

Uinta-Wasatch-Cache National Forest



State of the Forest Report for Wasatch-Cache Planning Area Fiscal Year 2011

September 2011

Introduction and Purpose

On March 19, 2003, Intermountain Regional Forester Jack Troyer signed the *Record of Decision* approving the *Wasatch-Cache National Forest's 2003 Land and Resource Management Plan* (2003 Forest Plan). The 2003 Forest Plan has been amended 9 times and corrected 3 times:

Wasatch-Cache Forest Plan Amendments		
#	Title	Date
1	Bear Hodges II Timber Sale (Standard 2.7)	May 2004
2	Snowqualmie Water Tank and Distribution Line (Standard 3.1W)	November 2004
3	Tony Grove-Franklin Basin Winter Recreation (Winter Recreation Map)	December 2006
4	Millville Peak/Logan Peak Road Relocation Project (Standard 2.7)	December 2007
5	Wild and Scenic River Suitability Study for National Forest System Lands in Utah	November 2008
6	Stansbury Vegetation Treatment (Standard 2.6)	April 2009
7	Ogden City Access Road (Standard 3.1W)	April 2009
8	West-Wide Energy Corridor	February 2009
9	Ruby Pipeline Project	February 2010
Wasatch-Cache Forest Plan Corrections		
#	Title	Date
1	Text Errata	November 2003
2	Rangeland Capability/Suitability	July 2009
3	Timber Harvest Standard (openings >40 acres)	July 2010

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

Note: In March 2008 the Uinta National Forest and the Wasatch-Cache National Forest were combined into one administrative unit. Each of these Forests is still operating under individual Forest Plans approved in 2003. When the term Wasatch-Cache is used it refers to the Wasatch-Cache Planning Area of the Uinta-Wasatch-Cache National Forest.

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Resource Monitoring

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.*

In 2011, three projects were reviewed for Forest Plan Resource Monitoring: (1) the Ruby Pipeline Project (2) Benchland Water District's Shepard Creek Reservoir, and (3) Big Pole Burn Revegetation Project. The standards and guidelines listed in the 2003 WCNF revised plan were considered when the specific mitigation and design features were developed for these projects. Therefore, only the specific project mitigation measures and design features that were listed in each decision document were reviewed for implementation and effectiveness.

Ruby Pipeline Project

The Federal Energy Regulatory Commission authorized Ruby Pipeline LLC to construct approximately 680 miles of 42-inch diameter mainline natural gas pipeline and related facilities in a Record of Decision dated July 12, 2010. Approximately 1.2 miles of pipeline crosses the Uinta-Wasatch-Cache National Forest (UWC NF) within a 50-foot right-of-way (ROW). The ROW was issued under a thirty-year permit. Additionally, a 30-foot wide ROW was granted for the upgrade, maintenance, and use of permanent access roads.

The approval of this project necessitated a non-significant Forest Plan amendment. This amendment allows a one-time waiver from sub-goal 12d direction " *Provide for energy needs and limit utility corridor impacts by utilizing currently designated utility corridors to the extent practical for power transmission lines of 66kV or greater and oil and gas pipelines 10" or greater*" to allow placement of the pipeline outside of a designated corridor. The Ruby pipeline alignment would not become a designated Forest Plan corridor. Any future pipelines proposed within this right-of-way would necessitate further analysis prior to any decision being made.

In the Forest's concurrence letter to the BLM dated June 28, 2010 the following conditions of approval accompanied the Forest Supervisor's decision:

- 1) Road use permits will be obtained prior to any construction or road upgrade activities on the UWC NF. All access roads, if improved or upgraded, will be required to be restored to pre-existing conditions after construction.

Findings based on an August 16, 2011 field review:

- *At the time of the monitoring trip, the access road was still being used for revegetation work and reclamation to pre-existing conditions had not yet been implemented. Thus, this condition was not evaluated.*
- *The road does not have the best alignment in a few isolated spots and should be moved slightly.*
- *Water bars were installed on steep slopes per plan spacing; however, they were installed incorrectly. (see **Pipeline Photo 1**) The water bars will need to be removed and reinstalled correctly.*
- *The road is too out sloped; cars may get too close to the soft edge and slide off.*

- 2) If minor route variation occurs, and is approved by the Authorized Officer, additional surveys for threatened, endangered, or sensitive species, raptors, or cultural surveys may be required of the Proponent.

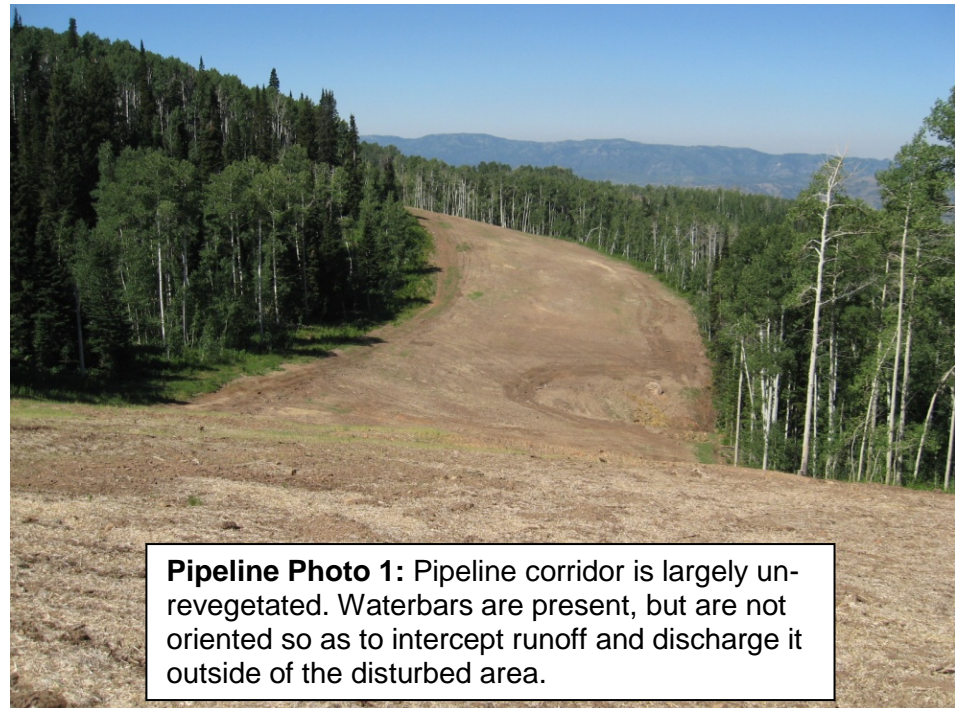
Findings based on an August 16, 2011 field review:

- *Road and pipeline stayed within approved ROW corridors, it was noted immediately adjacent to the ROW there are “old” aspen drawings (>50 years) that need to be protected.*

- 3) Prior to reclamation on the UWC NF, the seed mix must be approved by either the Forest Range Specialist or Forest Botanist.

Findings based on an August 16, 2011 field review:

- *The disturbed areas were seeded with native seed.*
- *The seeding was successful in some areas, and not in others (see **Pipeline Photo 2**). The areas lacking adequate vegetative cover will need to be reseeded.*



Pipeline Photo 1: Pipeline corridor is largely un-revegetated. Waterbars are present, but are not oriented so as to intercept runoff and discharge it outside of the disturbed area.

- *Weed-free hay was required and was reportedly used; however, there was no way for the IDT to validate this. Operators should keep the tags to substantiate that weed-free hay was used.*
- *Unauthorized ATV use off of designated routes is a significant problem on the Ogden Ranger District. A pipeline corridor such as this one that does not line on prohibitively steep terrain or other physical barriers limiting or discouraging illegal ATV use provides an attractive, albeit illegal, opportunity for ATV use. This could impact successful reclamation and erosion of the corridor. Some mitigation that could have been implemented includes is summarized below.*
 - a. *Many trees were removed for the road and pipeline corridor. Some of these could have been kept onsite and put back within the corridor to hinder ATV traffic and provide additional erosion control.*
 - b. *There are no ATV structures in place except for a wire fence that was recently installed; this could impact successful reclamation if not addressed. (see **Pipeline Photo 3** and **4**)*



Pipeline Photo 2 – Erosion Control and revegetation treatments. Note mulch, but failure to revegetate in foreground as opposed to revegetated area in the background.

Pipeline Photo 3: New wire fence. Note adjacent road with no barriers to discourage or prevent illegal ATV use on the pipeline.



Pipeline Photo 4: Forest boundary fence and gate with road directly adjacent to pipeline. Note lack of barriers to discourage illegal ATV use.



Ruby Pipeline Monitoring Summary: In general the pipeline construction project looked good. Required BMPs had been implemented, though some were not fully successful (e.g., revegetation failures, misaligned waterbars, etc.). In addition, measures to address issues such as ATV use and protection of archeological resources discovered during construction (e.g., the aspen art) had not been adequately incorporated into the requirements for or monitored during implementation of this project. The IDT recommends that for future major construction projects such as this, full-time project inspector/liaison, such as is being done on the Kern River Pipeline project, be on site to ensure measures are implemented correctly and timely.

Shepard Creek Reservoir, Benchland Water District

The UWC NF Forest Supervisor approved a Decision Memo on June 12, 2009, authorizing Benchland Water District to construct and operate a pressure irrigation reservoir. A 20 acre-foot open top concrete storage reservoir (approximately 350 ft long x 100 ft wide x 24 ft deep) was constructed on the Forest. An existing and gated low standard Forest road (FR80489) provides access to the reservoir from North Compton Road. Surrounding the reservoir would be a 6-foot high security fence with a 15-foot wide graveled area inside the fence. The majority of the completed reservoir would be below and even with ground level. Approximately 4 acres of public land was be disturbed for the construction of this reservoir and related facilities/improvements.

The Forest Supervisor's approval included the following mitigation:

- 1) A detailed site plan will be submitted to the Forest Service, showing the location of all infrastructure(s) occupying the National Forest, including the concrete reservoir, water transmission pipelines, fence, access roads, and adjacent Weber Basin Water Conservancy District aqueduct easement with water diversion locations.

Monitoring findings:

- *Detailed site plans were prepared by a professional engineer and submitted to the Regional Office for review on January 15, 2010 (prior to construction). The Regional Office approved these plans on February 25, 2010.*
- 2) The design, drawings and specification of infrastructure should be completed by a professional engineer with appropriate professional engineering stamps as licensed by the State of Utah. These documents should be "as built" and will be submitted to the Forest Service for review and approval prior to any ground disturbance or construction. Design plans will be reviewed by the following Forest Specialists: Engineering; Landscape Architect; and Soil Scientist. These plans will include a section containing Storm Water Pollution Prevention Plan. This section should identify the type and location of all runoff, sediment, weed, and access control measures proposed for the project, for review by the Forest Soil Scientist. Staging and material stockpile areas should be clearly marked on this plan as well as the construction access roads.

Monitoring findings:

- *See response to mitigation 1.*

- 3) Construction access and travel management concerns. It is essential that the Compton Bench area remain closed to motor vehicle use by the general public before, during and after construction of the reservoir. Benchland and their designated contractors should plan to cooperate closely with the Forest Service and Farmington City to maintain the existing motorized use closure and travel management gate. The gate and locking system should be improved. Illegal motorized use is occurring by driving around the gate and this needs to be fixed. Benchland should plan on contacting and coordinating with the Salt Lake Ranger District to jointly manage motorized travel in the Compton Bench area.

Findings based on an August 16, 2011 field review:

- *ATV control is effective. Solid gates and rock barriers are in place.*

- 4) The current access road (FR 80489) is a low standard Forest road that runs along the boundary with private land. This road was never designed to support heavy construction equipment and would need drainage and surfacing improvements before being suitable for this use. Drainage from this road would normally discharge onto private land. Design of the drainage improvements should prevent concentration of road runoff by dispersing it at as many points as possible. Drainage features are expected to be fully functional at all times during the construction period and should be maintained when damaged by construction activities.

Findings based on an August 16, 2011 field review:

- *The final pitch of road up to reservoir should have additional fill at the last switch-back to raise the road grade. Water from the roadside is escaping onto the road bed and is starting to erode the road.*

- 5) To prevent the introduction and spread of invasive weed species, all construction equipment working on the project must be power washed before delivery and use on National Forest land.

Findings based on an August 16, 2011 field review:

- *Records reviewed by the monitoring team did not indicate whether this requirement had been complied with or not. However, the monitoring team did observe weeds in the area revegetated (see Shepard Creek Photo 1). However, the entire hill side has weed infestations and these could be the source of the weeds found within the disturbed area. Additional weed treatments in the area would be beneficial.*



Shepard Creek Photo 1: Curlex slope protection, revegetation and weeds.

- 6) A line of sediment fencing should be installed below the cleared area as soon as possible following clearing and be maintained throughout the construction and post-construction restoration phases of the project.

Findings based on an August 16, 2011 field review:

- *Recontouring and seeding has occurred. Erosion blankets have been installed correctly. At the top of the slope a perimeter drain was installed and it appears to be working. There is no evidence of rilling and soil erosion.*

- 7) Excavation of the reservoir itself may generate a quantity of sub-excavation material that is surplus to the needs to the project. This material should not be stockpiled on National Forest land and should be removed as soon as practical. Earthen material needed for construction of the reservoir may be stockpiled at an on-site location that has been surrounded by a line of sediment fencing.

Findings based on an August 16, 2011 field review:

- *All stockpiled earthen material has been properly removed. Based on request from the Forest, large boulders unearthed during excavation were left on-site to be used by the Forest as access point barriers where needed on the Forest.*

- 8) All sediment fencing is expected to be fully functional at all times during the construction period. It should be cleaned periodically of rainstorm sediment and repaired whenever damaged by construction activities.

Findings based on an August 16, 2011 field review:

- *Recontouring and seeding has occurred. Erosion blankets have been installed correctly. At top of slope a perimeter drain was installed and it appears to be working; no evidence of soil erosion/rilling.*

- 9) Other construction issues consist of dust and mud abatement, and disposal of construction waste materials such as concrete. The construction access road should be periodically watered to minimize dust. No washout of concrete trucks will be allowed on National Forest lands. A stabilized construction access will be constructed at the junction of the construction access road and Compton Drive to minimize the tracking of mud onto Farmington City streets.

Monitoring findings:

- *During construction, dust and mud abatement measures were in place; no complaints from surrounding residences were made to the Forest.*

Findings based on an August 16, 2011 field review:

- *No construction waste materials remain on site.*

- 10) Post construction restoration, control of noxious/invasive weeds and prevention of soil erosion. Long term erosion and sediment control, and prevention of weed infestations will be dependent upon effective re-vegetation with native grass species. The Forest Service has developed a native seed mix and seeding prescription for dry, sandy bench sites along the Wasatch front. A copy of this seed mix and prescription will be provided to Benchland. All areas disturbed by construction activities will be seeded as per prescription at a minimum rate of 40 pounds per acre, and then covered with a mulch product that is expected to last and perform as viable mulch for a full year. A specific mulch product should be specified after final grading is completed, for final approval by the Forest Soil Scientist. The seed mix should be certified to be free of noxious/invasive weed species. Seeding should not be done until final grading is completed. For this area the best seeding window would be between October 1 and April 30.

Findings based on an August 16, 2011 field review:

- *There are some weeds present; however the entire hillside has weed infestations. Additional weed treatments in the area would be beneficial.*
- *The seed appears to be applied at sufficient quantity (40 lb/acre). However, it appears that a wrong or contaminated seed mix was used. No forbs are present and there is a very high percentage of annual ryegrass and sunflowers. At this time reseeding is likely not successful because of the curlex blanket. However, a possible corrective action could be to reseed in a couple of years when curlex blanket has broken down or shrubs/sagebrush could hand-planted. This would also benefit deer as this is good winter range.*

- 11) To address potential visual concerns for the completed reservoir structure, security fence and associated cut and fill contour lines, Benchland will insure that the reservoir and associated facilities and the area of ground disturbance will visually blend within the surrounding landscape as much as possible. The security fence should be colored so that it blends into the existing landscape. The color should reflect the darker tones found in the surrounding landscape. Final re-grading of disturbed areas should make every effort to round cut and fill contour lines to blend into the surrounding landform.

Findings based on an August 16, 2011 field review:

- *Visual effects were mitigated. The reservoir is at ground level and the fencing is brown chain-link. The surrounding disturbance has been recontoured and seeded.*

Shepard Creek Reservoir Monitoring Summary: In general the reservoir construction project looked good. Required BMPs had been implemented, though some were not fully successful (e.g., revegetation, weeds, erosion from the access road, etc.). The IDT recommends that for future construction projects such as this, the permit require several years of follow-up weed treatments to ensure success and that seed mixes be inspected to ensure they are weed-free and have the appropriate species.

Big Pole Fire Seeding Project

In August of 2009 the Big Pole Fire burned about 44,923 acres, including about 12,621 acres of the Salt Lake Ranger District of the Uinta-Wasatch-Cache NF. Shortly after the fire was contained a Burned Area Emergency Response (BAER) Team was formed in order to identify and implement emergency response needs on the burn. One treatment identified by the BAER Team was to seed approximately 683 acres of the burned area with a mixture of native and non-native species (seed mix was specified in the BAER Report).

- 1) The area encompassing about 683 acres outside of the wilderness north of Pass Canyon should be seeded with the mixture of native and non-native species in the seed mixture identified in the BAER Report.

Monitoring findings:

- *The area identified was aerially seeded with the seed mix called for.*
- 2) Aerially broadcast seed in late fall just before, or after, the first snow. "The optimal time to apply grass seed to burned areas is before or just after the first snowfall so that the seed will benefit from the moisture provided by spring snowmelt and become established before the following summer thunderstorms." (Groen, Amy H. and Scott W. Woods, 2008). If ... implemented, then the seed for 683 acres will need to be aerially applied in early fall to allow sufficient time for the seed to be covered.

Monitoring findings:

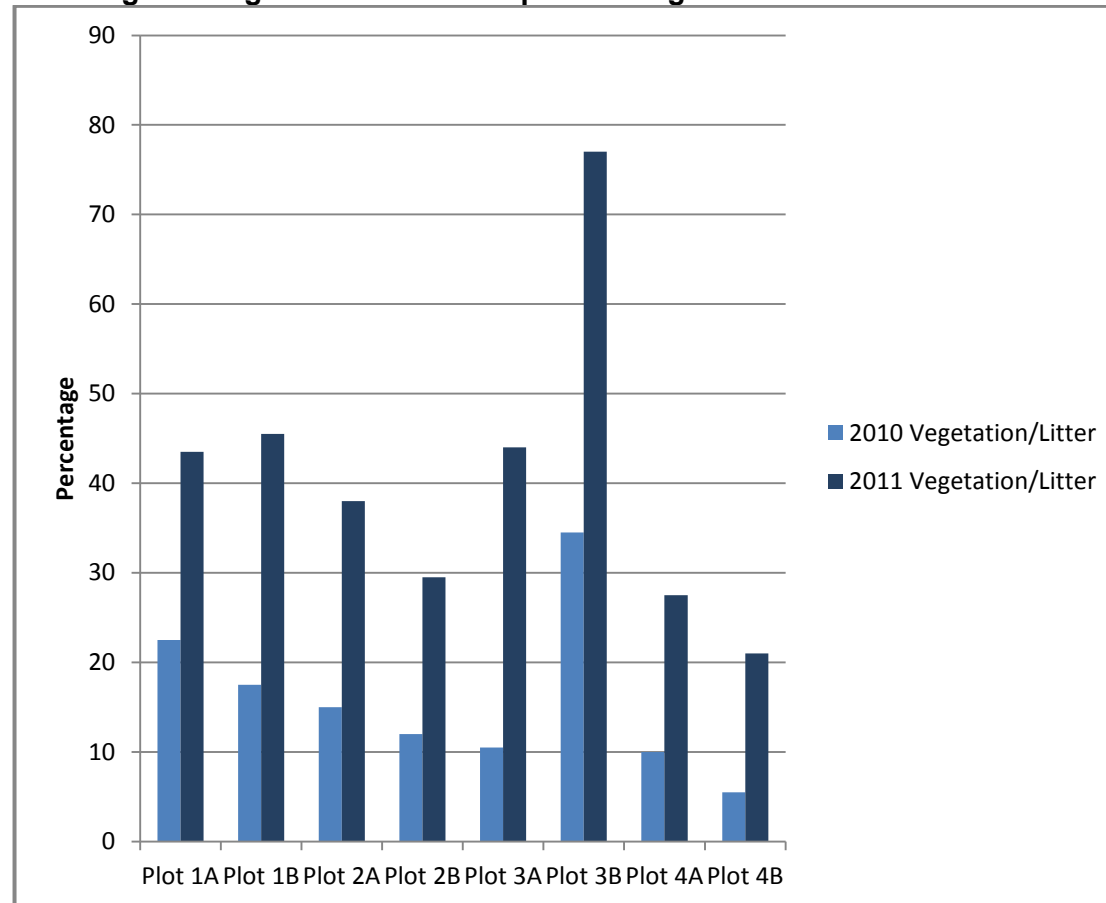
- *The seeding was conducted after the first snow November 6-9, 2009.*
- 3) Although an objective of the BAER emergency seeding treatment is to accelerate the re-establishment of an important winter range plants, BAER funding could not be used to purchase the supplemental seed needed to accomplish this.

Monitoring findings:

- *Non-BAER appropriated (Wildlife/Fisheries) funds coupled with a partnership with Utah Division of Wildlife Resources enabled purchase and application of the supplemental seed. Species added to the seed mix were: Rocky Mountain penstemon, bitterbrush, mountain sagebrush, lupine, and Rocky Mountain beeplant.*
- *Seeding effectively accelerated reestablishment of vegetation. To evaluate the effectiveness of the seeding, Forest Service botanists/ecologists conducted a study (2011. (Duncan, M., K. Richardson and A. Herrera). They established 8 ocular macroplots and 16 line intercept transects. Six plots were established within 3 of the seeded units (#1A-3B), and 2 control plots (#4A and 4B) were established in burned areas that were not seeded. Plots were paired based on aspect and soil type. Percent cover of all species within that radius was recorded. At the center of the ocular macroplot, two belt transects were extended in opposite directions. Ground cover was recorded at 100 points along each of the 2 transects.*

This monitoring study found that growth in the growing season after the fire (2010) was higher in all the seeded plots than in the non-seeded plots. During the second growing season (2011) growth percentages increase in all plots indicating the return of vegetation to the area. Monitoring show that vegetation and litter returned more fully in the second growing season than the first (see the following figure and photos), and that in the seeded plots plant species diversity was much higher than in the unseeded control plots.

Big Pole Figure 1: Increase of percent vegetation from 2010 to 2011.



- *The seeded native grass species were dominant within the seeded plots (nearly 25 percent of total ground cover) whereas, in the control plots they accounted for less than 3% of the total ground cover. This indicates that seeding helped establish native vegetation. Where there was high percentage of seeded grasses observed there was also a high percentage of volunteer species that arose, presumably, from the existing seed bank.*



Big Pole Plot 1A Belt 1 226 deg. 17 June 2010



Big Pole Plot 1A Belt 1 226 deg. 20 June 2011

Big Pole Photos 1 and 2: Seeded plot (#1A) 1 year and 2 years following the burn and seeding. Note the increase in vegetation and ground cover in year 2. Photos of the other seeded plots look similar.



Big Pole Plot 4A Belt 2 38 deg. 2 Nov. 2010



Big Pole Plot 4A Belt 2 38 deg. 16 Aug. 2011

Big Pole Photos 3 and 4: Unseeded control plot (#4A) 1 year and 2 years following the burn and seeding. Note the increase in vegetation and ground cover.

- 4) The 2009 Big Pole Fire BAER Report notes: “The purpose of this aerial broadcast seeding is to protect the ecological integrity of the burned area that will be compromised by an invasion of cheatgrass into the areas where the juniper cover type burned and resulted in moderate and high soil burn severity. This treatment also is intended to prevent an alteration of the fire regime. If these areas convert to a cheatgrass dominated understory, the fire return interval might be 10 times as frequent as the historical fire patterns.”

Monitoring findings of the seeding effectiveness study indicate:

- Cheatgrass (*Bromus tectorum*) was noted in all but one plot in varying concentrations, ranging from less than 0.05% to 4.0% of the total cover; averaging 2.11% (ranging from <0.05% to 4%) on the seeded and 3% (both control plots = 3%) on the control plots. With the limited sample size and variability among the plots, there was no statistical difference between the seeded and control (unseeded) plots. This indicates that, consistent with study results elsewhere, the seeding of native bunch grasses didn't affect the amount of cheatgrass. However, seeding did allow for more rapid recovery of the native ecosystem, thus apparently discouraging establishment of other non-native invasive species.

- *Within the control plots, high concentrations of three other weedy or increaser species, Lactuca serriola, Descurainia sp., and Helianthus sp., were observed with little other diversity. As previously discussed, higher species diversity, and a higher percentage of vegetation and ground cover occurred within the seeded units. The higher species diversity is indicative of a healthier ecosystem.*

- 5) Rest the seeded area, and entire burned area, from livestock grazing for two full growing seasons. This will give the seeded species and residual plants two seasons to grow, set seed and begin to re-establish. The area could be grazed late season 2011 after seed set. The livestock hoof action would help to work some of the shattered ripe seed into the soil.

Monitoring findings indicate:

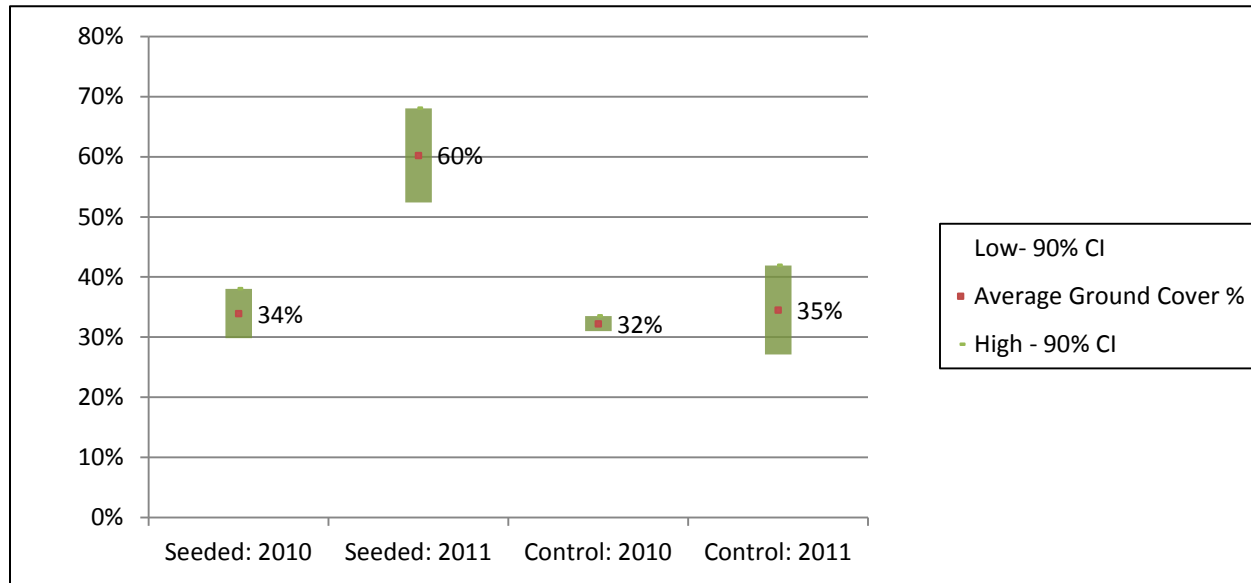
- *The burn area including the seeded units, were rested for 2 years following the burn.*

- 6) A primary objective of BAER treatments is to protect the burned watershed, and to protect life and property downstream/downhill from the burned area. Reestablishment of protective ground cover is a critical facet of achieving these goals.

Monitoring findings of the seeding effectiveness study indicate:

- *In the unseeded control plots this increase in vegetative cover did not result in a significant increase in ground cover. The data shows that while the vegetation/litter component increased (as illustrated above), the amount of exposed soil did not significantly decrease. The amount of rock/soil pavement did decrease suggesting that most of the increase in vegetation and litter "covered" rock/soil pavement. The data collected does not indicate why this might have occurred.*
- *Change in ground cover was also evaluated in the seeding effectiveness study. As can be seen in Figures 2 and 3, ground cover (vegetation/litter and rock/soil pavement) increased the 2nd year following the burn. This is consistent with many other studies. However, different than some similar studies, ground cover and vegetative cover were significantly higher in year 2 in the seeded plots than in the unseeded.*

Big Pole Figure 2: Percent Ground Cover 1 and 2 Years Post Burn, Seeded and Unseeded (90% Confidence Interval)



Big Pole Monitoring Summary: In general the seeding appeared to take (i.e., seeded species were established). However, it had not achieved one of its intended purposes (prevention of cheatgrass). The IDT recommends that for future restoration projects such as this, that seeding be considered to achieve other goals (accelerated ground cover recovery, enhancing species diversity and regrowth of desired species, etc.) but not be employed for this purpose.