

## Highlights of Findings from the Uinta Basin Ozone Study: Preliminary Update from 2014 Field Study

Ozone concentrations in excess of the current national ambient air quality standard (NAAQS) have been measured in the Uinta Basin during winter inversion periods when the ground is covered by snow. The Uinta Basin Ozone Study (UBOS) aims to identify the emissions, meteorological and photochemical processes that cause elevated winter ozone concentrations, and to identify the most effective strategies to reduce winter ozone. Results from detailed scientific measurements made in the Uinta Basin during the winters of 2011-2012, 2012-2013 were summarized in previous Highlights of Findings and accompanying detailed reports ( <http://www.deq.utah.gov/locations/U/uintahbasin/problem.htm> ). Additional measurements targeted at areas of remaining uncertainty were conducted during January – March 2014. Results from this most recent field campaign both confirm findings from the prior two years and provide important additional contributions to our understanding of the emissions, meteorology and atmospheric chemistry associated with winter ozone episodes. Major findings drawn from preliminary analyses of the 2014 data are described below.

### Air Quality and Meteorological Conditions during UBOS 2014

- Conditions favorable for ozone formation occurred at times during the December 2013 – March 2014 winter ozone season. Eight-hour average ozone concentrations exceeded the level of EPA's ambient air quality standard (75 ppb) at seven different locations within the Uinta Basin; Ouray experienced the most exceedance days (17).
- The most severe high ozone episodes of the winter occurred in December: the maximum 8-hour average concentration of the season (102 ppb) was recorded at Dinosaur National Monument on 18 December and concentrations in excess of 75 ppb were observed at several locations within the Basin during mid and late December. Additional episodes occurred in January and early February. As in previous years, the episodes were associated with snow cover and strong inversions. Lack of snow cover precluded the occurrence of any episodes after early February.
- While ozone episodes captured by the intensive field study measurements during January and February were shorter and peak ozone concentrations were lower than episodes during the 2013 field study, conditions were nevertheless representative of typical winter ozone events.

### Key Findings

- A primary focus of UBOS 2014 was further evaluation of the relative contributions of different sources of the reactive chemical intermediates (radicals) that drive ozone formation during winter episodes. Understanding the contributions of different sources to the radical budget is a key step in the development of effective emission controls for ozone reduction. Results from UBOS 2013 showed that the primary chemical drivers of winter ozone formation in the Uinta Basin differ greatly from summer ozone formation in urban areas but left unanswered a key question about the importance of a particular radical source, nitrous acid (also known as HONO). Measurements made during UBOS 2014 confirmed the unique nature of winter ozone formation mechanisms. By comparing results from five different HONO measurement techniques and making HONO

measurements over a wider range of elevations within the polluted atmospheric boundary layer, researchers showed that HONO does not appear to be a major source of radicals during the winter episodes. Instead, results from the 2014 measurements confirmed that formaldehyde and other aldehydes are the dominant radical sources. These compounds are both directly released from various emission sources and form in the atmosphere from directly emitted volatile organic compounds (VOCs) such as those contained in oil and raw natural gas. Aromatic VOCs (including toluene and xylene), while less abundant than other VOC species in the Basin, are also particularly important sources of radicals.

- New “box model” simulations of ozone formation chemistry based on data collected at the Horsepool study site confirmed earlier analyses indicating that ozone formation at this location is sensitive to VOC reductions, i.e. VOC reductions would result in ozone reductions. These results also suggest that NO<sub>x</sub> reductions, either by themselves or in conjunction with VOC reductions, would lead to ozone reductions at Horse Pool. While providing an important reference point, these box model results do not take into account spatial variations in emissions and the mixing of emissions from different sources (among other factors) and thus do not provide an assessment of the expected impact of basin-wide VOC or NO<sub>x</sub> emission reductions on ozone levels sufficiently robust to allow formulation of a comprehensive regulatory control strategy. Nevertheless, this result provides support for on-going VOC reduction measures and is an important contribution to the overall “weight of evidence” guiding control strategy design.

## Next Steps

- UBOS 2014 researchers identified a number of questions which require further investigation. The major recommendation with respect to future field studies is that additional measurements should be collected to compare radical sources in the western basin (where oil production dominates) with those that have been collected at Horsepool (where natural gas production dominates) so as to better characterize the influence of oil production sources on ozone episodes.
- Several different government and university groups are continuing to develop and evaluate inventories of pollutant emissions in the Basin. Discrepancies between current emission estimates and observed pollutant concentrations have been noted and are being further investigated by these groups. The Utah Division of Air Quality is working with the Western Energy Alliance to update the inventory of emissions from oil and gas operations in the Basin. Recently enacted reporting and permitting regulations are also expected to generate data contributing to future improvements in the inventory. Research efforts are underway at Utah State University to better quantify emissions of formaldehyde (an important ozone precursor).
- Full scale three-dimensional computer model simulations of winter ozone episodes are under development by the Utah Division of Air Quality, EPA, BLM, University of Utah, Utah State University and NOAA. A number of areas in which model improvements are needed have been identified and work is continuing. The State of Utah has also committed \$300,000 towards development of improved emissions data and models for evaluation of winter ozone control strategies.
- These findings will be updated in the coming months. A final report for UBOS 2014 is currently under preparation and planned for completion by December.

# 2014 Air Quality Legislation

- Pollution Control Equipment (HB31)
- CARROT (HB61, \$200K)
- Vehicle Tax Credits (HB74)
- Wood Burning (HB154, \$750K)
- Medical Waste Incineration (SB 196 Sub 1)
- Public Awareness Campaign (\$500K appropriation)
- Research (\$1M appropriation)
- 4 FTEs and Equipment (\$800K appropriation)

## Immediate Air Quality Issues

- PM2.5 Plan – 23 new rules with 2019 attainment
  - Increased incentives and education about voluntary measures (UCAIR and Envision Utah)
- Ozone – Uinta Basin winter
  - Clean up existing equipment
  - Streamlined permitting for cleanest new equipment
  - Improved inventory through connection with Oil Gas and Mining
  - Coordination with Counties, Tribe, Industry and Land Managers to cut emissions and facilitate production
- Carbon Emissions Regulations for Electrical Generation under CAA 111(d)

## Long Term Air Quality Strategies

- Local research that informs local decisions
- Ozone – State-wide under expected 2015 revised standard
  - Understanding long-range transport, exceptional events and chemical pathways of formation
- Air Toxics
  - Mercury – fish and duck consumption advisories
  - Chronic and cancer exposure risk
- Increased Monitoring and Modeling
- Operating Permit emission fee restructure

## 2015 Air Quality Legislation Priorities

- Operating Permit Emission Fee Restructure
- Research Building Block as Ongoing
- Statute clean-up
- Tier 3 Fuels and Vehicles
- Energy Efficiency Improvements For New Homes and Buildings
- Increasing Transportation Options (first and last mile)
- Decreasing Diesel Emissions (Tier 4, retrofit and anti-tampering)

# **Research Projects Selection and Updates**

40 Suggested Projects

14 Finally Selected

Principle Investigators from:

U of U

WSU

BYU

USU & Bingham Research Center

# Percent of Funding Per Project

|  |     |
|--|-----|
| New Mobile Monitor                     | 5%  |
| Toxics Monitoring & Evaluation         | 13% |
| Exceptional Events Modeling & Analysis | 10% |
| Mobile Emissions & Analysis            | 14% |
| Uinta Basin Modeling & Inventory       | 26% |
| Wasatch Front Modeling & Inventory     | 20% |
| Great Salt Lake Ozone Monitoring       | 9%  |

## Monitoring and Analysis of Observations: 41%

- New Mobile Monitor
- Toxics Monitoring & Evaluation
- Mobile Emissions & Analysis
- Great Salt Lake Ozone Monitoring

## Modeling and Emissions Inventory: 56%

- Exceptional Events Modeling & Analysis
- Uinta Basin Modeling & Inventory
- Wasatch Front Modeling & Inventory

### Proposed Final List of Projects for Research Funding

|  |           |  |  |
|--|-----------|--|--|
| Monitoring Trailer   | \$20,000  | Portable monitoring capability   | Bo/Seth  |
| Toxics Study   | \$130,000 | Pair toxics anomalies to emissions sources and population  | Roman DAQ/Kerry Kelly UofU/Chris P. DAQ  |
| Exceptional events modeling - wildfire, aerosols, ozone, wind-blown dust             | \$100,000 | Inventory development, source apportionment, STILT & STILTCHEM model   | John Lin, UofU/Patrick/Lance   |
| Cold Start Emissions   | \$125,000 | Dyno repair and cold start testing   | Randy Martin, USU/NCAST at WSU/Joe   |
| Centralize I/M databases across counties   | \$15,000  | This project would be done by WSU mobile lab after getting multi-county support ~ 10K/county                             | NCAST at WSU/Joe   |
| Uinta Basin Oil and Gas Emissions  | \$75,000  | formaldehyde emission from non combustion  | Seth Lyman, USU/Bingham R./Patrick/Lance/Brock/Gail T., EPA                    |
| O/G Projection /Decline Curve Analysis   | \$50,000  | Improve assumptions in UB VOC budget projections   | Possible UofU/Whitney/Patrick  |
| Uinta Basin Photochemical modeling CMAQ - Add SAPRC and Low Temp Chemistry (USU/BYU) | \$60,000  | Needed for PM and O3 cold pool modeling  | Marc Mansfield, USU/Bingham/Jaron Hanson, BYU/Lance/Patrick/Brock/Gail T., EPA |
| Uinta Basin & Wasatch Front Photochemical modeling CB05 low temp & HONO chemistry    | \$110,000 | Needed for PM and O3 cold pool modeling  | ENVIRON - sole source/Lance/Patrick/Brock/Gail T., EPA                         |
| Improve Winter Atmospheric Modeling along the Wasatch Front                          | \$100,000 | Incorporate UB winter improvements into WF   | John Horel, UofU/Seth/Lance  |
| Salt Lake Valley wood burning emissions - micro-inventory                            | \$100,000 | Micro-inventory of residential wood burning emissions - ground truth are-source inventory                                | SOW and RFP in process, UDAQ /Joel/Patrick/Dave                                |
| GSL O3 Measurement Study   | \$65,000  | boundary layer - conceptual model understanding, model verification and mobile surface measurements - Summer 2014 - 2015 | John Horel, Jim Ehrlinger, UofU/Seth/Lance                                     |
| GSL O3 Measurement Study (DAQ)   | \$25,000  | stationary monitors to compare against mobile data - Summer 2015   | UDAQ /Seth/Bo  |

**TOTAL \$975,000**

**Funds - legislature + BLM \$1,040,000**

**Remainder \$65,000**

General Scopes of Work

Directly to Principle Investigators

Aim for Mid-July Start

Communication Strategy

Active Development - DAQ & OPPA





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## FOR IMMEDIATE RELEASE

### UTAH STATE FAIRPARK BOARD OF DIRECTORS ANNOUNCES RENOVATION PROPOSALS WHICH INCLUDE A REAL SALT LAKE MINOR LEAGUE SOCCER STADIUM

*Soccer stadium, new expo building and updated rodeo grounds would help fulfill goal to be a year-round, sustainable facility*

**SALT LAKE CITY – Friday, July 18, 2014** – The Utah State Fairpark Board of Directors announced proposals to enhance and renovate the Fairpark. The cornerstone of the proposed renovations will include a 5,000- to 8,000-seat, multi-use sports stadium. The announcement came in response to a recent study commissioned and prepared by the State Division of Facilities Construction & Management (DFCM) and CRSA, Zions Bank Public Finance, Integra Realty Resources, Ensign Engineering and Landmark Title.

“We thoroughly reviewed the study and it is our position that investing in the Fairpark is the most economically and culturally prudent approach to ensure the Utah State Fair and the Fairpark continue to contribute to the community for future generations.” said Roger Beattie, chairman of the board. “Construction of an exposition building, improving and expanding the rodeo grounds, and adding a multi-use sports stadium to the Fairpark would be strong assets to the Fairpark’s success; and we are pleased to announce that a proposal for the stadium has already been received.”

Real Salt Lake owner, Dell Loy Hansen, has submitted a proposal to the Utah State Fairpark Corporation to form a public/private partnership to construct the stadium. The new stadium would be the home field for Real Salt Lake’s minor league (USL) affiliate. The goal is to have the stadium completed in time for the 2016 season.

“We are excited about the possibility of Mr. Hansen bringing a new team and stadium to the Fairpark,” said Michael Steele, executive director of the Utah State Fairpark. “A stadium and team at the Fairpark would be an incredible addition to the community.”





CRSA's recent study on the Fairpark presented four scenarios the state could explore: 1) moving the Fair to a new, permanent location at a cost of approximately \$160 million; 2) improving the existing Fairpark with a series of renovations to existing buildings totaling approximately \$35 million; 3) adding additional facilities, including an expo center, expanded rodeo facility, and sports stadium for approximately \$44 million and 4) what CRSA coined as the "Highest & Best Use", selling the Fairpark to real estate developers for \$18.1 million.

"The Utah State Fairpark Board of Directors urges the State of Utah to invest in the Fairpark to preserve this invaluable economic and cultural resource and allow the Utah State Fair to become self-sufficient as mandated by the state," said Beattie. "Those who come to the Fair and other events at the Fairpark understand the great benefits the Fair and Fairpark bring to the entire State of Utah, and we invite those who haven't visited the Fair or the Fairpark to come experience it this year."

# # #





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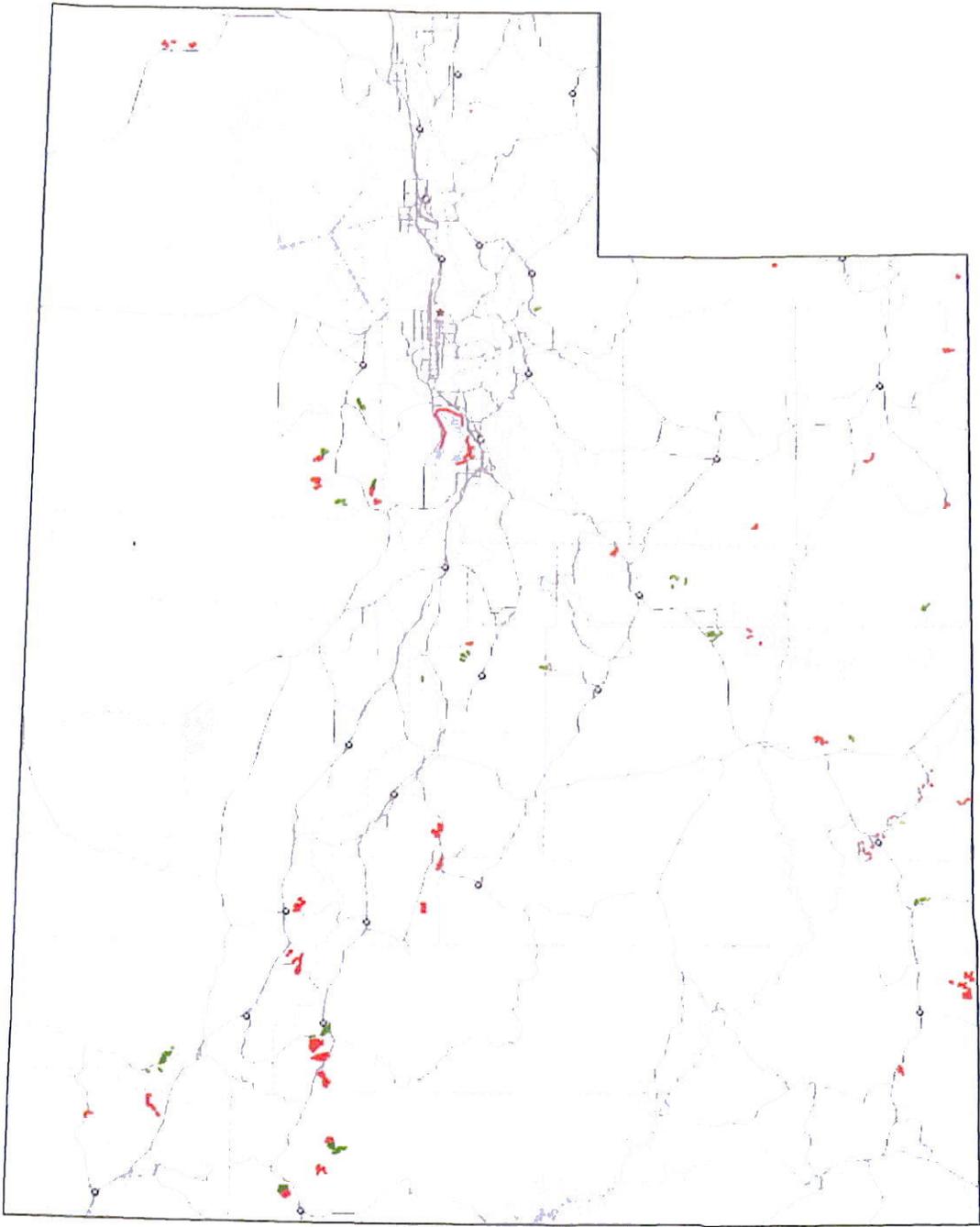


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# # #

**FFSL Pre-Suppression Funded WRI Projects**  
**Fiscal Years 2014 and 2015**



Fiscal Year 2015 FFSL Pre-Suppression Projects

| ID   | Title   | County    | Description  | Location  | Proposed Acres | FFSL pre-suppression | Matching Funds | In-Kind       |
|------|---|-----------|--|---|----------------|----------------------|----------------|---------------|
| 2931 | Little Mountain Bullhog   | Tooele    | Thin encroaching pinyon/juniper in sagebrush habitat, and seed where necessary.  | East bench of the southern part of the Onaqui Mountains just north of Lookout Pass.                                     | 1,054.61       | \$ 20,000.00         | \$ 259,468.00  | \$ 6,300.00   |
| 2961 | West Vernon Phase 4: Red Pine Canyon                                    | Tooele    | Juniper removal to benefit sage-grouse and mule deer.  | Near Red Pine Canyon southwest of the Town of Vernon.   | 2,148.13       | \$ 50,000.00         | \$ 187,000.00  | \$ -          |
| 2930 | East Tintic Bullhog Phase 3   | Tooele    | Third phase of a multi phase project to improve sagebrush habitat by thinning pinyon and juniper on the south and west side of the East Tintic Mountains.  | West side of the East Tintic Mountains approximately 3 mile east of the town of Lofgreen.                               | 1,070.75       | \$ 40,000.00         | \$ 275,486.00  | \$ 3,960.00   |
| 2933 | East Tintic Bullhog Phase 4 (FFO Eureka PH2)                            | Juab      | Fourth phase of a multi phase project to improve sagebrush habitat on the south end of the East Tintic Mountains by thinning pinyon and juniper and seeding.   | South end of the East Tintic Mountains approximately 3 mile west of the town of Eureka.                                 | 855.40         | \$ 40,000.00         | \$ 246,155.33  | \$ 3,080.00   |
| 3022 | Utah Lake Shoreline Restoration: Year 6                                 | Utah      | Continuation of a previously funded, multi-year project at Utah Lake. Begins treatment of 500 acres on the west side of Utah Lake to remove phragmites and other invasive plants.                                      | West side of Utah Lake between Eagle Park in Saratoga Springs and the area known as the Knolls, south of Pelican Point. | 3,672.57       | \$ 20,000.00         | \$ 188,330.11  | \$ 120,000.00 |
| 2888 | Horse Ridge   | Sanpete   | Improve mule deer winter range by masticating pinyon and juniper encroaching into sagebrush meadows. Install one 1,500 gallon capacity poly tank to supply water to a single guzzler system within the treatment area. | Five miles west of Ephraim.   | 324.31         | \$ 50,000.00         | \$ 126,112.75  | \$ -          |
| 2998 | White River Russian Olive Removal                                       | Uintah    | Cut and pile sawed Russian olive and tamarisk trees, and treat the stumps with paint-on herbicide.   | The White River in Uintah County, just south of Vernal Utah.  | 334.56         | \$ 75,000.00         | \$ 77,000.00   | \$ 21,000.00  |
| 2913 | Birch Creek Pinyon and Juniper Removal                                  | Daggett   | Complete a bullhog mastication and seeding project on 300 acres of pinyon and juniper to increase grass and browse cover on crucial big game winter range.   | Browns Park, Daggett County, Utah   | 299.37         | \$ 50,000.00         | \$ 81,750.00   | \$ 1,000.00   |
| 2951 | Diamond Rim Mastication   | Uintah    | Bullhog encroaching Pinyon-Junipers that are actively competing with the sagebrush, grasses, and forbs.  | Diamond Mountain Rim, just north of Vernal in Uintah  | 612.77         | \$ 70,000.00         | \$ 74,400.00   | \$ 8,000.00   |
| 2904 | Big Wash Mastication  | Duchesne  | Improve deer, elk and sage-grouse winter range habitat through removal of P-J trees that have encroached into Wyoming sagebrush habitat.   | Big Wash Chaining area at the top of Gate Canyon, which is about 45 miles southwest of Myton, Utah.                     | 584.15         | \$ 60,000.00         | \$ 79,400.00   | \$ 8,000.00   |
| 2979 | Wyasket Pond Russian Olive Removal - Ouray NWR                          | Uintah    | Remove Russian olive from riparian habitat.  | Down-river from Johnson Bottom, starting at the southern end of Bull Durham and south towards Wyasket Bottom.           | 385.98         | \$ 25,000.00         | \$ 125,000.00  | \$ 25,000.00  |
| 2874 | Park Valley PJ Treatment Project Phase 1                                | Box Elder | Collaborative effort among the BLM, DWR, and NRCS to treat PJ in the vicinity of Park Valley, UT. It will be a combination of new treatments and maintenance of old treatments on federal, state, and private land.    | Sections located in (Township 13N Range 12W), (Township 13N Range 13W), (Township 13N Range 14W).                       | 1,471.25       | \$ 27,000.00         | \$ 424,749.00  | \$ -          |
| 2980 | Green Canyon Aspen Improvement  | Cache     | Remove young subalpine fir before they have completely shaded out the aspen and reduced the wildlife benefit.  | The top of Green Canyon in Cache County east of Paradise and Hyrum Cities.  | 21.02          | \$ 20,000.00         | \$ 15,000.00   | \$ 6,000.00   |
| 2536 | Telephone Hollow Lop and Scatter  | Summit    | Lop and scatter of encroaching conifer in critical elk, moose, and mule deer habitat.  | Telephone Hollow, north slope of Uinta Mountains, 8 miles northeast of Hoop Lake.                                       | 332.85         | \$ 7,950.00          | \$ 27,400.00   | \$ -          |
| 2965 | Range Creek Fuels Reduction and Vegetation Restoration Project- Phase I | Emery     | Hazardous fuels reduction and vegetation restoration.  | Range Creek Canyon, eight miles east/southeast of Columbia, UT.   | 146.04         | \$ 20,000.00         | \$ 119,152.50  | \$ 51,308.00  |
| 2881 | Ford Ridge Fuels Reduction and Vegetation Restoration Project-Phase I   | Carbon    | Hazardous fuels reduction/habitat restoration/forest health.   | Ford Creek/Diamanti Canyon area located eight miles northwest of Helper.  | 566.17         | \$ 200,000.00        | \$ 171,902.00  | \$ -          |
| 2924 | Gunnison Sage grouse project phase 2                                    | San Juan  | Pinyon/juniper removal; repair livestock watering sources; treat invasive vegetation in old agricultural fields; seed and plant desirable vegetation.  |   | 5,171.59       | \$ 45,000.00         | \$ 427,682.00  | \$ 6,000.00   |
| 2956 | FY15 Southeast Utah Riparian Restoration- Phase 2                       | Grand     | Continuation of ongoing riparian restoration and native vegetation improvement treatments on BLM lands in southeast Utah.  | Colorado and Dolores River Corridors and major tributaries in Grand and San Juan Counties in southeast Utah.            | 469.99         | \$ 25,000.00         | \$ 100,000.00  | \$ -          |
| 2971 | South Bookcliffs Vegetation Improvement Phase II                        | Grand     | Pinyon/juniper removal in big game winter range.   | Approximately 12 miles east of Green River, UT in the Floy area of the Bookcliffs.                                      | 1,302.46       | \$ 250,000.00        | \$ 133,286.00  | \$ 6,000.00   |
| 3000 | Blanding East Fuel Reduction and Vegetative Restoration - Phase I       | San Juan  | Apply seed, restore and protect riparian habitat, maintain water sources and vegetative treatments.  | Immediately east of Blanding, UT.   | 482.27         | \$ 100,000.00        | \$ 163,530.00  | \$ -          |
| 2942 | Upper Kanab Creek Bald Knoll - Phase 3                                  | Kane      | Remove encroaching pinyon/juniper from sage/steppe habitat and important sage grouse winter/summer/brood-rearing habitat.  | The head of Johnson Canyon, Skutumpah Terrace.  | 2,310.53       | \$ 225,000.00        | \$ 346,495.00  | \$ 14,000.00  |
| 2690 | Hatch Bench Vegetation Enhancement Phase II                             | Garfield  | Reduce pinyon and juniper encroachment by lop and scatter to enhance shrubsteppe habitat in crucial mule deer summer range, substantial elk winter range, and crucial sage grouse brood-rearing habitat.               | Hatch Bench approximately 8 miles Southeast of Hatch.   | 2,989.66       | \$ 60,000.00         | \$ 108,493.26  | \$ -          |
| 2984 | South Canyon (Rock Canyon)  | Garfield  | Improve sage grouse habitat, winter mule deer range, elk range, pronghorn range, and reduce hazardous fuels by mechanically mulching and seeding areas of PJ encroachment.   | Five miles south of Panguitch and 2 miles north of Hatch, Utah within the Pass Creek and Panguitch Creek Watersheds.    | 2,870.28       | \$ 225,000.00        | \$ 686,000.00  | \$ 30,000.00  |

|      |  |              |  |  |           |                 |                 |                 |
|------|--|--------------|--|--|-----------|-----------------|-----------------|-----------------|
| 2982 | Yellowjacket (Cave Lakes)                          | Kane         | Improve winter mule deer habitat and reduce hazardous fuels by mechanically mulching and seeding areas of PJ encroachment.   | Ten miles north of Kanab, Utah and 2 miles west of Best Friends Animal Sanctuary within the Lower Kanab Creek Watershed. | 2,085.02  | \$ 250,000.00   | \$ 770,000.00   | \$ 30,000.00    |
| 2920 | Mormon Peak Habitat Improvement Project            | Sevier       | Improve mule deer winter range by lop and scattering pinyon and juniper. Install two 1,500 gallon capacity guzzlers and fix one current guzzler in the treatment area. | Five miles north of Kooshareem, UT. North west of Kooshareem Reservoir.  | 2,506.91  | \$ 25,000.00    | \$ 153,850.00   | \$ 5,000.00     |
| 2987 | South Canyon Lop and Scatter                       | Garfield     | Lop and Scatter small, encroaching pinyon/juniper in sagebrush steppe.   | Approximately 5 miles southwest of Panguitch, Ut.  | 5,390.33  | \$ 130,000.00   | \$ 48,100.00    | \$ 1,000.00     |
| 3014 | Parker Front PJ Removal Phase II                   | Piute/Sevier | Use hand and mechanical methods to remove encroaching PJ from treatment areas.   | Six miles south of Greenwich, 1 mile east of hwy 62; and east and southeast of Kooshareem between powerline and Hwy 24.  | 2,245.68  | \$ 45,000.00    | \$ 193,069.00   | \$ 5,000.00     |
| 3039 | South Beaver Buckskin Valley                       | Iron         | Mechanical mulching and hand thinning of pinyon/juniper, and seeding where necessary, within mule deer and sage-grouse habitat.  | South of Beaver east of I-15 and north of Muley Point; and Buckskin Valley just north and south of hwy 20.               | 2,399.95  | \$ 70,000.00    | \$ 256,050.00   | \$ 30,000.00    |
| 2988 | New Harmony/Central Fuelbreak Improvement Phase II | Washington   | Improve existing fuelbreaks around the communities of New Harmony and Central Utah by applying seed.   | New Harmony-T385, R13W, Sec. 4, 8, 9, 17, 20, 27-29, 34; T39S, R13W, Sec. 2, Central- T39S, R16W, Sec. 2, 3, 4, 9.       | 2,516.41  | \$ 80,000.00    | \$ 36,856.13    | \$ 799,655.00   |
| 3001 | Indian Creek                                       | Beaver       | Improve winter mule deer range, elk range, and reduce hazardous fuels by seeding and mechanically treating PJ woodland.  | Just east of Beaver, Utah, south of North creek and High low Subdivisions, within the Beaver River Watershed.            | 3,195.49  | \$ 200,000.00   | \$ 368,483.00   | \$ 30,000.00    |
|      |  |              |  |  | 49,816.50 | \$ 2,504,950.00 | \$ 6,270,200.08 | \$ 1,210,303.00 |

