

Forest Plan Monitoring

Wasatch-Cache National Forest

First Year Report: March 2003 - March 2004



United States Department of Agriculture
Forest Service
Intermountain Region
Wasatch-Cache National Forest

- 1** Education and Information
- 2** Recreation Opportunity
- 3** Vegetation Management
- 4** Fuels Reduction
- 5** Rangeland Management
- 6** Recreation Concentrated Use Areas
- 7** Major Trail Development
- 8** Management Indicators
- 9** Endangered Species Act
- 10** Resource Protection
- 11** User Density Thresholds
- 12** NFMA Compliance
- 13** National Historic Preservation Act

A Note from the Forest Supervisor

The Revised Forest Plan for the Wasatch-Cache National Forest was approved March 19, 2003. An important part of keeping the Plan current and adapting it as conditions change or as we learn from experience is monitoring. The Revised Plan Monitoring and Evaluation section (Chapter 4, pg. 4-105) outlines the program for following up on important decisions made in the Plan. Last September we shared with you further steps or "protocols" for moving forward with this program. We have now been implementing this new Plan for more than a year and would like to share some of the results of the first year. In some cases it is too early to actually report on what we have accomplished in each area because the monitoring protocol requires more than a year. In other areas information has been collected as a baseline to track future trends. In the coming years, a collective review of several years of information will be evaluated to determine if our management is actually moving the forest toward desired conditions.

As you know, each project we implement under the direction of the Revised Plan includes public involvement and environmental analysis. We encourage you to stay involved in these processes so we can learn together the best ways to move toward desired conditions described in the Plan.

If you have any questions about the monitoring report, please contact Melissa Blackwell at (801) 236-3408 or Julie Hubbard at (801) 236-3407.

Thomas J. Adwell

1 *Education and Information*

FOREST PLAN OBJECTIVES TO ACCOMPLISH DESIRED CONDITIONS

Develop within 1 year, and subsequently implement a Forest Interpretation & Education Plan with responsiveness to education/enforcement issues raised during Plan revision. This Plan should integrate funding support including partnerships, for education and enforcement in key focus areas.

Develop key messages for focus areas within 1 year and set measurable education/enforcement goals. Focus areas are: OHV use, recreation user ethics, role of fire, fuels hazards, invasive species, and watershed health.

ASSOCIATED MONITORING QUESTIONS



ARE WE DELIVERING KEY EDUCATIONAL/ENFORCEMENT MESSAGES IDENTIFIED DURING PLAN REVISION TO FOREST EMPLOYEES AND USERS? (Key focus areas are: off-highway vehicle use, recreation user ethics, fire's role, hazardous fuels, invasives/noxious weeds, and watershed health.)

During the year since the Forest Plan was revised, a team reviewed the previous Forest Interpretation and Education plan from 1992; revised that plan; developed an action plan; developed key messages in consultation with forest staff and resource specialists; investigated effective ways and products to convey key messages to target forest user audiences working with representatives from user groups and other partners; discussed funding issues, and addressed how to monitor both plan implementation and effectiveness.

Issues identified in the Forest Plan are consistent with current National emphasis for the Forest Service concerning the four threats to our National Forests. These are fire and fuels, unwanted and invasive species, loss of open space, and damage from unmanaged recreation especially off-road vehicles. The five Forest Plan issue areas for education and enforcement focus are: off-highway vehicle use, recreational user ethics, invasive species, watershed health and fire's ecological role/ hazardous fuels. Key messages have been crafted in these areas and are as follows:

WASATCH-CACHE NATIONAL FOREST KEY MESSAGES

USER ETHICS

As the number of people in Northern Utah more than doubles in the next twenty years, so will the number of Forest visitors. It is imperative that all forest visitors follow good user ethics outlined in Leave No Trace:

- Plan Ahead and Prepare
- Travel and Camp on Durable Surfaces
- Dispose of Waste Properly
- Leave What You Find
- Minimize Campfire Impacts
- Respect Wildlife
- Share the Trail

OFF-HIGHWAY VEHICLES (OHVS)

Rising use of off-highway vehicles has triggered the need for responsive management to protect natural resources. While most OHV users operate their vehicles in a responsible manner, irresponsible OHV users leave lasting traces on the land. Follow the Tread Lightly recommendations and stay on designated routes.

- Know before you go. Educate yourself, plan and prepare before you go.
- Travel on designated routes only. Open travel routes are displayed on Ranger District Travel Maps available at the local Ranger District office.
- Respect the environment and the rights of others.
- Protect your privilege. Stay on the trail.
- Discover the rewards of responsible recreation.

WATERSHED

A 'watershed' is an area that catches rain and snow that is drained by a single river system.

- Wasatch and Cache National Forests were originally established to protect critical watersheds, ensuring a steady flow of high quality drinking water.
- Forests are important in filling critical ground water reservoirs and they help purify drinking water.
- Keep it Pure – Use restrooms, clean up after your animals, and cross at established stream crossings. The water you see today you may drink tomorrow.

INVASIVE SPECIES

Utah's biodiversity is under attack – Unwanted plants, animals, insects, and diseases pose a serious threat to healthy forests and grasslands. These unwanted species are spreading at alarming rates.

- Invasive species reduce wildlife habitat and alter the functioning of riparian areas, monopolizing scarce water resources and increasing soil erosion. Invasive species costs Utah and Wyoming residents millions of dollars a year.
- Help us fight America's least wanted. Be sure your vehicle, pets, shoes, clothing, and livestock feed are free of seeds when entering National Forests.
- Invasive species don't respect property lines. Keep your property free of noxious weeds and choose native or non-invasive landscaping plants. Your county or university extension service is a good source for more information.

FIRE AND FUELS

Fire plays a key role in maintaining healthy forest ecosystems in much of the western United States. Forests are dynamic systems that change over time, with fire being a primary agent of change.

- Utah's forests are aging. These dead, old, and weak trees are susceptible to disease and combined with the tremendous buildup of forest underbrush and litter near residential areas can result in catastrophic fires. Fuels reduction helps assure the safety of people's lives and property.
- The tools used to reduce hazardous fuels include prescribed burns, undergrowth removal, small diameter tree harvesting, and managed wildland fire. The urban-wildland interface is the highest priority for fuels treatments.
- Be firewise. Many people have built homes in fire-prone areas. Residents in the urban-wildland interface can take many effective steps at home to reduce the risk of property damage or loss from wildland fire.

The revised Forest Interpretation and Education (I&E) Plan includes goals, objectives and action items for goal achievement. Goals in the I&E plan include:

- All administrative units responsible for Wasatch-Cache Forest management will support the Wasatch-Cache Forest Interpretation and Education Program, and a demonstrated commitment will be shown for implementing the program.
- The Wasatch-Cache Interpretation and Education program will successfully integrate key messages teaching appropriate behavior while using the forest, into a wide variety of public contact points from field to office (internal), to businesses (external) that supply user-related products.
- Create programs to increase Forest Service field presence and to encourage individuals and organizations to actively work to maintain and improve resources such as trails, and to educate peers for monitoring and modifying behavior to protect resources and reduce user conflicts.
- Identify resources, means of funding and pursue cost-share programs.
- Create an appropriate means to evaluate success of conservation education and interpretation efforts.

The team has reviewed and modified Reporting Systems as needed. Lack of a central reporting tool makes it difficult to get a comprehensive view of what current programs are actually taking place forest-wide and which agency staff and partners are carrying them out. Given the importance of effective public outreach, education, and communication in public lands management throughout the program areas, conservation education should be a significant component of many Forest Service employees' jobs. We have initiated a new reporting system to centrally collect more of this data as well as the information needed to evaluate forest plan implementation.

To establish a baseline of current education and interpretation program levels, and the degree to which key messages are incorporated into these programs, units worked to track down number of products conveying key messages and reported them in a standard format. Analysis of the data revealed that many effective and creative education programs are currently in place, but most are not directly addressing issues identified in the Forest Plan process. User ethics and minimization of impacts on natural resources was the top message for three units and second for one other, but issues of user conflict were not directly addressed. Fire prevention was the top educational message for two units and second for two others, but generally not addressed in these programs was fire's ecological role/fuels. The Evanston/ Mountain View and Logan RD's conducted OHV programs, and Kamas incorporated invasive species education into their volunteer training.

Several programs at individual units showed potential for successful replication.

- Kamas – Incorporating key messages like the importance of invasive species control, and off highway vehicle suggestions into volunteer trainings.
- Evanston/Mtn View - Degree of key message integration into all points of contact on the district, visitor information, field patrols, meetings etc.
- Logan – Tread Lightly! Presentations in driver's education classes and incorporation of Forest History to tell watershed story during the Logan Forest Reserve Centennial.
- Salt Lake - Partnerships with Cottonwood Canyons Foundation and Salt Lake City to provide watershed education and user ethics.
- Ogden - Collaboration with local fire departments to reach local schools.
- Supervisors Office - Partnership with Home Depot, participation in fairs with interagency focus.

New initiatives undertaken from March 2003 to March 2004 to build capacity as well as test outreach mechanisms and key message incorporation include:

- Working to improve website accessibility and sustainability.
- Information kits for all forest vehicles were distributed, to increase outreach capacity of field personnel.
- Winter Travel Map and tips for reducing conflict in the backcountry were distributed to 15 OHV/Ski retailers in Logan.
- Winter Good Will Trail Patrol program in Logan involved both motorized and non motorized winter Recreationists in educating other users in conflict resolution and travel plan restrictions as well as monitoring.
- In Salt Lake, the SO continued Smokey Bear Fire Prevention programs with added emphasis on watershed protection as part of fire prevention.
- The SO represented the Forest Service at Recreational Vehicle show and Sportsmen's Expo. OHV travel plan maps, OHV safety, and fire safety were the primary missions. Interagency cooperation included State Parks and the BLM.
- Increased involvement with Scout, home school and other groups delivering our key messages each time including user ethics, invasive species, watershed health tailoring the message to the group's primary recreational use. (OHV users, dispersed campers, anglers, etc.)
- Wasatch-Cache National Forest joined a host of other fire agencies, including the BLM, in sharing defensible space and fire prevention tips with residents of Weber County at the Ogden Home & Garden Show and the Utah Native Plant and Landscape show at the South Town Expo.
- Trail hosts – Visitor Information in the field. SO staff participated in high conflict areas like Cardiff fork, and Franklin Basin to provide information to increase the capacity of visitors to make informed choices.

Working with partners and tracking their message delivery is another way to expand our educational reach. We have identified three general ways user groups can participate in educational efforts in conveying key messages to target forest user audiences.

- First, clubs and retailers can distribute National Forest information that we supply to them. Providing travel maps and Tread Lightly information to OHV retailers is an example.
- Second, we can work in partnership with user groups to develop educational programs, which they will then deliver. For example, the Utah State Parks and Recreation OHV education certification program is asking for a ten-minute script reflecting messages the Forest Service would like young OHV users to know. Coordinating with Utah State Parks OHV program to get USFS/WCNF message out to all children/adults in OHV courses the importance of responsible riding, watershed protection, safety and Tread Lightly! Principles.
- Third, user groups can volunteer to perform outreach and education work on the Wasatch-Cache National Forest, for example as volunteer trailhead hosts and trail patrollers. We expect to incorporate significant monitoring duties into these volunteer positions.



DO OUR EDUCATIONAL KEY MESSAGES AND USER GROUP PARTICIPATION PROVIDE RESOURCE PROTECTION AND/OR REDUCE RECREATION CONFLICTS? ARE USERS CHANGING BEHAVIORS?

It is premature to address effectiveness of our efforts yet. Evaluating the effectiveness of our educational efforts presents a greater challenge than monitoring the quantity and types of key messages we deliver. One standard parameter of educational effectiveness is whether the audience has gained knowledge from a given program. One means of measuring this is by administering a pre-test and

post-test. For example, the Logan Ranger District's conservation education coordinator presents National Forest OHV rules and policies at driver education classes in area high schools and uses a short pre-and post-test to assess what the students know already and what they gain from her presentation. However, this does not address how long the learning is retained, nor whether it changes behaviors when students ride OHVs on National Forest System lands.

As stated in the revised forest plan, our goal is not only to increase public knowledge of key messages, but for this knowledge to translate into changed actions and behaviors. In turn, our goal is that these changed behaviors reduce environmental impacts and user conflicts. This is an applied research effort that will require significant consultation with specialists and research university staff, followed by a concentrated effort and resources to complete studies. Given limited forest-level staff time and resources, the I&E Team feels that partnering with the recreation and tourism departments at local universities may best meet our effectiveness monitoring goals. The I&E Team is currently investigating these partnership opportunities. We aim to develop a pilot study protocol to address one key message topic area that we can implement in 2005.

2 Recreation Opportunity

FOREST PLAN OBJECTIVES TO ACCOMPLISH DESIRED CONDITIONS

Update the Salt Lake, Ogden and Logan Ranger District Travel Management Plans within 5 years (includes user created route inventory, maintenance level 1 and 2 roads analysis, updating of Road Management Objectives and refining of winter decisions where appropriate).

Expand communication media (signs, maps, brochures and websites) to improve user knowledge of opportunities, restrictions and riding conditions. Complete this within 2 years for messages common to all areas and within 1 year of completing Travel Plan update decisions, for messages specific to a particular area.

Expand or initiate peer education through motorized use organizations and dealerships within 2 years for winter and 3 years for summer.

ASSOCIATED MONITORING QUESTIONS



ARE WE PROVIDING RECREATION OPPORTUNITIES FOR MOTORIZED, MECHANIZED, AND NON-MOTORIZED USERS WHILE PROTECTING AND RESTORING WATERSHEDS AND PROVIDING FOR NEEDS OF WILDLIFE?

The Salt Lake Ranger District has done an assessment on district travel issues. Actual travel plan revision work has not begun. The District has printed some temporary, more readable travel maps for the Davis County portion of the district.

Ogden Ranger District has started a travel plan revision. Scoping has been completed for an environmental assessment, but because of complex issues, the District has decided to complete an environmental

impact statement. Preliminary issues centered on water and aquatic habitat quality, diversity of recreation opportunities, noxious weeds, and wildlife impacts. A roads analysis for all system roads has been completed. Road management objectives are completed for all higher standard system roads.

On the Logan Ranger District signs were installed last summer on designated open routes marking the Northern Utah ATV trail (also referred to as the "Shoshone Trail"). A preliminary



map displaying the Northern Utah ATV system was printed in concert with the Utah Division of Parks and Recreation. Travel plan revision work has not begun.

In the interim before revisions have been completed, the Logan and Ogden Districts have reprinted the 1997 travel maps for distribution. The winter portion of the map has been removed and replaced with interim smaller maps reflecting the Revised Forest Plan decisions.

The Kamas District made minor updates to their 1998 travel plan to create a more user friendly and readable map. Maps were reprinted and have been distributed since winter 2003.

The Evanston-Mountain View District travel plan was completed in January 2003. Key points of implementing that decision (signing, education and enforcement) have been accomplished. Hunt patrols were emphasized in the fall to contact users with new travel information, the need to stay on designated trails and to practice good land ethics. Travel maps and hunting brochures were handed out and the viewing of a short video was offered. The efforts paid off, as the District did not see as many problems of people using their ATV's off of designated routes.

All districts have prepared new winter travel plan maps based on current designated routes open in the travel plans and winter area designations from the Revised Forest Plan. On the Logan Ranger District new boundaries for motorized/nonmotorized areas were marked on the ground with signs and poles. Also the Logan Ranger District created a new system of tracking internal and external reports of visitor non-compliance with new travel regulations. Kamas Ranger District has also developed two new maps; one for snowmobile and one for ski and snowshoe trails for the Mirror Lake Highway area.

Signing has always been a challenge because of vandalism and endless user created routes. Routes are closed unless signed as open. Key messages for the Forest on OHV use have been completed as reported in Monitoring Topic 1.



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ARE THERE A VARIETY OF QUALITY RECREATIONAL OPPORTUNITIES AVAILABLE?

It is premature at this point in the monitoring to make any assessment of this item until remaining Travel Plans are updated.

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ARE USERS COMPLYING WITH TRAVEL MANAGEMENT PLANS?

The Forest is very active and participates both in the Utah State and Northern Utah OHV coordination groups. Interagency law enforcement patrols have been conducted at several key times in the following OHV hot spot areas: Salt Lake District (Bountiful B, Farmington, Stansbury Mountains), Kamas District (Murdock Basin, Cedar Hollow, Taylor Fork), Evanston/Mountain View District (Poison Mountain, North Slope, China Meadows), Ogden District (Docs Flat), Logan District (Sinks area). The Brigham Face/Willard OHV hot spot area of the Ogden Ranger District was the location for a concentrated law enforcement and education effort during the summer of 2003.



Citations and warnings distributed during the monitoring period (annual) will be tracked according to the 5 regulations specific to prohibitions relative to roads and trails and motorized vehicles. These following numbers will serve as a baseline and be tracked through a law enforcement database:

Regulations for Motorized vehicles (as provided by closure orders)	Incident Report	Violation Notice	Warning Notice
Using a vehicle that damages a road or trail (36 CFR 261.12C)	7	0	1
Using a vehicle that damages or disturbs the land, wildlife or vegetative resource (36 CFR 261.12H)	43	14	13
Using a vehicle on a trail when that use is prohibited (36 CFR 261.55A)	4	0	7
Using any type of vehicle when that use is prohibited (36 CFR 261.55B)	13	16	9
Using a vehicle off Forest system roads (36 CFR 261.56)	227	38	75



ARE USERS HELPING TO PREVENT OR REDUCE IMPACTS, STAYING ON DESIGNATED ROUTES?

This item overlaps with the monitoring question for Topic 1 where we have asked if user group participation has provided resource protection.

3 *Vegetation Management*

FOREST PLAN OBJECTIVES TO ACCOMPLISH DESIRED CONDITIONS

Allow fire to play a more active role in returning vegetation to historic ranges of variation by developing and incorporating Wildland Fire Use for priority areas of the Forest into the Wasatch-Cache Forest Fire Management Plan at the rate of one per year for priority areas.

Stimulate aspen regeneration and reduce other encroaching woody species in aspen by treating (fire use and/or timber harvest) approximately 3,200 acres average annually for a 10-year total of 32,000 acres.

Restore natural disturbance patterns and increase age-class diversity in conifer cover types by treating (timber harvest and/or fire use) approximately 850 acres average annually for a 10-year total of 8,500 acres.

Increase grass and forb production and plant species and age-class diversity in sagebrush and pinyon-juniper by treating approximately 3,000 acres average annually for a 10-year total of 20,000 acres.



ASSOCIATED MONITORING QUESTIONS



HAVE WE DEVELOPED AND INCORPORATED WILDLAND FIRE USE FOR PRIORITY AREAS OF THE FOREST INTO THE WASATCH-CACHE FOREST FIRE MANAGEMENT PLAN?

A Wildland Fire Use Plan has been prepared and included in the 2004 Wasatch-Cache Forest Fire Management Plan. The purpose of the Wildland Fire Use Plan is to provide for allowing fire to resume a more natural role in ecosystem processes within the Forest. Wildland fire use is defined as management of naturally ignited (lightning) wildland fires to accomplish specific, pre-stated resource management objectives in predefined geographic areas.

Wildland fire use for resource benefit is emphasized in current national fire policy. This emphasis is tied to a growing recognition of fire as a critical, beneficial process for the proper functioning condition of many vegetation types, as well as a tool to reduce hazardous fuel conditions. It also improves efficiency by allowing fire suppression efforts to concentrate on areas of highest priority for human safety, developments, and natural resources.



ARE WE TREATING ASPEN, CONIFER, SAGEBRUSH, AND PINYON/JUNIPER TO RETURN VEGETATION TO HISTORIC RANGES OF VARIABILITY (PROPERLY FUNCTIONING CONDITIONS)?

The revised Forest Plan identifies acres by vegetation cover type to be treated annually in order to move toward or stay within their historic range of variability across the landscape. The concept of “historic range” recognizes that ecosystems are dynamic in nature and that disturbance and change is a common component. Areas that are within their historic range of variability are said to be in “properly functioning condition”.

Vegetation treatments can include harvest/mechanical, prescribed fire, wildland fire use, and/or chemical methods. Treatments are designed to change vegetation structure (the layers and ages of species) and/or species composition (types of plant species or communities present), and to redistribute the patchwork of species and ages across the landscape. Treatments are intended to result in landscapes that more nearly match the range of variability represented historically.

Table 1 converts vegetation management Objectives into annual (rather than decadal) acre amounts and shows first year changes in vegetation resulting from intentional treatments by Ecological Subsection. Vegetation changes resulting from wildfire are discussed with the next monitoring question. Ecological Subsections are displayed in Figure 1.

Table 1. Vegetation Management Objectives and 2003 Treatments

Cover Type	Annual Objective for Treatment (Acres)	2003 Changed Acres	Treatment Type ¹	Vegetation Change	Location (Ecological Subsection)
Aspen	3,200	1,000	PF	Structure Composition, Age Class	Bear Lake Highlands
Conifer	850	210	CC	Structure Composition, Age Class	North Slope Outwash
		215	OR	Structure, Age Class	
		80	SS	Structure	
		68	FR	Structure Composition	West Flank Uintas
Sagebrush Pinyon/Juniper	2,000	0	-	-	-

¹**PF - Prescribed Fire:** planned ignition and burning of vegetation usually resulting in a mosaic of burned and unburned vegetation creating a diversity of vegetation structure, composition and pattern.

CC - Clearcut: removal of all trees which results in an even-aged stand and a temporary conversion of mature stands to grasses/forbs.

OR - Overstory Removal: a harvest that removes taller trees so younger growth below will grow creating stands dominated by saplings or pole-sized trees.

SS - Selection System: maintains an uneven-aged structure by removing some trees in all size classes. With this technique, a forest with a continuous canopy is maintained indefinitely.

FR- Fuel Removal: mechanical removal of woody vegetation sometimes followed by light burning of woody material which has built up because of fire suppression.

We expected to begin the decade with fewer average annual acres treated because it will require some time to develop skill and experience planning for and treating vegetation acreages that are much larger than in the past. Later in the decade we expect (depending on funding available) to increase average annual acres treated. It should be noted that where prescribed fire is the selected treatment, weather conditions and air quality requirements are limiting factors beyond our control.



Figure 2. 2003 prescribed aspen burn on Boulder Mountain, Logan Ranger District.



ARE VEGETATION COVER TYPES (BY ECOLOGICAL SUBSECTIONS) TRENDING TOWARD PROPERLY FUNCTIONING CONDITION (PFC)?

Vegetation changes across the Forest will be tracked by comparing a baseline (current vegetation conditions) with an annually updated inventory of changed vegetation. These results will be compared with reference conditions (historic ranges of variability) to assess whether or not we are contributing to Properly Functioning Conditions. Vegetation changes can result from intentional treatments (harvest, prescribed fire, or wildland fire use) or from insect or disease activity, windthrow, and/or human-caused escaped wildfires.

The Revised Forest Plan identifies Ecological Subsections as the relevant geographic areas (Figure 1) for assessing long-term vegetation trends (away from or toward Properly Functioning Conditions). Subsections represent areas with similar geology, soils, climate, topography and vegetation. They are used as ecologically-based units for planning and tracking changes over time and space.

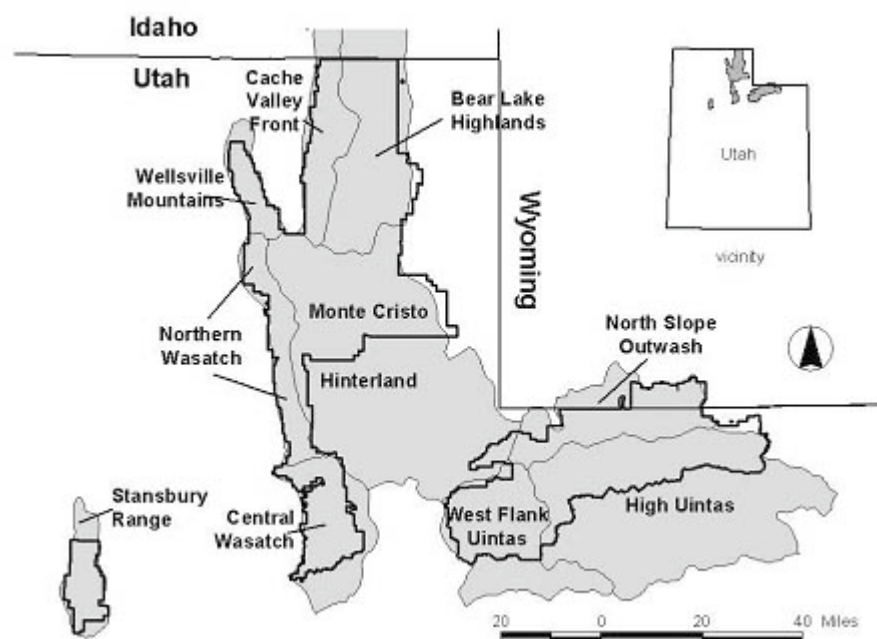


Figure 1. Ecological Subsections of the Wasatch-Cache National Forest.

In addition to the changes in vegetation summarized above from intentional treatments, several vegetation changes were the result of human-caused escaped wildfires during the first year of Plan implementation. The Farmington and Centerville fires in Davis County, Utah burned a total of about 2,300 acres with a mosaic of burn intensities. The following Table shows the vegetation cover types and acreages for those areas that burned hot enough to actually make a notable change in vegetation structure, composition and/or age class.

Cover Type	2003 Acres Burned by Wildfire	Vegetation Change	Location (Ecological Subsection)
Gamble Oak	910	Structure, Age Class	Northern Wasatch
Sagebrush	535	Structure, Composition, Age Class	
Douglas Fir	109	Structure, Age Class	
Mtn. Mahogany	25	Structure, Composition, Age Class	

4 *Fuels Reduction*

FOREST PLAN OBJECTIVES TO ACCOMPLISH DESIRED CONDITIONS

Treat approximately 2,000 wildland urban interface acres annually for a 10-year total of 20,000 acres.

Expand outreach and education by helping communities and homeowners recognize fire hazards, and design fire resistant homes and landscapes by participating annually in Community Planning meetings and city or rural planning groups.

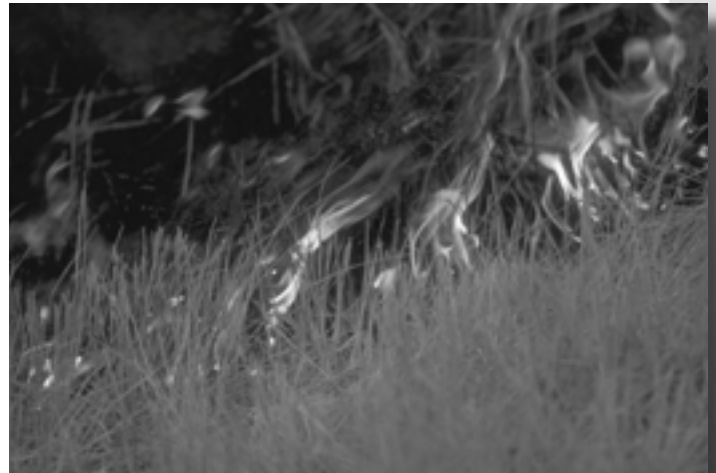
Expand community participation in fuels treatment and restoration and assist in the development of community fire plans by assisting State and private groups to develop 3 to 5 fuel reduction plans annually.

ASSOCIATED MONITORING QUESTIONS



ARE WE TREATING FUELS IN THE WILDLAND URBAN INTERFACE TO PROTECT PROPERTY AND HUMAN HEALTH AND SAFETY?

At this time, and until standard definitions for wildland urban interface are adopted, all areas of the Wasatch-Cache National Forest are considered to be wildland urban interface.



Ranger District	Project Area	Acreage	Vegetation Cover Type	NEPA Decision	Treatment Type	Treatment Date
Salt Lake	Cardiff Fuels	10	mixed conifer/aspen	2/04	Mechanical	Not complete
Kamas	Hwy. 150	227	oakbrush	8/99	Burn	4/03
Kamas	Soapstone	10	juniper/p-pine	No NEPA documentation required	Mechanical	8/03
Kamas	Slate Creek II	58	juniper/p-pine	8/99	Mechanical	9/03
Ogden	Monte	2600	aspen/conifer	8/03	Burn	Not complete
Logan	Boulder	1000	aspen/conifer/sagebrush/mtn. brush	3/03	Burn	10/03

Total acres with reduced fuels from treatments for the first year of Plan implementation are 1,295.



ARE WE EXPANDING OUTREACH AND EDUCATION OF COMMUNITIES ON FIRE HAZARDS?

The following table shows the numbers of projects where fire prevention and/or fuels hazards education was provided in a public setting during the first year of Forest Plan implementation:

Presentation	Supervisor's Office	Salt lake District	Kamas District	Evanston/ Mtn. View Districts	Ogden District	Logan District
Fire Prevention	40	5	3	31	15	4
Fuels Hazards	0	1	0	10	0	4

In addition we worked with Home Depot, Ogden Fire Department, Boy Scouts of America, and summer homeowners to deliver education on fire and fuels hazards.



ARE WE EXPANDING COMMUNITY PARTICIPATION IN FUELS TREATMENTS? HAVE WE ASSISTED WITH DEVELOPMENT OF COMMUNITY FIRE PLANS?

Under direction of the National Fire Plan, the State of Utah has the lead for all community fire planning. The Forest Service is a full participant and has assisted with development of Community Fire Plans in many communities in or near National Forest lands. The following tables show those Community Fire Plans completed and in process associated with Wasatch-Cache National Forest.

Community Fire Plans Completed		Community Fire Plans in Process	
Community	County	Community	County
Mt. Haven	Salt Lake	Woodland Estate	Wasatch
Cardiff Fork	Salt Lake	Nordic Valley	Weber
Mill D	Salt Lake	Causey Estate	Weber
Pinetree	Salt Lake	Birch Glen	Cache
Silverfork	Salt Lake	Scare Canyon	Cache
Evergreen	Salt Lake	Holiday Park	Summit
Giles Flat	Salt Lake	Rockport	Summit
Brighton	Salt Lake	Samak	Summit
Emigration Canyon	Salt Lake		
Summit Park	Summit		
Manorlands	Summit		
Echo Creek Ranch	Summit		
Bridgerland	Rich		
Pine Mountain	Summit		
Hidden Lake	Summit		
Canyon Rim	Summit		
Pinebrook	Summit		
Colony at White Pine	Salt Lake		



ARE FUELS REDUCTIONS IN THE URBAN INTERFACE PROTECTING PROPERTY AND HUMAN HEALTH AND SAFETY?

It is premature at this point in the monitoring to make any assessment of this item.



IS THE PUBLIC BECOMING MORE AWARE OF THE THREAT?

The Salt Lake Tribune carried 6 articles on hazardous fuels between May of 2003 and February of 2004. Work on Community Fire Plans discussed above has brought the threat to the forefront for many homeowners adjacent to or near the Wasatch-Cache National Forest.



HAVE THE SIZE OF UNWANTED WILDLAND FIRES BEEN DECREASED AS A RESULT OF FUELS REDUCTION EFFORTS ALONG URBAN INTERFACE AREAS?

Although it is premature at this point in the monitoring to make an assessment of this item, information on past fire history is being compiled to develop a baseline.

5 *Rangeland Management*

FOREST PLAN OBJECTIVES TO ACCOMPLISH DESIRED CONDITIONS

Fully implement the Rangeland Health Amendment Forestwide by:

Finalizing riparian classification and notifying permit holders of utilization standards based on this classification within 1 year.

Validating key areas and focusing monitoring of utilization standards in Allotments containing riparian dependent TES within 3 years.

Developing ground cover potentials for missing vegetation cover types within 2 years.

Assess/validate existing conditions and continue establishing long-term trend monitoring for 10% of Allotments annually.

Establish clear expectations with all permit holders to achieve stated purposes within 1 year.

Assess and prioritize noxious weed infestations for appropriate treatment within 1 year.



ASSOCIATED MONITORING QUESTIONS



ARE RANGELAND STANDARDS AND GUIDELINES BEING IMPLEMENTED AND ACTIONS BEING TAKEN TO CORRECT PROBLEMS? THE ASSUMPTION IS THAT WHEN RANGE STANDARDS AND GUIDELINES ARE BEING FOLLOWED CONDITIONS WILL IMPROVE.

All term grazing permits have been modified to include Revised Forest Plan direction for managing allotments and livestock use. Most of this direction had been previously added to term grazing permits following the 1996 Rangeland Health Amendment to the 1985 Forest Plan. A forage utilization guideline for lands in unsatisfactory condition (G71) was added in the 2003 Forest Plan revision. Long-term trend studies will be used to determine the effectiveness of this guideline in moving areas toward desired conditions.

Forestwide Standards 24 and 25 and Guideline 7 provide direction related to the management of riparian areas. All riparian areas are to be classified using the three-class system (Classes I, II, and III) described in Appendix VII of the Revised Forest Plan. All riparian areas are valuable, yet all do not necessarily require the same intensity of management or protection. Class I riparian areas are those with the highest rating and are given special management considerations to protect or enhance the resource values of the area. For example, all streams with riparian-dependent Threatened, Endangered, or Sensitive (TES) species, such as Colorado or Bonneville cutthroat trout, are classified as Class I riparian areas. Class II riparian areas are given special management considerations to maintain or enhance conditions for identified resource values or to mitigate adverse impacts. Class III riparian areas may not need special management considerations except to protect the basic soil, water, and vegetation resources and hydrologic functions of the area.

Class I riparian areas have been determined forest-wide based on known occurrences of TES species (Figure 2). All other riparian areas will be managed as Class II until any are identified as Class III

(none have been to date). Appropriate utilization standards and guidelines will be applied based on Riparian Classes. Table 2 lists all allotments that currently have Class I riparian areas. Maps showing these Class I riparian areas within grazing allotments have been prepared and are being provided to permittees prior to turn out of livestock this year.

During the grazing season, monitoring and inspections result in numerous corrective actions to ensure that grazing is conducted within parameters set in the Term Grazing Permit. Notices of noncompliance were sent to permittees on three allotments in 2003. These notices detailed the violations found, required corrective action, and established a time frame in which corrective action must be accomplished. The corrective actions have either occurred or shall be monitored in 2004 for implementation.

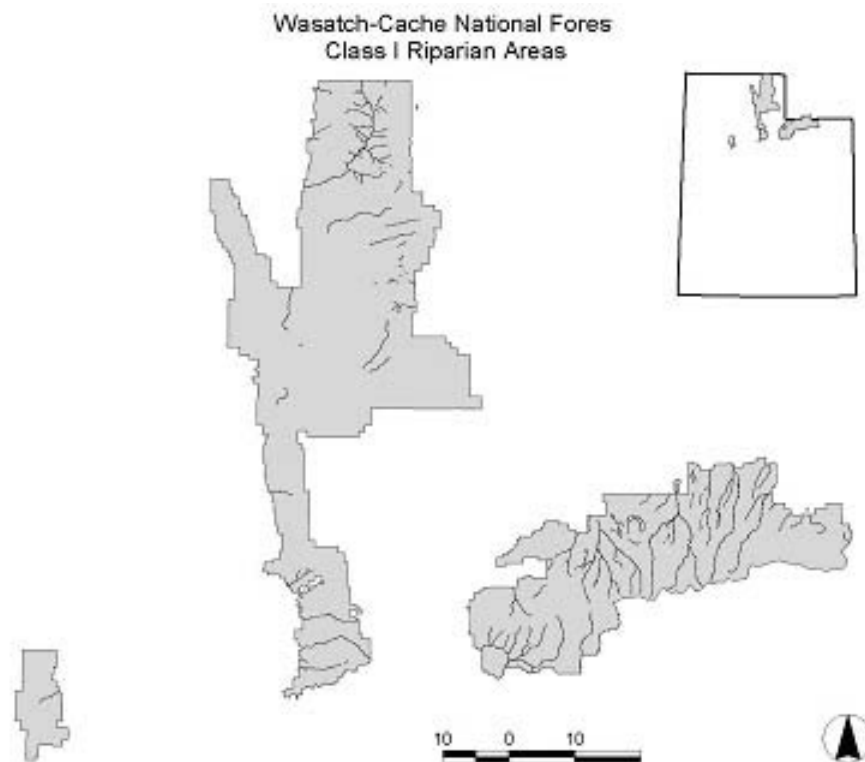


Figure 2. Distribution of Class I Riparian Areas across the Wasatch-Cache National Forest.



DO RANGELAND PLANT COMMUNITIES HAVE DESIRED SPECIES COMPOSITION AND IS GROUND COVER ADEQUATE?

Both inventory and monitoring methods were conducted on allotments throughout the Wasatch-Cache National Forest. An inventory is a one-time snapshot used to determine existing conditions on the ground. Monitoring, on the other hand, is used to show change in these conditions over time (trend). In 2003 an integrated inventory process for determining rangeland conditions on the Wasatch-Cache National Forest was developed and used on over 15,000 acres within five allotments in the Bear River Range (North Rich, Little Bear, Long Hollow, Woodruff, and Dairy Ridge). These inventory methods focused on the four characteristics identified in O'Brien and others (2003): ground cover, species composition, canopy cover of shrubs, and the occurrence of noxious weed species. These inventoried conditions are included in Table 3. For those acres determined to be in unsatisfactory condition, Utilization Guideline 71 (30-40 percent utilization on rangelands in unsatisfactory condition) may be applied in the 2004 grazing season.

Table 2. Allotments with riparian-dependent TES species (Class 1 riparian areas) with Key Areas established for monitoring riparian use by livestock.

Allotment Name	Ecological Section	Key Areas Established?
Box Elder	Bonneville Basin	N
Beaver Mountain	Overthrust Mountains	N
Blind Hollow	Overthrust Mountains	N
Boulder Mountain	Overthrust Mountains	N
Bountiful	Overthrust Mountains	N
Buck Springs	Overthrust Mountains	N
Bug Lake	Overthrust Mountains	N
Causey Creek	Overthrust Mountains	N
Cottonwood	Overthrust Mountains	N
Cowley Canyon	Overthrust Mountains	N
Crawford Frazier	Overthrust Mountains	N
Elk Hollow	Overthrust Mountains	N
Ephraim's Grave	Overthrust Mountains	N
Franklin Basin	Overthrust Mountains	N
High Creek	Overthrust Mountains	N
Little Bear	Overthrust Mountains	N
Little Monte	Overthrust Mountains	N
Logan Canyon	Overthrust Mountains	Y
Long Hollow	Overthrust Mountains	N
North Rich	Overthrust Mountains	Y
Public Grove	Overthrust Mountains	N
Red Wells-Rock Creek	Overthrust Mountains	N
Ricks Steel	Overthrust Mountains	N
Saddle Creek	Overthrust Mountains	N
Smithfield	Overthrust Mountains	N
South Cache	Overthrust Mountains	N
South Randolph	Overthrust Mountains	N
White Rock	Overthrust Mountains	N
Woodruff	Overthrust Mountains	N
Beaver Creek	Uinta Mountains	Y
Blacks Fork	Uinta Mountains	Y
Burnt Fork	Uinta Mountains	N
Curry	Uinta Mountains	N
East Fork Bear River	Uinta Mountains	N
East Fork Blacks Fork	Uinta Mountains	Y
East Fork Smiths Fork	Uinta Mountains	Y
East Fork Smiths Fork	Uinta Mountains	N
Gilbert Creek	Uinta Mountains	Y
Gilbert Peak	Uinta Mountains	N
Henrys Fork – Hessie Lake	Uinta Mountains	Y
Humpy Creek	Uinta Mountains	N
Kamas Valley	Uinta Mountains	Y

Allotment Name	Ecological Section	Key Areas Established?
Larson	Uinta Mountains	N
Little West Fork Blacks Fork	Uinta Mountains	N
Luke Lym	Uinta Mountains	N
Lyman Lake	Uinta Mountains	Y
Meadow Creek	Uinta Mountains	Y
Middle Fork Blacks Fork	Uinta Mountains	Y
Mill Creek	Uinta Mountains	Y
Moffit	Uinta Mountains	N
Mount Elizabeth #2	Uinta Mountains	N
Poison Mountain	Uinta Mountains	Y
Red Castle	Uinta Mountains	Y
Red Mountain	Uinta Mountains	Y
Smith – Morehouse	Uinta Mountains	Vacant
Stillwater	Uinta Mountains	N
Walker	Uinta Mountains	N
Weber River	Uinta Mountains	Y
West Fork Bear River	Uinta Mountains	N
West Fork Blacks Fork	Uinta Mountains	Y
West Fork Smiths Fork	Uinta Mountains	Y
Woodpile	Uinta Mountains	Y

Table 3. Rangeland Conditions on inventoried acres within five allotments in the Bear River Range on the Wasatch-Cache National Forest.

Condition	Acres	Percent
Satisfactory	2,971	19%
Unsatisfactory Seral Status (Species Composition)	6,760	44%
Unsatisfactory Ground Cover	3,377	22%
Unsatisfactory Canopy Cover	1,607	10%
Unsatisfactory Ground Cover & Seral Status (Species Composition)	736	5%
Total	15,452	100%

Monitoring was conducted on allotments throughout the Forest. In the Bear River Range, three new long-term trend (monitoring) studies were established on the North Rich allotment in 2003 on sites that previously had not been monitored. Data collected on other long-term trend studies in the allotment showed that trend is stable and conditions on those sites are currently unsatisfactory.

In the Uinta Mountains, a variety of long-term trend studies (nested frequency, line intercept, photo points, and/or permanent ocular macroplot studies) were established or reread on the Blacks Fork, Beaver Creek, Burnt Fork, Larson, Middle Fork Blacks Fork, Mill Creek, Gilbert Creek, Red Mountain, Walker, West Fork Blacks Fork, West Fork Smiths Fork, and the Elizabeth Mountain #2 allotments. Permanent ocular macroplots studies include a determination of ground cover and species composition, as well as the establishment of permanent general view and ground cover photo points. Long-term trend studies were reread in the Burro Peaks allotment, which was closed in the revised Forest Plan to

maintain big horn sheep habitat. All long-term trend studies in the Uinta Mountains found conditions to be stable or improving.

Ground cover potentials for Uinta Mountains alpine communities are currently being refined based on studies by Sherel Goodrich, Ashley National Forest Ecologist. Goodrich (2004) noted that alpine sites are highly variable and are accompanied by variable ground cover conditions. He found that this variability was associated with relatively small changes in aspect, topographic position, and dates of snowmelt. Tables 4, 5, and 6 list those community types identified by Goodrich and the associated ground cover values for sites at potential. These data will be included in Appendix VII of the Forest Plan, which includes a list of ground cover potentials in cover types across the Forest.

Table 4. Ground cover (percent) for common alpine, upland turf and meadow communities of the Uinta Mountains.

Community type	Number of study sites	Range of ground cover	Average ground cover
Kobresia sedge (<i>Carex elynoides</i>)	4 (3)	85-100	94
Black Alpine Sedge (<i>Carex nigricans</i>)	8	90-100	98
Curly Sedge (<i>Carex rupestris</i>)	12	82-100	95
Timber oatgrass (<i>Danthonia intermedia</i>)	12	86-100	97
Tufted Hairgrass (<i>Deschampsia cespitosa</i>)	8	97-100	99
Bellard's Sedge (<i>Kobresia myosuroides</i>)	15	81-100	96
Sedge-Ross Avens/Ross Avens-Sedge (<i>Carex-Geum rossii</i> / <i>Geum rossii</i> - <i>Carex</i>)	5	80-100	94

Table 5. Ground cover (percent) for some alpine, snowbed communities of the Uinta Mountains.

Community type	Number of study sites	Range of ground cover	Average ground cover
Pyrenean Sedge (<i>Carex pyrenaica</i>)	6	70-98	81 ¹
Parry's Rush (<i>Juncus parryi</i>)	13	48-90	69 ²
Sibbaldia (<i>Sibbaldia procumbens</i>)	4	72-85	79

¹ Average rock cover in this deep snowbed community type was 70 percent. Plant cover averaged 11 percent.

² An average of 18 percent of cover was gravel disturbed by pocket gophers. Average cover of vegetation and litter was 51 percent.

Table 6. Ground cover (percent) for some erosional surface (including talus) communities of the Uinta Mountains.

Community type	Number of study sites	Range of ground cover	Average ground cover
Gordon's Ivesia (<i>Ivesia gordonii</i>)/talus	3	70-75	74
Gordon's Ivesia (<i>Ivesia gordonii</i>)/shale	4	33-85	67



ARE NOXIOUS WEED INFESTATIONS INCREASING OR DECREASING IN NUMBER AND/OR SIZE?

Baseline information regarding noxious weed distributions and population sizes is currently incomplete. Training and inventory to establish these baselines are emphasis items in the 2004 field season.



ARE SPRINGS AND WETLANDS ASSOCIATED WITH LIVESTOCK WATERING FUNCTIONING PROPERLY?

Riparian areas on four allotments in the Bear River Range were fenced in 2003 to improve conditions on riparian areas including associated springs and wetlands. On the Ogden Ranger District, Red-Rock Springs (Woodruff Allotment) was fenced in 2003. In addition, Wheeler Creek on the Dairy Ridge Allotment was partially fenced in 2003 and will be finished in 2004; this area includes several springs. On the Logan District portions of Saddle Creek (Saddle Creek Allotment), which includes several springs, was fenced. One spring at Tin-Cup Springs (North Rich Allotment) and one spring at Temple Fork Pond (Logan Canyon Allotment) were fenced in 2003. In addition, a portion of Mill Hollow (North Rich Allotment) was fenced in 2003 and will be finished in 2004. Like Saddle Creek, this area includes several springs as well as riparian areas adjacent to the creek.

Assessment methods (Lewis and others 2003)³ for determining conditions of riparian-wetland areas such as seeps and springs will be evaluated in 2004 for incorporation into the rangeland assessment process.

³ Lewis, L.; L. Clark, R. Krapf, M. Manning, J. Staats, T. Subirge, L. Townsend, and B. Ypsilantis, 2003. Riparian-Wetland Soils. USDI Bureau of Land Management, USDA Forest Service, USDA Natural Resources Conservation Service. Technical Reference 1737-39. 108 p.

6 Recreation Concentrated Use Areas

FOREST PLAN OBJECTIVES TO ACCOMPLISH DESIRED CONDITIONS

Inventory undeveloped recreation sites in General Forest Areas and identify Concentrated Use Areas (CUA) forest-wide within 1 year.

Develop and implement CUA recreation plans for CUAs prioritizing those areas with the highest use and impacts for both recreation activities and resource conditions. Work with users to design sites meeting their needs and desires while protecting resources including scenery. Complete 1 site-specific plan every 3 years for highest priority areas. Establish appropriate density for designated concentrated use sites for these areas during plan development.

Initiate public education and outreach explaining the purpose of the new management actions during and after development of CUA recreation plans. Communicate through variety of available medias (including signing on site) the opportunities and restrictions within 1 year of plan completions.

ASSOCIATED MONITORING QUESTIONS



WHERE ARE THE CUAS ON EACH DISTRICT? WHICH AREAS SHOULD BE ADDRESSED FIRST BASED ON RESOURCE IMPACTS AND MANAGEMENT NEEDS?

We have completed preliminary inventory work with draft maps showing locations of CUAs.

SALT LAKE RANGER DISTRICT

General Forest Area	Concentrated Use Area Name	Concentrated Use Area Description
Tooele County	Box Elder Pass, Davenport Canyon and Spring, Hickman Canyon and Pass, Magpie Canyon, North Willow, South Willow, Box Elder Pass	4-5 camping sites in each canyon.
Little Cottonwood Canyon	Lisa Falls, Powerplant, Cecret Lake, White Pine Lake, Corner Canyon, LCC Climbing Area	Camping areas (5 sites) and day use areas (7 acres).
Big Cottonwood Canyon	Burnt Flats, Cardiff Fork, Dogwood Climbing Area, Donut Falls, Dog Lake, Ferguson Canyon, Guardsman, Lake Mary, Lake Catherine, Ledgemere Reynolds Flat, Silver Fork, Storm Mtn. Climbing Area, Twin Lakes, Desolation Lake	Camping areas (3-5 sites at each lake). Day use sites (varies from 1-5 acres) and parking areas (about 1,200 sq. ft.).
Mill Creek	Big Water, Clover Springs, Elbow Fork, Gobblers Knob, Lambs Canyon, Neffs Canyon	No data available.
North Davis County	Adams Canyon, Arthur Fork, Steed Creek, Farmington Ponds, Farmington Trail, Farmington Flats, Firebreak, Gold Hill, Kays Creek Spring, Line Creek, Lower and Upper Smith Lake, Sunset Falls	Camping areas, pullouts/parking areas and roads and river corridors. Little data available.
South Davis County	Centerville Firebreak, Deadman's yard and corner, Turtle Look Junction, Prospectors Mine, Ward Canyon Overlook, Morgan County Overlook	Camping areas and parking areas, pullouts. Little data available.

KAMAS RANGER DISTRICT

General Forest Area	Concentrated Use Area Name	Concentrated Use Area Description
Weber River Lakes	Fish Lake, Abes Lake, Anchor Lake, Smith-Morehouse	2-11 camping sites at small lakes.
Lower Canyon	Yellow Pine Lake, Erickson Lake, Hoyt Peak, Upper Setting, Norway Flat	9 camping sites, 9-11 miles of road corridors affected.
High Country	Lakes Country, Hoover Lake, Notch Mtn., Notch Lake, Trial Lake, Moosehorn Lake, Mirror Lake, Lofty Lake, Butterfly Lake, Murdock Basin	Extensive camping areas and day use sites around some lakes.
Weber River Corridor	Gardners Fork, Mud Lake Flat, South Fork Weber River, Swifts Canyon	1-6 miles of river or road corridor affected.
Upper Provo River	Soapstone, Pitt and Page Hill, Broadhead, Spring Canyon, and Iron Mine	2-14 miles of road corridor affected.

EVANSTON RANGER DISTRICT

General Forest Area	Concentrated Use Area Name	Concentrated Use Area Description
Whitney	Whitney Reservoir, Meadow Creek, Coyote Hollow, Whitney Road, Mill City-Gold Hill, Upper Gold Hill, Whiskey Creek, Ruth Lake, Mile Marker 41-Gravel Pit, Main Fork-Gold Hill	Areas range from 8-26 camping sites. Gravel Pit area has 55 sites.
Bear River	North Slope Road, East Fork, Bear River, Lily Lake, Boundary Creek, Stillwater Bridge and Road, Disney, Stillwater, Hell Hole	3 areas have 2-4 sites; most have 15-30 sites.
Mill Creek	Carter Creek, Mill Creek, Upper Mill Creek	6-20 sites
Blacks Fork	Elizabeth Pass, Lyman Lake, West Fork Blacks Fork, South of Ford, Upper Middle Fork, Middle Fork Blacks Fork Bridge, Guard Station, Hewinta Junction, Meeks Cabin	4 areas have 5-10 sites; most have 15-35 sites.

MOUNTAIN VIEW RANGER DISTRICT

General Forest Area	Concentrated Use Area Name	Concentrated Use Area Description
Hoop Lake-Henry's Fork	Burnt Beaver, Beaver-Meadows Trail, Hoop Lake, Lower Burnt Fork, Beaver Creek, West Fork Beaver, Poison Mtn, Henrys Fork-Bullock	Most areas have 5-20 sites; Bullocks has 29 sites.
Bridger	Quarter Corner, Sage Creek, Mistake Road, Cottonwood, Whiskey Springs, Smiths Fork, China Meadows, Johnson Meadows, Slab Park, Gilbert Meadows, Hewinta, West Fork Smiths	3 areas have 5-8 sites; remaining have 10-19 sites.

OGDEN RANGER DISTRICT

General Forest Area	Concentrated Use Area Name	Concentrated Use Area Description
Avon-Liberty	Public Hollow, Flat Canyon	2 areas have 3 camping sites; one has 16.
Causey	Causey Reservoir	11 campsites
Curtis Creek	New Canyon, Old Canyon, Curtis Creek, Six Bit Spring, Running Water	3 areas with the number of campsites ranging from 20-32 per area.
Middle Fork	Middle Fork Ogden River	5 campsites.
Monte Cristo	Dry Bread Pond, Wasatch Ridge, Dairy Ridge	3 areas with the number of campsites ranging from 23-52 per area.
North Ogden	Coldwater Canyon, Dock Flat	10 campsites.
Snowbasin	Art Nord, Maples	2 areas; one with 5 campsites the other with 20 campsites.
South Fork	Beaver/Red Cliff, Lariat	2 areas; one with 8 campsites the other with 22 campsites; additional use along 4 miles of the river corridor.
Pineview	Pineview Reservoir	5 pull-outs or parking areas.

LOGAN RANGER DISTRICT

General Forest Area	Concentrated Use Area Name	Concentrated Use Area Description
Logan North	High Creek, Smithfield Canyon, Green Canyon, Gus Lind Flat, Second Dam, Spring Hollow, Right Hand Fork, Logan Canyon Highway sites, Cowley Canyon	5-30 campsites in each area. Highest use areas in Green, Smithfield and High Creek Canyons.
Logan South	Left Hand Fork, Herd Hollow, Millville Canyon, Providence Canyon, Adams Corral, Richards Hollow, Danish Dugway, Dip Hollow, Hummingbird Spring, Saddle Creek, Elk Valley Guard Station, Side Hill Spring, Nebeker Spring	Areas with less use range from 2-5 campsites per area. Most heavily used areas are Left Hand Fork, Providence Canyon, and Millville Canyon.
Logan East	Hodges Canyon, Sinks Road, Hells Hollow, Kearl Pond, Dugway Springs, Peter Sinks	Heavy use along the Sinks Road totaling 68 campsites. Other areas range from 4-8 campsites.
Logan Canyon West	Cottonwood Canyon, East of Temple Fork, Twin Creeks, Forestry Camp, Tony Grove Road, Franklin Basin Road, Steep Hollow, Crescent Lake, Boss Canyon, Bunchgrass Trailhead, Temple Sawmill	3-13 campsites.
Mount Naomi	Beaver Ponds, High Creek Lake, Coldwater Springs, Sheep Camp, Top of Green Canyon, Cottonwood Canyon, Smithfield Canyon, White Pine Lake, Steam Mill Lake, Cherry Creek, Smithfield Canyon, Birch Creek	White Pine Lake is heavily used with 20 campsites; other areas range from 2-5 campsites.
Wellsville Mountains	Tolman, Maple Bench, Wellsville interior camps, Coldwater West, Rattlesnake, Deep Canyon Trailheads	Parking areas and pullouts affecting 600-2,500 sq feet 2 areas; one with 5 sites the other with 20 sites.



ARE WE MANAGING CONCENTRATED USE AREAS TO PROVIDE FOR RECREATIONAL AMENITIES WHILE MEETING STANDARDS AND GUIDELINES FOR RESOURCE PROTECTION?

It is premature to report on this item at this time.

7 Major Trail Development

FOREST PLAN OBJECTIVES TO ACCOMPLISH DESIRED CONDITIONS

Focus trail development and management emphasis on the Bonneville Shoreline and Great Western trails, working with the public and other agencies to complete these trails using partnerships and grants as much as possible, while minimizing impacts to big game winter range, adjacent property owners and wilderness.

Coordinate with State, Counties, BLM and local partners to establish a trail system (Shoshone Trail) in northern Utah to address the demand for motorized trail recreation while decreasing unauthorized uses in more sensitive areas.

ASSOCIATED MONITORING QUESTIONS



ARE TRAIL DEVELOPMENT EFFORTS FOCUSED ON DEVELOPMENT AND MANAGEMENT OF THE BONNEVILLE SHORELINE TRAIL (BST), GREAT WESTERN TRAIL (GWT) AND EXTENDED TRAIL OPPORTUNITIES, SUCH AS THE SHOSHONE TRAIL CONCEPT?

The following descriptions form a baseline to measure future year's accomplishments for these trails.

Bonneville Shoreline Trail

In Salt Lake County there currently is 5.3 miles (2.7 miles of this is on other system trails) of existing BST with additional miles on other ownership property. The recommended route could add another 10 to 11 miles on the Forest in Salt Lake County. In Davis County, much of the recommended BST route currently exists, but it hasn't been formally included yet as Forest Service system trail.

On the Ogden Ranger District, there currently exists 1.46 miles of the BST with additional miles on other ownership property.

No portion of the BST has been completed on the Logan District.

Great Western Trail

Most of the Great Western Trail exists on the Forest. Recent efforts for the GWT have concentrated primarily in providing needed trail maintenance and signing. Districts are looking at route alternatives with the Great Western Trails Association for needed and missing segments of the GWT.

On the Salt Lake Ranger District 34 miles are in place with an additional 32.5 miles on the Ogden Ranger District. Nearly 27 miles are in place on the Logan Ranger District.

Northern Utah Motorized Trail System

Both the Logan and Ogden Ranger Districts are involved in the planning and implementation of a long motorized OHV trail network in Northern Utah, utilizing mainly existing roads and trails and creating loop opportunities. This network is known as the "Shoshone Trail". A Memorandum of Understanding has been signed with most affected land management agencies or local governments. A draft map was developed and carsonite road signs were installed the summer and fall of 2003.



The Ogden District is analyzing the motorized recreation opportunities as part of their district travel plan revision. (See topic 2 for more detail on this effort).



ARE WE WORKING WITH THE PUBLIC AND OTHER AGENCIES TO COMPLETE THESE TRAILS USING PARTNERSHIPS AND GRANTS AS MUCH AS POSSIBLE?

The Worm Fence Trail in Logan, a segment of the BST, is being reconstructed through a grant with State Parks and Recreation.

Logan Ranger District has been working with the Bear River Association of Governments on the BST, who recently have developed a plan for the route in Cache and Box Elder counties.

The Ogden District works closely with the Ogden Trail Network and Weber Pathways organization on numerous trail issues. They recently completed a conceptual map of where the BST may need to run from the Beus Trailhead south to Interstate 84. Box Elder County has developed a conceptual plan for the trail from North Ogden to Brigham City. Sections of this trail on National Forest were inventoried during the 2003 summer.



ARE WE MINIMIZING IMPACTS TO BIG GAME WINTER RANGE, ADJACENT PROPERTY OWNERS, WILDERNESS AND RESOURCES?

The Mount Naomi Wilderness boundary was adjusted with the Mount Naomi Wilderness Boundary Adjustment Act in October 2003 to allow for a very short segment of the BST to be open to mountain bikes. The Act removed 31 acres containing non-conforming uses (including the segment of trail) and added 31 acres in the upper reaches of Green Canyon.

There have been several recent land acquisitions on the Salt Lake Ranger District that benefit the BST in Salt Lake and Davis Counties. These land acquisitions will also provide Forest access and protect winter game range and watershed resources.

- Maguire Canyon – north of North Ogden
- Corbett Creek – east of Layton
- Fernwood/Wall Land Parcel – east of Layton
- Farmington Bench Parcel – between Fruit Heights and Farmington
- Parish Canyon – east of Bountiful
- Bear Canyon – east of Draper
- Jefferson Hollow – north of Little Cottonwood Canyon
- Deaf Smith - north of Little Cottonwood Canyon
- Tolcat Canyon – above Wasatch Blvd.

8 *Management Indicators*

ASSOCIATED MONITORING QUESTIONS



WHAT ARE BASELINE AND POPULATION TRENDS FOR THE FIVE SPECIES SELECTED AS MANAGEMENT INDICATORS (MIS)?



ARE FOREST MANAGEMENT ACTIONS AFFECTING MANAGEMENT INDICATOR SPECIES (MIS) AND WHAT IS THE RELATIONSHIP BETWEEN HABITAT AND POPULATION TRENDS?

POPULATION MONITORING FOR TERRESTRIAL MIS:

Goshawk

Goshawks were selected as management indicator for aspen, conifer and mixed conifer vegetation types. Although they use a variety of age classes and structural stages, they are more commonly found in forests with mature and old growth characteristics. Because of goshawks' mobility (it is a moderate range migratory species with some birds traveling from northern to southern Utah in winter), population for the purposes of MIS monitoring is defined as forestwide.

The location of goshawk nests and territories has been recorded for several years. In 1999 with the imminent release of the Utah Northern Goshawk Project (March 2000) monitoring was formalized. Prior to 1999 survey records were kept (most surveys were accomplished to gain information for proposed projects) but little monitoring was accomplished. Surveys provide information on presence whereas monitoring will provide information on changes over time (trends). Since 1999, survey work has continued for proposed projects. Surveys are conducted with pre-dawn listening in the early stages of mating behavior each year, noting nests in winter when leaves are not on aspen trees, and validating species and nesting activity in the spring. Because of survey activity for new proposed project areas each year, the number of known nesting territories across the forest has increased over time.

Since 1999 we have also monitored from 66% to 100% of all known nesting territories for occupancy each year. The percent of monitored territories found to be active has varied from a low of 23% in 2000 (100% of known territories were monitored) to a high of 48% in 2001. Known territories that were active during these years averaged 37%.

Status of goshawk nesting territories on the Wasatch-Cache National Forest					
	Year 1999	2000	2001	2002	2003
Number of Known Territories	29	31	34	35	45
Territories Monitored	20	31	23	33	41
Active Territories	7	7	11	14	16
% of Monitored Territories Active	.35	.23	.48	.42	.35

Given the Forest-wide data and monitoring on the Forest the trend for goshawk is considered stable.

Of the 506,200 acres of aspen, conifer and mixed conifer vegetation types identified as available goshawk habitat in the FEIS for Plan Revision, 1,682 acres (.3%) were changed through vegetation treatments and escaped wildfires during the first year of Revised Plan implementation. The changes were primarily to younger age classes with different structural characteristics and from conifer to aspen (see Topic 3 Vegetation Management).

Beaver

Beaver were selected as management indicator for riparian areas. Beaver monitoring was designed and initiated during this first year of Revised Forest Plan implementation. The Wasatch-Cache National Forest includes two distinct areas that can be assumed to support separate beaver populations. These are the Wasatch and Bear River Mountain ranges (Overthrust Ecological Section) and the Uinta Mountains. Populations for the purposes of MIS monitoring will be tracked and reported for these two areas of the Forest. Beaver are not present in the Stansbury Mountains in the Bonneville Basin Ecological Section.

Surveys were conducted to identify active beaver colonies within randomly located Sections (1 square mile) across the Forest. Results are estimates of beaver per square mile. Where beaver habitat is present we can also estimate beaver per mile of stream.

After initial surveys in 2003 and 2004, identified sections will be monitored every 3 years. To estimate beaver populations it is assumed that a family will consist of 6-8 individuals. This would include a pair of adults and young from two years, since young will stay with parents for two seasons (Hilfiker, 1991, pg. 16). The following table shows results of initial surveys conducted during the first year of Plan implementation.

Ecological Section (ES)	No. of Sections (square miles)	No. of Sections Surveyed 2003	Sections with Active Dams	Sections with Old Activity (No current activity-potential habitat)	Sections with No Potential Habitat
Overthrust ES (Districts 6, 7, and most of 1*)	71	15	0	4	11
Uinta Mountains (Districts 3, 4, and 5)	37	15	10 dams in 5 sq. miles (3,200 acres)	10	0
Total	108	30	5 (10 dams)	14	11

Conclusions about population trend and/or habitat relationships cannot yet be drawn from the Forest Plan monitoring data.



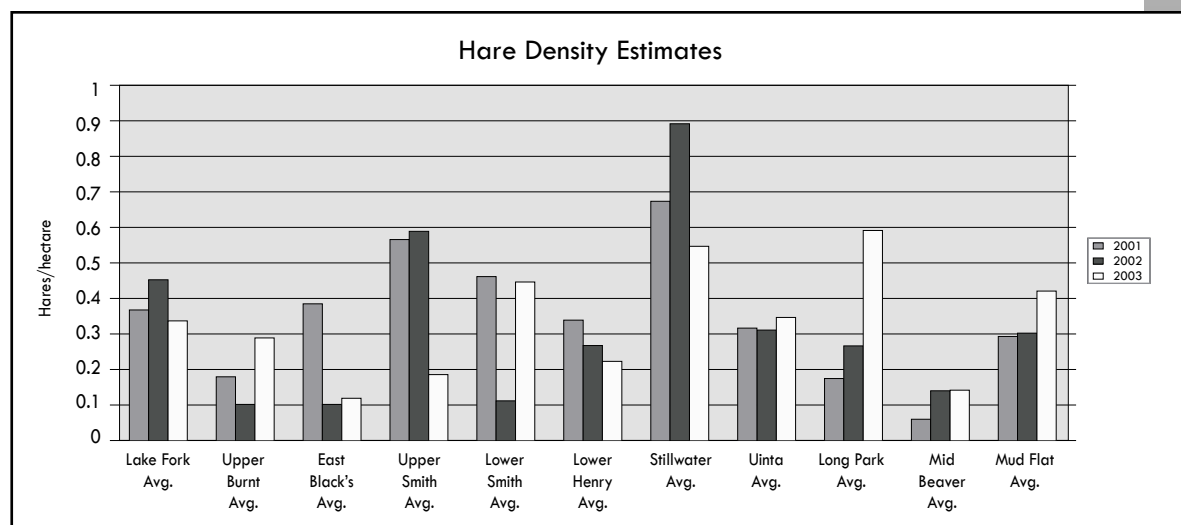
Snowshoe Hare

Snowshoe hares were selected as management indicator for pole/sapling aspen, conifer, and mixed conifer. Given known home range sizes (12-49 acres) and relatively limited (generally less than two miles) dispersal characteristics (NatureServe, <http://www.natureserve.org>.) populations for the purposes of MIS monitoring will be tracked and reported as distinct for the Uinta Mountains and for the Wasatch/Bear River Ranges.

Snowshoe hare transects were set up for a portion of the Uinta Mountains Ecological Section (ES) in 2000 by Brigham Young University student Kevin Bunnell, working on a Masters Degree. The results of this work are shown in the figure and table below:

Snowshoe Hare Densities – Uinta Mountains (Kamas, Mt. View, and Evanston Districts). (Bunnell 2003)

Area	2001	2002	2003
Kamas District			
- Mud Flat	0.29	0.3	0.43
Evanston District			
- East Blacks	0.39	0.1	0.11
- Stillwater	0.68	0.89	0.55
Mt. View District			
- Upper Burnt	0.18	0.1	0.29
- Upper Smith	0.58	0.59	0.21
- Lower Smith	0.47	0.11	0.45
- Lower Henry Fork	0.33	0.28	0.23
- Mid Beaver	0.06	0.13	0.22
Average	0.37	0.31	0.31



Snowshoe Hare Densities – Total Study Area (Drainages not listed in table above are on the Ashley National Forest). (Bunnell 2003)

On the Wasatch-Cache portion of Bunnell's study there was a three year average of .33 hares/ hectare. For the remainder of the Uinta Mountains we have added transects in vegetation types not included in the Bunnell study. These will be read for the first time in 2004. Transects must be swept of pellets the year prior to their reading. For the Overthrust Ecological Section, transects have been established and swept in 2003 and will be read for the first time in 2004. Wolfe's work on the Bear River Range in Northern Utah from 1973 through 1978 (Wolfe, et.al. 1982 and Ruggiero et.al. 1999) showed .36 hares per hectare. These studies are representations of populations in the Forest during their respective time periods and although they are only two points in time, they are our best indication that snowshoe hare have been stable across the Forest over this period of time.

In addition, on the Logan District, within the Overthrust Ecological Section, one transect was established in 1998 by a now retired Utah Division of Wildlife Resources employee. This transect was first read in 1998. The Forest Service re-read it in 2003. The results of annual monitoring are displayed below.

**January and February snowshoe hare track counts and mean
July snowshoe hare pellets counted per 100 m²**

	1998	1999	2000	2001	2002	2003
January and February track counts	111	255	54	64	51	272
Mean July pellet counts per 100m ²	--	94.0	29.5	98.8	562.9	785.3

The large increase in the 2002 and 2003 pellet counts coincides with an increase in hare population although it is not possible to positively determine the cause. It is possible, however, that this increase is part of the natural eight to 11 year population fluctuations known to occur in the species. Ruggiero, et.al. (2000) noted that the most recent peak densities (prior to his 1999 publication) occurred in 1990 and 1991. One transect is insufficient to draw conclusions on population trend and/or habitat relationships.

Of the 556,800 acres of aspen, conifer and mixed conifer vegetation types identified as potential snowshoe hare habitat in the FEIS for Plan Revision, 1,682 acres (.3%) were changed through vegetation treatments and escaped wildfires during the first year of Revised Plan implementation. The changes were primarily to younger age classes with different structural characteristics and from conifer to aspen (see Topic 3 Vegetation Management).

References

Hilfiker, E.L. 1991. Beavers – Water, Wildlife, and History. Heart of the Lakes Publishing, Interlaken, New York 14847.
Ruggiero, L.F., et al. 2000. Ecology and Conservation of Lynx in the United States. Boulder: University Press, Colorado.

POPULATION MONITORING FOR AQUATIC MIS:

Monitoring Approach

Bonneville and Colorado River cutthroat trout were selected as management indicators for aquatic habitats. A population is a reproducing and recruiting group of individuals that are geographically or biologically isolated. For cutthroat trout, fish biologists often refer to metapopulations. Metapopulations are collections of localized populations that are geographically distinct yet are genetically interconnected through natural movement of individuals among populations. Metapopulations have a greater chance for long-term persistence and recolonization after natural or man-caused disturbances than isolated populations. Historically most populations were part of a larger metapopulation.

The following factors were considered in the selected monitoring approach:

- Each stream has a limited production capacity. Changes in production from habitat alteration may be seen in either a shift in number of fish or the size/condition of the fish or there may be no change in either factor. For example: a drainage producing enough nutrients to sustain 50, 2 pound fish, should support 100, 1 pound fish. However, a 12 inch fish that weighs one pound is quite different than a 12 inch long fish weighing a half a pound. Length and weight, as well as total number of individuals are important sampling factors. To take this into account, we look at total fish biomass being produced and the size/condition of the fish collected. Species composition is also a concern and is monitored to gage the long-term health of cutthroat trout populations.
- We have a large number of populations and some metapopulations across the Forest. A single stream may actually contain more than one population. These populations may form part of a metapopulation or may be isolated from each other. Populations can be isolated by physical barriers like dams and culverts and/or by biological barriers such as water temperature.
- Changes in one population may or may not be reflected in another population in an adjacent drainage.
- It is not economically feasible to survey all of the streams on the Forest each year.
- A number of streams contain non-native fish. This probably affects the number and potential size of native cutthroat found in annual monitoring.

Surveys for monitoring cutthroat trout on the forest were designed taking the above factors into account. We collected information on population numbers, fish conditions and fish biomass as well as species composition. The method consists of extensively surveying one drainage area (4th level Hydrologic Unit Code (HUC)) each year. This provides a snapshot of the entire HUC at one time. The approach allows for the comparison over time of results for the full HUC, or for what is happening in individual stream sections surveyed. Over a ten-year period (about two full generations of fish) all of the HUCs will be surveyed to provide a Forestwide perspective of changes in fish populations and species composition for trends.

Appendix B3 of the Final Environmental Impact Statement for Wasatch-Cache National Forest Plan Revision (February, 2003, Tables B-3-6 through B-3-16) contains extensive information on cutthroat trout populations based on surveys conducted by the Utah Division of Wildlife Resources and the Forest Service from 1993 through 2001 across the Forest. A total of ten drainages were found to support cutthroat trout populations (Table 8.1).

Table 8.1. Drainages on the Wasatch-Cache National Forest containing populations of cutthroat trout and corresponding FEIS Tables with specific population information.

Bonneville Cutthroat Trout	
Drainage	Population info. FEIS Appendix B
Upper Bear River	Table B-3-10, pg. B3-48-49
North Cache Valley	Table B-3-10, pg. B3-52
South Cache Valley	Table B-3-12, pg. B3-54-56
Weber River	Table B-3-13, pg. B3-59
Ogden River	Table B-3-14, pg. B3-61-63
Salt Lake County (Jordan River)	Untitled Table, pg. B3-66
Provo River	Table B-3-15, pg. B3-64
Colorado River Cutthroat Trout	
Drainage	Population info. FEIS Appendix B
Henrys Fork	Table B-3-6, pg. B3-42
Blacks Fork	Table B-3-7, pg. B3-44
Muddy Creek	Table B-3-8, pg. B3-46

Monitoring Results

In the first year of Revised Forest Plan implementation, the Wasatch-Cache National Forest conducted fish surveys in the headwater tributaries of the Bear River Drainage (Figure 8.1, Table 8.3). This work repeated surveys conducted initially in 1994 and added some additional streams to provide more comprehensive data. The State of Utah, Division of Wildlife Resources, also conducted fish surveys on private lands downstream of the Forest and on the lower mainstem streams on the Forest in a few locations.

The data collected during the summer of 2003 for each stream section is combined to identify cutthroat trout population trends for 6th level HUCs within the Upper Bear River Drainage and compared with data collected during 1994 in Table 8.3. These comparisons included cutthroat per mile, biomass in pounds per acre and average condition indexes for fish over 100 mm by species. A comment section is used to identify major events or information that may influence the interpretation. Combined trends for each of these three factors resulted in a section trend. Section trends were combined to generate a trend for cutthroat in each 6th level HUC. For those interested in detailed information and explanations from the 2003 surveys see Cowley, 2003. For details on Aquatics MIS monitoring see Cowley, 2004. These are also posted on our website.

Table 8.2. How changes in fish/mile, biomass and condition factors are summarized for Section Trend.

Fish/mile	Biomass	Condition Factor	Section Trend
Down	Down	Down	Down
Down	Down	Up	Down
Down	Up	Up	Flat
Flat	Down	Up	Flat
Up	Down	Down	Flat
Up	Down	Up	Up
Up	Up	Down	Up
Up	Up	Up	Up

Table 8.3. Cutthroat trout trends of the Upper Bear River Drainage (HUC-14040107), Wasatch-Cache National Forest.

Subwatershed and 6th Field HUC Number	Revised Forest Plan Trend Projection	1994 to 2003 Data for Population Trend Comparison	Comments
East Fork Bear River 160101010101	Flat	Flat	The 2002 East Fork Fire burned the middle portion of this drainage leaving the headwater unimpacted. In the summer of 2004, after 2003 sampling, heavy rains below the sample sites on the East Fork caused landslide, killing fish in a portion of the mainstem East Fork. Data collected in the lower mainstem of the East Fork of the Bear River, compared with 1965 data collected at the same location, suggest that cutthroat trout population are remaining flat (Thompson 2003).
Stillwater Drainage 160101010102	Flat	Flat	The Stillwater Fork Drainage continues to receive heavy recreational fishing pressure low in the drainage. Data collected in the lower mainstem of the Stillwater Fork, compared with 1953 data collected at the same location, suggest that cutthroat trout population are expanding in their downstream distribution, with only sculpin being collected in the earlier sample (Thompson 2003). Demand from local anglers has caused the Utah Division of Wildlife Resource (UDWR) to resume stocking of rainbow trout low in the drainage.
Hayden Fork 160101010103	Down	Flat	The Hayden Fork Drainage continues to receive heavy recreational fishing and dispersed camping throughout the drainage. Data collected in the lower mainstem of the Hayden Fork, compared with 1953 and 1970 data collected at the same location, suggest that cutthroat trout population are expanding in their downstream distribution, with only sculpin, mountain sucker and leatherside chub being collected in 1953 and rainbow trout recorded in the 1970 sample (Thompson 2003).
West Fork Bear River, Meadow, Humpy, Deer Creek 160101010104	Flat	Flat	The West Fork Bear River continues to see high recreational use around Whitney Reservoir. Demand for a recreational fishery is high. Data collected in the lower mainstem of the West Fork of the Bear River, off Forest, compared with 1964, 1971, 1985 and 2003 data collected at the same location, suggest that cutthroat trout population are increased through 1985 and dropped in 2003 (Thompson 2003). Differences in sampling methods may also have influenced this data. In 2003 brook trout were also collected for the first time. This corresponding to what was found in the Forest Service collections upstream.
Lower Part near Guard Station 160101010105	Down	Flat	The mainstem Bear River was sampled for the first time on Forest in 2003. The Flat trend is based on the expansion of cutthroat trout in the Stillwater Fork and the Hayden Fork as identified above.
Mill Creek Drainage 160101010201	Flat	Flat	Mill Creek was sampled previously by UDWR in 1954, 1973 and 2003 (Thompson 2003). The 1954 and 1973 samples were taken at about the Forest Boundary, which is close to the lower sample location of the Forest Service. Cutthroat trout appear to be increasing in this section with a density estimate in 1954 of 40 fish per mile, in 1973 of 380 fish per mile and the Forest Service estimate in 1994 of 302 fish per mile and in 2003 of 421 fish per mile. The upper section showed a decrease in population, therefore the trend is left flat because of the impacts of the 2002 East Fork Fire in the upper part of this watershed.

Literature Cited

Cowley, PK. 1995. Fish surveys on the Wasatch-Cache National Forest. Uinta and Wasatch Cache National Forest. Salt Lake City, Utah.

Cowley, PK. 2003. Fish surveys on the Wasatch-Cache National Forest during 2003. Wasatch Cache National Forest. Salt Lake City, Utah.

Cowley, PK. 2004. Monitoring Topic 8 Aquatics Technical Report, Wasatch Cache National Forest. Salt Lake City, Utah.

Thompson, P. Native cutthroat trout (*Oncorhynchus clarki* spp.) Conservation Activities in the Northern Region, 2003. Utah Division of Wildlife Resources, Salt Lake City, Utah.

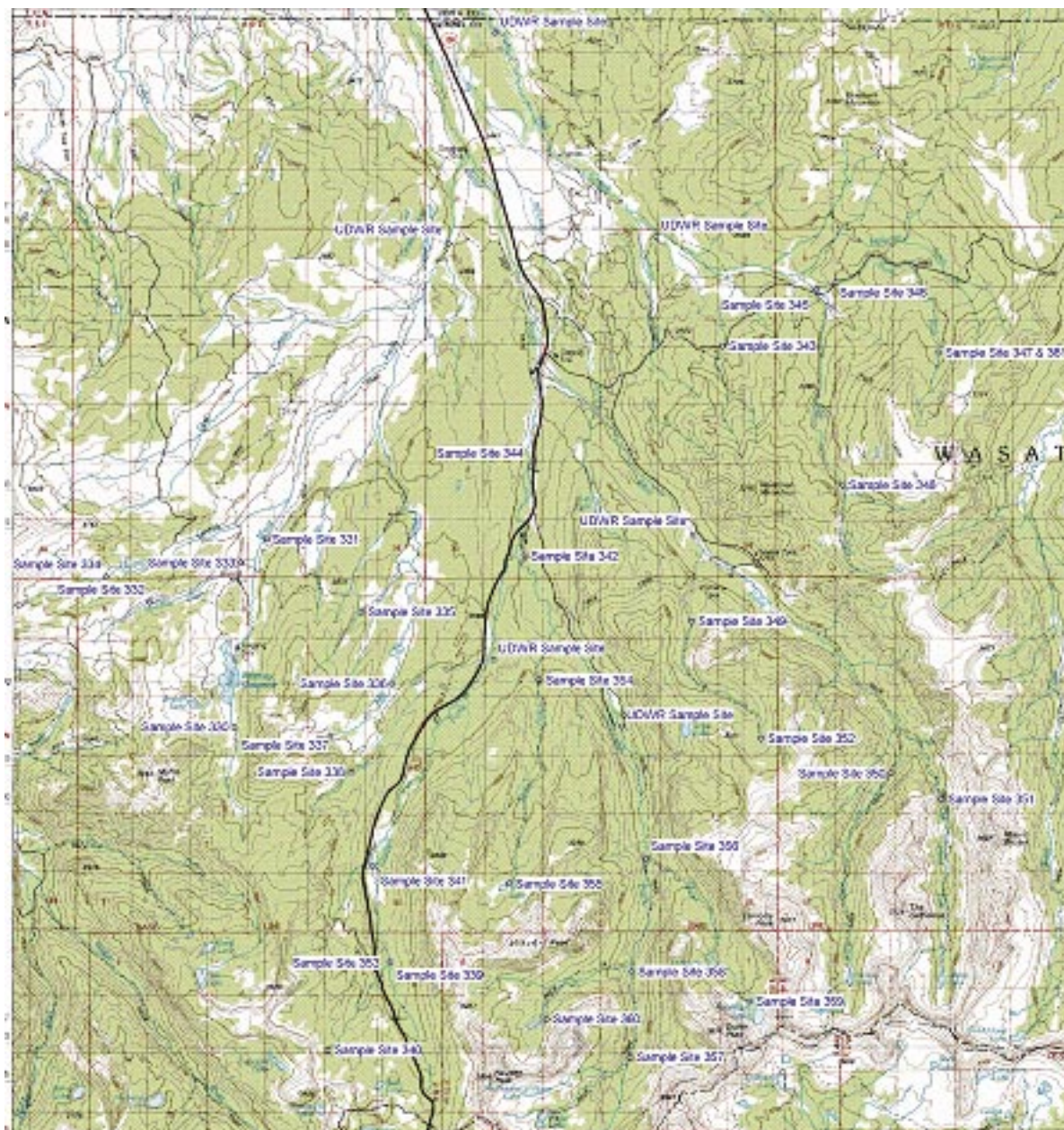


Figure 8.1. Map of fish sampling locations in the upper Bear River Drainage located in Summit County, Utah, 2003. Forest Service sample sites are identified by "Sample Site ##". UDWR sample sites are also identified.



ARE OAK/MAPLE, AND SAGEBRUSH VEGETATION COVER TYPES TRENDING TOWARD PROPERLY FUNCTIONING CONDITION (PFC) (I.E. PROVIDING FOR THE DIVERSITY OF HABITATS THEY PROVIDED FOR HISTORICALLY)?

Status of oak/maple, and sagebrush vegetation cover types: This monitoring of vegetation as management indicator communities has been added to supplement management indicator species. Information has not yet been compiled at this time.

9 *Endangered Species Act*

ASSOCIATED MONITORING QUESTIONS



ARE WE PROTECTING THREATENED AND ENDANGERED SPECIES AND THEIR HABITAT WHILE IMPLEMENTING THE PLAN?

Plants

Botrychium lineare, (Dainty moonwort) is a candidate species for federal listing as threatened. In order to better understand the plant and its habitat, the Forest sponsored a regional workshop where the world's foremost experts instructed Forest Service, and partnering agencies on moonwort life history and habitat.

Bald Eagles at Pineview Reservoir

In the Biological Assessment (BA) for the Forest Plan EIS it was noted that winter recreation around Pineview Reservoir might be disruptive to wintering bald eagles. The BA stated that the Forest Service would monitor this use and devise a plan to minimize disturbance if needed. Numbers of eagles were not monitored since they can vary greatly from day to day and even in the same day. Roost sites and recreational activity was noted.

Sites where bald eagles are routinely seen include:

- Middle Inlet
- Long Road North
- Around the new Snowbasin Road
- Huntsville
- Anderson Cove
- Jefferson Hunt Parking Lot
- Cemetery Point

Recreation activity in these areas is light with only occasional snowmobile tracks and cross country ski tracks. The eagles appear to be quite adaptable and accustomed to people since the most consistent area where they were observed roosting was Huntsville and Cemetery Point, popular use areas.

This monitoring effort will continue but at this point it does not appear that any signing or other restrictions are warranted. The Forest will continue to work with the Utah Division of Wildlife Resources and the US Fish and Wildlife Service in this effort.

10 *Resource Protection*

ASSOCIATED MONITORING QUESTIONS



ARE WE IMPLEMENTING TERMS AND CONDITIONS, MITIGATION MEASURES, BEST MANAGEMENT PRACTICES (BMPs), SOIL AND WATER CONSERVATION PRACTICES (SWCPs), STANDARDS AND GUIDELINES, AND ARE THESE EFFECTIVE ON NEW AND WHERE APPROPRIATE, EXISTING PROJECTS/ACTIVITIES? It is assumed that as mitigation measures, BMPs, and standards and guidelines are implemented on individual projects, their effectiveness will be evaluated and measures will be adjusted as needed to provide resource protection. This section addresses specifically the implementation and effectiveness of mitigation measures and BMPs for the protection of soil, water, and riparian dependent resources.

SUMMARY OF THE IMPLEMENTATION AND EFFECTIVENESS OF FOREST PLAN STANDARDS AND GUIDELINES FOR RESOURCE PROTECTION

Forest plan standard S-2 specifies the application of runoff controls during project implementation to prevent pollution of surface and ground waters. The following reporting on monitoring conducted at Snowbasin shows that, while comprehensive efforts are routinely made during project implementation to control runoff, complete prevention of sediment delivery to streams is a realistic expectation only for the kind of rainstorms most likely to occur during the period of construction disturbance and restoration. Previous monitoring on these projects indicate that runoff control mitigation measures and BMPs were very effective in preventing pollution from storms with up to a 10 year return period frequency. The monitoring also showed that while larger 25 and 50 year return period storms did result in some sediment pollution to streams, the effect was greatly reduced by the presence of runoff control BMPs. Adaptive strategies were implemented following these large storms that resulted in more effective runoff control measures being used. These measures included larger sediment detention basins, and the de-silting of sediment laden runoff in vegetation filter strips.

Forest plan standard S-7 specifies that soil protecting ground cover resulting from activities and projects would be no less than 85% of the potential for that vegetation cover type. This report shows that practices were implemented to effectively re-establish vegetation after ground disturbing projects were completed, but that recovery of ground cover is still dependent upon normal precipitation patterns. In this case, the advent of a prolonged drought has delayed the achievement of standard S-7, a situation expected to be remedied with the return of normal precipitation.

Forest plan guidelines G-3 and G-4 recommend NEPA analysis procedures to ensure that soil and water quality are not degraded as a result of proposed actions. This guideline is not relevant to this report since the activities covered herein were specifically excluded, by public law (Snowbasin Land Exchange Act included in Section 304 of the 1996 Omnibus Parks and Public Lands Act PL 104-333), from analysis under NEPA.

Forest plan guideline G-11 recommends the use of BMPs and SWCPs during project assessment/implementation to protect soil productivity and water quality. The implementation and effectiveness of this guideline has already been covered in the discussion of Forest plan standards S-2 and S-7.

PROJECTS/ACTIVITIES MONITORED IN 2003

Implementation and Effectiveness of BMPs and SWCPs at and around Snowbasin

Mitigation measures and BMPs for the protection of soil, water, and riparian dependent resources are contained in the January 1997 addendum to the 1995 Snowbasin Master Development Plan. Specific measures and practices, from the 1997 addendum, to be reported on here include:

1. Soils BMPs B-1-c, B-2-a, e, and f (erosion/runoff control), B-2-c (topsoil salvage) and B-2-d (soil productivity protection).
2. Water BMPs E-1-c, d, E-2-e and E-2-n (sediment control) E-1-e (wetland protection), E-2-i (groundwater protection), E-2-o and E-6-a (stream channel protection).
3. Fisheries BMPs B-4-a (sediment control, B-4-b (spawning habitat protection), and B-4-c (stream flow maintenance).

BMP Implementation

Implementation of soil BMPs at Snowbasin Ski area was previously monitored following the 1997, 1998, 1999 construction seasons. Summary reports were prepared for each year, and can be found in the forest watershed specialist project files for the ski area.

Generally, the reports found that all of the BMPs listed here were prescribed in the project approval letters, and that most were either implemented or a similar, more effective practice was substituted. Implementation problems were noted for the following BMPs:

- Soil BMP B-2-e: Mulch covers were incorrectly installed on top of snow, or not secured against wind damage.
- Soil BMP B-2-f: Water bar slope interceptor ditches were undersized and installed at too wide of spacing.
- Water BMP E-6-a: Stream flow bypass structures were not installed where snowmaking trenches crossed intermittent channels.

On October 9, 2003, the Forest conducted an interdisciplinary review of BMP implementation associated with the construction of Winter Olympic related projects at the ski area. The team found that during the 2000 and 2001 construction seasons, significant improvement occurred in the installation of water slope interceptor ditches, mulch covers, and stream flow bypass structures. Minor problems were noted where road drainage dips were connected to ski run slope water bars, and where ski run water bars were extended past the edge of the run and into the stream riparian zone.

BMP Effectiveness

1) Olympic Games Construction Projects at Snowbasin Ski Area

Several monitoring efforts in 2003 assessed the effectiveness of soil and water protection BMPs and mitigation measures implemented at Snowbasin Ski area.

The effectiveness of revegetation and restoration of ground cover was monitored by forest service soil scientists in 2002 and 2003, on ski runs constructed or reconstructed between 1997 and 2001. This monitoring is detailed in the reports "Results of Vegetation Monitoring in Bear Hollow at Snowbasin Ski

Resort, Utah” (Rone, 8/12/2002) and “Vegetation Monitoring Results at Snowbasin Ski Resort, Utah” (Rone, 2003). The WCNF Forest Plan monitoring team on October 9, 2003 reviewed results from these reports in the field. BMP measures for ski run revegetation are detailed in the 1997 addendum to the Snowbasin Master Development Plan, and in the individual project approval letters signed by the Ogden RD district ranger.

Specific measures and practices to be reported on here include addendum revegetation direction Water BMP E-2-c and Vegetation BM's A-4-b and A-4-f; and Revised Forest Plan Standard S7. The addendum directs that disturbed areas should be immediately revegetated using native species, and that revegetated sites should be evaluated regularly to determine success. The Forest Plan directs that management activities should result in no less than 85% of potential ground cover for the vegetation type.

Evaluation of revegetated sites at Snowbasin by Rone concluded that ground covers are approaching, but have not reached, 85%. Although native species vegetation establishment and ground cover increased in 1999 and 2000, severe drought conditions in 2002 and 2003 resulted in decreases in these same features. Field review by the WCNF Forest Plan monitoring team observed that native species revegetation success was good on most sites, some sites might need reseeding, and that ground cover overall was not yet meeting Forest Plan Standard S7. The team concluded that, while the prescribed BMPs for revegetation were effective, better effectiveness in meeting ground cover standards would occur under more normal precipitation patterns.

2) Trappers Loop-Snowbasin Road and for the Olympic Loop Road and Parking Area

A team of Region 4 Forest Service watershed specialists monitored the effectiveness of erosion and sediment control practices on April 9, 2003. The team looked at measures implemented on roads and parking areas construction projects between 1999 and 2002, using the Region 5 protocol for Best Management Practice evaluation. Specific mitigation measures for these projects are detailed in the Storm water Pollution Protection Plan for the Trappers Loop-Snowbasin Road and for the Olympic Loop Road and Parking Area.

The team evaluated the following Region 5 protocol activity areas and BMPs:

1. Revegetation of Surface Disturbed Areas (BMP 5.4)
2. Snow Removal/Storage (BMP 2.25)
3. Developed Recreation Sites (BMPs 4.4, 4.5, 4.6, 4.9, and 4.10)
4. Road Surface, Drainage, and Slope Protection (BM's 2.2, 2.4, 2.5, 2.7, 2.10, 2.22, and 2.23)
5. Stream Crossings (BMPs 2.1, 2.4, 2.5, 2.7, 2.10, and 2.23)

Descriptions of these BMPs can be found at:

<http://fsweb.r5.fs.fed.us/unit/ec/water/water-best-mgmt.pdf>

The team concluded that for all the activities monitored, the BMPs were effective in preventing sediment delivery to either the Stream Management Zone or the stream channel itself. For activities 2, 4, and 5, the team observed that erosion control BMPs were effective in limiting erosion to small and infrequent rilling activity. The team found that for activities 1 and 2, revegetation BMPs were effective in meeting forest plan ground cover standards.

Implementation and Effectiveness of Mitigation Measures at Wheeler Creek Trail Complex

Mitigation measures and Best Management Practices for the protection of soil, water, and riparian dependent resources are contained in the 2001 Wheeler Creek Trails Complex Environmental Assessment, Appendix b. Specific measures and practices, from the appendix, to be reported on here include: Erosion Control BMPs EC-6, 7, 10, and 14; Soils BMPs S-4 and 9; Water Resources BMPs WR-12 and 13; Threatened, Endangered, and Sensitive Species BMP TES-17; and Recreation Management BMPs RM-1 and 2.

On October 9, 2003, the Forest conducted an interdisciplinary review of BMP implementation and effectiveness associated with trail construction within the Wheeler Creek system. The team noted that mitigation measures listed in Biological Evaluations/Assessments were incorporated into the NEPA assessment and decision documents. All of the BMPs listed above were noted to have been followed during the implementation of the project.

Effectiveness of BMPs were evaluated by the team in terms of the occurrence of erosion indicators noted on the trail surface, sediment containment between the trail and adjacent streams, and the presence of abandoned trail segments in unstable or non-restored condition. Although the team noted numerous instances where the trail surface is in eroded or otherwise unsatisfactory condition, the feeling was that this is due to use of the trail during wet conditions and not by ineffectiveness of the soil and erosion control BMPs. The team concluded that these practices would be more effective if trail was closed to use during early spring snowmelt periods. The team recommended that recreation management BMP RM-2 be fully implemented to increase the effectiveness of erosion and sediment control BMPs.

11 User Density Thresholds

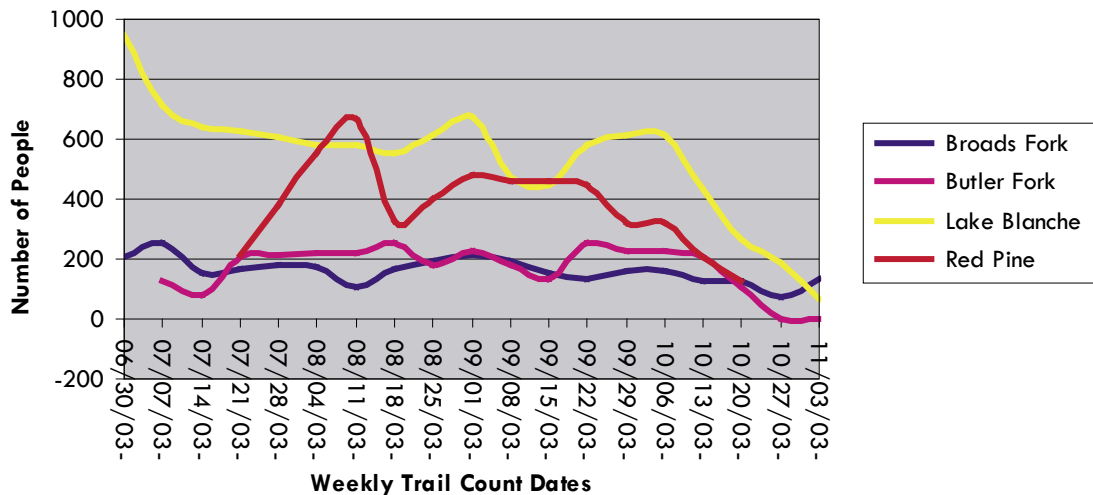
ASSOCIATED MONITORING QUESTIONS



ARE WE APPROACHING USER DENSITY THRESHOLDS IN AREAS MAPPED WITH SEMI-PRIMITIVE RECREATION OPPORTUNITY CLASSES?

We have completed the first year of trail counts for some of the major trails within the Central Wasatch Management Area (Salt Lake Ranger District) classified as Wilderness/Semi-Primitive. We will be collecting trail use information for the next couple of years to establish a base-line trend for the time of year and number of users on these trails. Once user number trends are established we will begin studies on resource impacts and user preferences to assist in the management of these Recreation Opportunity Spectrum Wilderness/Semi-Primitive areas.

**Wilderness/Semi-Primitive Weekly Trail Counts
Summer 2003**



12 NFMA Compliance

ASSOCIATED MONITORING QUESTIONS



ARE WE COMPLYING WITH APPROPRIATE NATIONAL FOREST MANAGEMENT ACT REQUIREMENTS? 36 CFR 219.27 REQUIRES SOME MANDATORY MONITORING RELATED TO TIMBER HARVEST BE CONDUCTED. SOME OF THESE ITEMS ARE NOT MONITORED OR REPORTABLE ANNUALLY.

Regulations require that trees be cut in such a way to assure that knowledge and technology exists to adequately restock the lands within 5 years after final harvest. Stocking of lands in this context refers to how well new trees grow on harvested sites. Monitoring of harvest units has been ongoing since establishment of the 1985 Forest Plan. All harvest units that were scheduled for 5th year stocking survey were surveyed. A total of 532 acres forestwide were certified as stocked in 2003.

The second NFMA requirement that is required to be monitored is to examine if lands identified as not suited for timber production have become suited. This is required every ten years or when the Forest Plan is revised. There are no potential changes to report at this time.

NFMA regulations require harvest units to be limited in size. In Utah and Wyoming this limit is 40 acres for all cover types. This may be exceeded where a desired condition can be achieved. There was no activity that necessitated this item to be monitored between March 2003 and March 2004.

There is a requirement to monitor destructive insects and disease organisms (type and amount) to determine trends in insect and disease. Aerial detection survey maps are reviewed annually. The most recent survey (2003) data indicate that mountain pine beetle caused mortality increased significantly on the Kamas Ranger District, and increased on the Evanston/Mountain View Ranger Districts. Spruce beetle caused mortality increased on Kamas, and Douglas fir beetle caused mortality increased on Logan and Evanston/Mountain View, but was generally at low levels. Mortality of subalpine fir from western balsam bark beetle and other agents is occurring forest-wide, but is generally at low levels.

13 *National Historic Preservation Act*

ASSOCIATED MONITORING QUESTIONS



ARE CULTURAL RESOURCES BEING PROTECTED AS THE FOREST PLAN IS IMPLEMENTED AND ARE MITIGATION MEASURES SUFFICIENT TO PREVENT DAMAGE TO CULTURAL RESOURCES FROM PROJECT ACTIVITIES?

In 2003 there were three projects where project design was altered to protect adjacent archeological sites. As part of emergency stabilization efforts following the East Fork wildfire, 2 roads leading to 3 sensitive archeological sites were closed in the spring of 2003. Effectiveness monitoring was conducted in the fall of 2003. At that time road closures had protected the sites from illegal artifact collecting.

