Question #7, Indicator #2.

#### **Monitoring Question #12 Are Forest management activities and natural events affecting watershed conditions?**

**Finding:** No changes are needed. Regarding water quality, the UWCNF is working cooperatively to collect water samples and to provide information to the Utah Division of Water Quality on possible causes of water quality impairment. No lichen monitoring has occurred in 2016-2017. The next

*evaluation is scheduled in 2026 when another round of lichen monitoring should be complete. Past lichen monitoring indicates no change is needed. Regarding changes in soil properties, rest rotation on range allotments improve soil properties and reseeded with native seed species after wildfire occur in areas that have cheatgrass appears to reduce the amount of cheatgrass and provides denser understory vegetation. How long these conditions last is unknown and future monitoring is planned within in the next four years.*

**Indicator #1 Aquatic Habitat conditions.**

**Data source:** *See Monitoring Question #8, Indicator #2 and Monitoring Question #11, Indicator #1.*

**Monitoring results:** *See Monitoring Question #8, Indicator #2 and Monitoring Question #11, Indicator #1.*

**Indicator #2 Air Quality - Trends of lichen biomonitoring sites.**

**Data source:** *The Uinta National Forest has 23 lichen monitoring sites. During the summer of 1995, 11 lichen air quality bio-monitoring reference sites were established on the Uinta National Forest. At the original 11 reference sites, sensitive indicator samples were recollected during the summers of 2001–2003 and again during summers of 2011–2012 in order to reevaluate pollutant element loads over time. During the summer of 2003, 12 additional lichen air quality bio-monitoring reference sites were established. Sensitive indicator samples from the 2003 sites were also recollected during the 2011 and 2012 field seasons.*

**Monitoring results:** *Monitoring for this indicator occurs on a 10 year cycle. No lichen monitoring has occurred in 2016–2017. The next evaluation is scheduled in 2026 when another round of lichen monitoring should be complete. General Observations from the 2013 final report regarding the re-inventory of the lichen air quality bio-monitoring program and baseline for 23 reference sites in the Uinta National Forest. Each of the 23 air quality bio-monitoring reference site showed that there have not been any changes in species diversity, the number or abundance of sensitive indicator species, no air pollution-related response such as upper surface discoloration, bleaching, or necrosis was observed. This pattern supports the idea that the lichen communities in the forest generally remain healthy and un-impacted by air pollution. There have not been any significant (detectable) changes in the status of the lichen communities at each of the lichen air quality bio-monitoring reference sites in the Uinta-Wasatch-Cache National Forest. However, the 2012 Quail fire, in the Lone Peak Wilderness, may have impacted the Box Elder Peak reference site but is not ascertained because the last the last time monitoring occurred at this site was in 2011. Across the Uinta NF sulfur concentrations in a high percentage of sensitive indicator species samples are elevated ( $\geq .020\%$ ) particularly at sites closer to the Wasatch Front. However, there are a few reference sites where sulfur levels have declined. Consistently, across the forest, the elevated Nickel and Arsenic levels observed in the 1995 elemental analysis samples have come down to background levels (with few exceptions) over both the 2002–2003 and 2011–2012 sampling periods. This pattern may be related to the closure and decommissioning of the Orem steel plant. Generally, lead levels are within background levels with some improvements across several reference sites. However, the 2011–2012 samples for Rock Canyon showed somewhat increased levels of lead. The overall downward trend across most reference sites for thallus concentrations of lead is also most likely related to the closure of the Orem steel plant. Overall, percent nitrogen levels in the sensitive indicator samples are elevated across the forest with some trends of improvement at some sites. Most of the elevated percent nitrogen levels seem to be concentrated along*

*the Wasatch Front – likely related to increasing population and concomitant vehicular activity along the heavily populated areas of the Front.*

**Indicator #3 Changes in soil properties (physical, chemical, and biological) that result in the loss of the inherent ecological capacity or hydrologic function of the soil resource.**

**Data source:** *Soil resource condition surveys*

**Monitoring results:** *Several areas have been monitored for soil resource conditions in 2016-17 and included the riparian pasture of the Little Valley Allotment (Spanish Fork RD), Rock Canyon Mastication/West Government Creek Wildfire (Spanish Fork RD), Mud Creek Road (Heber RD).*

*The riparian pasture of the Little Valley Allotment was in non-compliance (2015) and permittees were required to rest this pasture for 1 year. During the review it was determined that the permittees were in compliance with the rest rotation. No new soil disturbance was noted and ground cover was improving. There was no evidence of erosion or sedimentation outside the Riparian Habitat Conservation Zone (RHCA) (Vernon Creek). There is an increase in native, streambank stabilizing vegetation from previous years. However, fences were not maintained which allowed for trespass livestock into the area.*

*The Rock Canyon Mastication/West Government Creek Wildfire project was reviewed after implementation in 2011 and monitored in 2013. In September 2016 the West Government Creek Wildfire burned through the area that had been monitored. During 2011, observations noted ground cover was between 91% and 100%. Wood shred piles varied from covering the surface to 4+ inches with the deepest ~10 inches. No erosion concerns were noted. No rutting due to equipment was noted at the Rock Canyon site. During 2013, observations noted an increase in cheatgrass and a lack of vegetation growth in shred piles that were approximately 4+ inches in depth. These piles were also bordered by cheatgrass. The soil type within this area is Kapod very cobbly loam (mesic Calcic Argixeroll). It is a deep soil with a low available water capacity class and is well drained. In Rock Canyon after mastication was completed cheatgrass populated the site. Cheatgrass is of concern to the soil resource as it changes soil physical, hydrological, and biological properties altering a site's stability and resiliency. Also, shred piles 4 inches deep or greater lacked vegetation growth.*

*The West Government Creek wildfire started on September 2, 2016 and burned 3,143 acres on NFS lands, which included Rock Canyon. The area was reviewed on September 9, 2016 by the BAER team. The area of the canyon monitored during 2013 was within a moderate to low soil burn severity rating. The untreated area was within a moderate soil burn severity. The untreated area prior to the wildfire was a thick pinyon-juniper stand. It is unknown if cheatgrass was present within the stand. The area was reviewed on Sept. 6, 2017. A transect was completed in the same area as the 2013 transect. Bare ground was 30%, vegetation/litter was 58%, and rock was 12%. Cheatgrass made up 10% of the area, which was less than the 28% noted in 2013. The area was aerial seeded during the fall of 2016 with at least western wheatgrass and ricegrass. Sunflowers got in the mix as well. Bare ground, with some sparse vegetation exists within the masticated shred piles left after the 2011 project. Some of these piles burned at a high soil burn severity. There was minimal equipment ruts due to chaining of standing vegetation adjacent to the transect area. Prior to the wildfire the untreated area had a sparse vegetation understory. During this review revegetation has started, within 1 year of aerial seeding. There is rilling that has occurred on the slopes along with erosion and deposition of ash downslope. At this time no action to control the rilling is needed.*

**Monitoring Question #13 NFMA compliance: Are we complying with appropriate NFMA requirements?**

**Finding:** *No changes are needed.*

**Indicator #1 Stocking of lands.**

**Data source:** *Uinta-Wasatch-Cache NF Annual Reforestation and Timber Stand Improvement Needs Report*

**Monitoring results:** *Currently the forest shows a need of 432 acres of reforestation. These needs are created by timber harvest (263 acres), insects or disease (94 acres), and previous planting failures (75 acres). In fiscal year 2017, the forest planted trees on 182 acres at Clyde Creek. There are approximately 70 acres left to be planted and the remaining reforestation needs should be met by doing stocking surveys and certifying that they have been fully stocked by natural regeneration.*

**Monitoring Question #14 Are timber management activities impairing soil productivity of the land?**

**Finding:** *No changes are needed.*

**Indicator #1** Changes in soil properties (physical, chemical, and/or biological) that result in the loss of the inherent ecological capacity or hydrologic function of the soil resource. Specific indicators are amount of soil disturbance, change inorganic matter, or change in Soil structure, soil temperature, A horizon depth.

**Data source:** *No data collected in FY2016 and 2017.*

**Monitoring results:** *In 2016-17, no timber harvest activities were monitored on the Uinta NF in 2016-17. Soil monitoring of harvest activities are planned in FY2018 and 2019.*

**Monitoring Question #15 Are goods and services being provided in accordance with Forest Plan goals and objectives?**

**Finding:** *No changes are needed. The Uinta NF is providing a variety of goods and services according to the Forest Plan.*

**Indicator #1 Number of Lands Special Use Permits.**

**Data source:** Forest Service Special Uses Data System (SUDS) database.

**Monitoring results:** *The number of lands and recreation special use permits are presented by ranger district in the table below. Lands SUPs are uses such as dams, water transmission lines, geophysical exploration. Recreation SUPs are uses such as recreation residences, outfitter and guides, and recreation events.*

Number of Lands Special Use Permits.			
<i>Ranger District</i>	<i>Number of Lands SUP</i>	<i>Number of Recreation SUP</i>	<i>Total</i>
<i>Supervisor's Office</i>	46	14	60
<i>Pleasant Grove</i>	53	63	116
<i>Heber</i>	27	59	86

<i>Spanish Fork</i>	65	23	88
<i>Total</i>	191	159	350

**Indicator #2 Number of Recreation Special Use Permits.** *See indicator #1 and table above.*

**Indicator #3 Acres leased for oil and gas exploration and development.**

**Data source:** *US Bureau of Land Management LR2000 database.*

**Monitoring results:** *As of 11/28/17, there are 62 authorized oil and gas leases containing 130,987 acres within the Uinta NF plan area.*

**Indicator #4 Level of permitted livestock grazing.**

**Data source:** Range Allotment Annual Operating Plans

**Monitoring results:** *The table below presents the permitted commercial livestock use levels in 2015-2016. Data for 2017 is not available at this time. The term AUM means animal unit months. The level of permitted livestock grazing has not changed from 2015 to 2017.*

<b>Level of permitted livestock grazing.</b>							
<i>Ranger District</i>	<i>Number of permittees</i>	<i>Cattle Numbers</i>	<i>Cattle AUM</i>	<i>Sheep &amp; Goats Numbers</i>	<i>Sheep &amp; Goats AUM</i>	<i>Total number</i>	<i>Total AUM</i>
<i>Pleasant Grove</i>	0	0	0	0	0	0	0
<i>Heber</i>	23	4,003	20,488	41,640	39,587	45,643	60,075
<i>Spanish Fork</i>	24	7,375	42,051	2,000	3,445	9,375	45,496
<i>Total</i>	47	11,378	62,539	43,640	43,032	55,018	105,571

**Indicator #5 Other Forest Products (Fuelwood and Christmas Tree Permits).**

**Data source:** *Forest Service PTSAR database.*

**Monitoring results:** *The table below presents other forest products produced from the Forest in 2016-17.*

<b>Other Forest Products</b>		
<i>Ranger District</i>	<i>Product</i>	<i>Amount</i>
<i>Kamas/Heber<sup>1</sup></i>	<i>Firewood</i>	<i>4,882 cords</i>
	<i>Post &amp; Pole</i>	<i>200 pieces</i>

	<i>Every Kid Free Xmas Tree</i>	<i>27 trees</i>
	<i>Christmas Trees</i>	<i>2,000 trees</i>
	<i>Transplants</i>	<i>77 trees</i>
	<i>Seed</i>	<i>2,500 pounds</i>
<b><i>Spanish Fork</i></b>	<i>Firewood</i>	<i>614 cords</i>
<sup>1</sup> Note that Kamas/Heber RDs data is the total for both ranger districts and is not broken out by separate districts. <sup>2</sup> A cord is the amount of wood in a neat stack 4 feet wide by 4 feet high by 8 feet long (128 cubic feet).		

**Indicator #6 Total Timber Sale Program Quantity.**

**Data source:** Forest Service PTSAR database.

**Monitoring results:** In 2016, the total timber sale program quantity sold was 20,652 ccf (100 cubic feet of solid wood). In 2017, no new timber sales were sold but 17.68 ccf added volume was sold during Cold Springs salvage harvest.

**Monitoring Question #16 National Historic Preservation Act as amended: Are cultural resources being protected as the Forest Plan is implemented and are mitigation measures sufficient prevent damage to cultural resources from project activities? Are *Historic Properties* receiving adverse effects from project implementation, vandalism, looting, and/or neglect?**

**Finding:** No changes are needed.

**Indicator #1 Number of *Historic Properties* that received new adverse effects from looting, vandalism, and/or neglect.**

**Data source:** Forest archaeologist project reviews

**Monitoring results:** On the Spanish Fork RD, two prehistoric archaeological sites were physically damaged by contractors during the implementation of forest service authorized projects that were supposed to be mitigated by avoidance, however, the sites were not avoided. The reason this occurred was lack of oversight of contractors, lack of review of project mitigation, and lack of onsite personnel during project implementation. There is a need to set up a protocol for reviewing mitigation prior to project implementation and to schedule personnel to be onsite during project implementation, but no changes are needed in the Forest Plan, management activities, monitoring program, or conducting an assessment to determine preliminary need to change the plan.

## Appendix 1: Amendments and corrections to the Uinta NF Forest Plan.

<b>UNF Forest Plan Amendments</b>
<b>Amendment #1 (2007)</b> - Over-Snow motorized access amendment: corrects definitions for off-road vehicles, defines snow play areas, and closes some routes for over-snow wheeled vehicle access
<b>Amendment #2 (2008)</b> - Wild and Scenic River Suitability: Identifies Lower Provo Deer Creek as river on Forest recommended for inclusion in the national Wild and Scenic River System
<b>Amendment #3 (2009)</b> - West-wide Energy Corridor Amendment: identifies energy transmission corridors and mandatory operating procedures for these
<b>Amendment #4 (2011)</b> – updates direction for leasable minerals (Oil and Gas leasing.).
<b>Amendment #5 (2014)</b> – Revises measurement frequency for MIS in Chapter 6 Monitoring table
<b>Amendment #12 (2015)</b> - Greater sage-grouse
<b>Amendment #13 (2016)</b> - Forest Plan Monitoring
<b>UNF Forest Plan Corrections</b>
<b>Correction #1 (2004)</b> - Clarifies standard ROS-2 regarding implementation
<b>Correction #2 (2006)</b> – Corrects criteria for water developments used in range suitability in FEIS Appendix B
<b>Correction #3 (2006)</b> – Removes incorrect reference to leasable minerals in standard M&E-10
<b>Correction #4 (2006)</b> – Corrects sage grouse lek protection dates in guidelines WL&F-5 and Veg-7, and in standard Graze-4
<b>Correction #5 (2006)</b> – corrects Objective-3-2 for allowable sale quantity and timber sale program quantity
<b>Correction #6 (2010)</b> – Maximum harvest size openings
<b>Correction #7 (2010)</b> - Corrects width of Class III RHCA's in Table D-1 in Appendix D
<b>Correction #8 (2012)</b> - Corrects inconsistencies in Appendix H for Mineral Stipulations
<b>Correction #9 (2012)</b> - Corrects Table D1 (RHCA Classification) and Timber-14 Guideline