

VEGETATION ENCLOSURES IN UTAH
What can they tell us about long-term range trends?

FINAL PROJECT REPORT

prepared for

**UTAH DIVISION OF WILDLIFE RESOURCES
US FOREST SERVICE
US BUREAU OF LAND MANAGEMENT**

by

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30 September 2004

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CD CONTENTS

The UT Exclosure Inventory database includes 18 CDs with the following contents:

CD	Contents
UT Ex Inv CD1	Final Report and MS Access Database Final Report Appendix I: Database Design Objectives and Methodology Appendix II: Business Rules and Validation Tables Appendix III: Master Table Appendix IV: Summary Tables UT Exclosure Inventory.MDB State of Utah US DOE National Park Service Private Lands
UT Ex Inv CD2	Ashley NF Duchesne-Roosevelt RD
UT Ex Inv CD3	Ashley NF Flaming Gorge RD/NRA
UT Ex Inv CD4	Ashley NF Vernal RD
UT Ex Inv CD5	Dixie NF Cedar City RD Dixie NF Escalante RD Dixie NF Pine Valley RD
UT Ex Inv CD6	Dixie NF Powell RD Dixie NF Teasdale RD
UT Ex Inv CD7	Fishlake NF Beaver RD Fishlake NF Fillmore RD
UT Ex Inv CD8	Fishlake NF Loa RD Fishlake NF Richfield RD
UT Ex Inv CD9	Manti-La Sal NF USFS RMRS Desert Experimental Station
UT Ex Inv CD10	Uinta NF Heber RD (Bryants Fork through Lower Soapstone)
UT Ex Inv CD11	Uinta NF Heber RD (Mill B through Wolf Creek)
UT Ex Inv CD12	Uinta NF Pleasant Grove RD Uinta NF Spanish Fork RD
UT Ex Inv CD13	Wasatch-Cache NF
UT Ex Inv CD14	BLM Cedar City DO BLM Fillmore DO BLM Grand Staircase-Escalante National Monument (GSENM) BLM Henry Mountains Field Station BLM Kanab DO
UT Ex Inv CD15	BLM Moab DO
UT Ex Inv CD16	BLM Monticello DO
UT Ex Inv CD17	BLM Price DO BLM Richfield DO BLM Salt Lake DO BLM St. George DO
UT Ex Inv CD18	BLM Vernal DO

INTRODUCTION

Exclosures are flexible range management tools that can be used to simultaneously:

- Clarify conflicts between wild and domestic herbivores and their advocates;
- Evaluate herbivore influence on range productivity and composition;
- Monitor long-term trends and changes in range condition; and
- Identify the normal range of variation characteristic of natural plant communities.

However, exclosures (and their associated studies) vary widely in their applicability to these uses, and this applicability typically depends on the exclosure's original purpose. Exclosures are typically built for one of three reasons:

- **Monitoring / Demonstration** (or “show me”) exclosures are used to evaluate herbivore pressure (especially big game and livestock) on range condition and trend. These exclosures are often placed in areas where range degradation is apparent, and designed to reveal the degree of degradation, as well as the herbivore(s) responsible for the degradation. As a general rule, *Monitoring / Demonstration* exclosures are not associated with any specific manipulations. *Monitoring / Demonstration* exclosures are also most likely to be cited as potential *reference areas* (Laycock 1975, Allen 1986).
- **Experimental** exclosures are built to protect ongoing, active research. Although this research may focus on the process of herbivory itself, experimental exclosures are more often created to exclude herbivores from seedings, plantings, fertilizings, and similar range treatments. In these latter experiments, herbivory is not the process of interest, but is instead treated as experimental noise to be minimized or eliminated. As a general rule, *Experimental* exclosures should not be cited as potential reference areas.
- **Protection** exclosures are built to protect potentially sensitive resources, such as archaeological sites, rare plant populations, riparian areas, and springs, from damage caused by large herbivores.

As is true of most long-term studies, exclosure objectives may change over time. To provide a common example, *Experimental* exclosures originally created to protect an experiment are often used for conventional monitoring once the experiment has run its course. The value of these **Experimental-Monitoring / Demonstration** exclosures probably depends on the severity of the experimental manipulations, the ecological characteristics of the site, and the time that has passed since the conclusion of the experiment. In less fortunate circumstances, exclosures that have been repeatedly compromised may eventually serve as corrals.

Exclosures have been a popular range management tool in Utah for most of the last century. Excessive livestock grazing during and after WWI, coupled with increasing game populations, lead to widespread concern about range degradation in the 1920s and 1930s (Young 1956). Although exclosures were one of the first tools developed to address these concerns, livestock-proof and game-proof exclosure studies followed different developmental paths.

Livestock-proof exclosures were first placed on US Forest Service (USFS) lands in the 1910s. These exclosures were usually created to evaluate the rate at which severely impacted sites would recover following the elimination of grazing. Most were small (1 rod square) and designed as

short-term (10-20 years) demonstration plots. These exclosures could be found on USFS lands throughout the state by the 1920s.

Game exclosures were usually created to determine the effects that locally abundant deer populations were having on their range. *Multi-part* exclosures (exclosures with more than one enclosed area and fence type) were built on ranges shared by both game and livestock. In contrast to livestock-proof exclosures, most big game exclosures were relatively large (1 acre) and designed for long-term monitoring. Although big game exclosures first appeared in the early 1930s, they remained relatively uncommon until the mid-1950s, when Young (1956) completed the first systematic inventory.

Young (1956) wanted to evaluate the effectiveness of game-proof exclosures as management tools, and was less interested in creating an exhaustive inventory. He visited 36 sites in the field, examined existing data, and took photos and basic vegetation measurements. He concluded that the most useful exclosures were those that had been designed to meet the strict requirements of academic studies, because these could also be used as demonstration plots.

In contrast, Laycock's (1969) objective was to compile an inventory of all of the exclosures in Utah, with no attempt at analysis or synthesis. He obtained his data by questionnaire, and did not personally visit any exclosures or examine existing data. His inventory included *both* exclosures and unfenced reference areas.

In the past three decades, the Society for Range Management (SRM) Rangeland Reference Area Committee has made several attempts to compile a statewide inventory of exclosures and reference areas, but with mixed success. By 2000, this effort had yielded a complete list of exclosures and reference areas for the Ashley National Forest and a partial list of reference areas for Bureau of Land Management (BLM) lands (Sherel Goodrich, USFS Ashley National Forest, Larry Maxfield, UT BLM retired, and Chad Reid, Utah State University Iron County Extension, personal communication).

OBJECTIVES

Our original objective was to compile a statewide inventory of exclosures and reference areas analogous to Laycock's (1969) effort. However, as the project evolved it became clear that unfenced reference areas, as a somewhat abstract concept, might prove to be too intractable to inventory. Instead, we chose to inventory only exclosures; i.e., fenced areas expressly created to exclude herbivores. However, we also decided to expand the study by looking into how exclosures are being *used*, so that we could gain insight into the overall value of the statewide exclosure-building and monitoring effort.

To facilitate our analysis, we created a digital database from this inventory. In the first stage of the database design process, we translated our project objectives into a set of key questions that helped guide the overall effort (Appendix I, Database Design Objectives and Methodology, Figure I.1).

METHODS

We developed the Utah exclosure inventory database in three steps. First, we attempted to locate all previously completed inventories:

- Stanford Young's (1956) original slides are stored at the Utah Division of Wildlife Resources (UDWR) Great Basin Research Center (GBRC) in Ephraim. We did not find his original observations or notes.
- In his 1969 manuscript, William Laycock indicated that his original data sheets had been filed with the SRM Utah Section archives at Utah State University. However, we were unable to find any materials, despite extensive searching. Apparently most of the SRM archive material was given away in the recent past (John Malachuk, Utah State University Department of Forest, Range, and Wildlife Sciences, personal communication). William Laycock (University of Wyoming, retired, personal communication) did not have any materials in his possession. Although we were unable to locate Laycock's original compilation, we did find copies of his 1966 inventory forms in some agency files.
- Larry Maxfield (BLM Utah State Office, retired) had compiled a DBASE version of a SRM reference area inventory for BLM lands. He also compiled a DBASE version of Laycock's (1969) inventory for USFS lands.
- We also contacted Sherel Goodrich (Ashley National Forest Supervisor's Office) and Chad Reid (Utah State University Iron County Extension) to obtain the latest inventory compiled by the SRM Reference Area committee. Sherel and Chad indicated that Larry Maxfield's files represented their most recent compilation. We did not find similar inventories for other federal, State, or private lands.

For the second step of the inventory development process, we contacted individual agency offices and appropriate personnel to determine where exclosure information was stored. A complete list of agency offices and personnel that we contacted included:

- USFS Ranger Districts, Supervisor's Offices, the R4 Regional Office, and research stations;
- BLM District Offices and the State Office;
- Individual National Parks and Monuments;
- USDA Agricultural Research Service research stations;
- USDA Natural Resources Conservation Service State Office;
- USDI Bureau of Reclamation Salt Lake City and Provo offices;
- Individual Department of Defense installations;
- UDWR state office, regional offices, and the GBRC;
- Utah Division of Forest, Fire, and State Lands state and regional offices;
- Utah School and Institutional Trust Lands Administration state and regional offices;
- Utah Natural Heritage Program and The Nature Conservancy;
- Individual Native American reservations, and
- Range ecology and management professors at Utah State University, University of Utah, Brigham Young University, University of Southern Utah, Weber State, and Snow College.

Once we determined where records were kept, we visited the offices, sifted through the files, and scanned appropriate records. The exact methods varied according to agency.

USDI Bureau of Land Management

We were fortunate in that the BLM maintains the Rangeland Improvement Project System (RIPS), a digital inventory of projects accomplished during the past 30 years. We used RIPS to identify potential enclosure projects by name and inventory number. Although RIPS has an “enclosures / exclosures” value for its fence type field, most exclosures were filed under some other fence type, so we had to expand the query to include all kinds of fences. Unfortunately, we were unable to conduct a digital search of this database for several BLM District Offices, and had to resort to paper files, which were typically out-of-date.

For the individual BLM District Offices, our search for files started with the *project files*, which typically contain information related to project costs and construction, but rarely contained studies or photos. To find these, we first identified the grazing allotment associated with each enclosure and searched through the range trend photo binders, range trend plot studies binders, general information binders, and special studies binders associated with the allotment. Because studies usually are not referenced geographically or by study name, we had to sift through these files systematically, one page at a time.

USDA Forest Service

Unlike the BLM, we were unable to apply a single process to all USFS offices. For the Ashley and Manti-La Sal National Forests, the primary files were stored at the Supervisor’s Office, with duplicate records at the individual Ranger District offices. These National Forests also maintained separate files dedicated to enclosure studies.

For the Dixie, Fishlake, Uinta, and Wasatch-Cache National Forests, the primary files were stored at the individual Ranger District offices. For these National Forests, we had to conduct a systematic, folder-by-folder search of all filing cabinets with short- and long-term range and wildlife studies. In most cases, files were stored either by USGS 7.5-minute topographic map, grazing allotment, or emphasis (USFS filing codes 2100 range or 2600 wildlife).

Utah Division of Wildlife Resources

Wildlife management and habitat personnel at the UDWR Regional Offices consistently reported that they had no enclosure files, so these offices were not visited. Although we started a systematic investigation of enclosure files at the GBRC, we were only able to complete a survey of data for the species plots and 4-way exclosures in the time available. Because the GBRC manages the oldest and most detailed data record for exclosures in the state, completing this survey should be a high priority for future efforts.

Our search focused on documents that could provide information about an enclosure’s physical characteristics, ecological characteristics, current condition, and maintenance and monitoring history. We used a flat-top scanner to create digital copies of the following kinds of documents whenever we encountered them:

- All photographs, including general-view photos, overview photos, close-up photos, and fence-line contrast photos;
- All data sheets associated with quantitative vegetation studies;
- All data sheets associated with qualitative vegetation studies, if those studies used a standardized, repeatable methodology;

- All documents depicting the location of the exclosure and associated studies (maps and location plats);
- All documents depicting the design of the exclosure or associated studies (diagrams and descriptive narratives);
- All documents summarizing exclosure studies in tabular or narrative form; and
- Portions of NEPA documents describing the exclosure's ecological circumstances (Affected Environment) and construction (Proposed Action).

We extracted useful information from maintenance reports, financial records, and cooperative agreements, but did not scan them. See Appendix II, Business Rules and Validation Data, for a more thorough accounting of the kinds of documents that we found during our search.

During the course of our document search, we also conducted an informal information needs assessment to try to determine the appropriate contents for the digital database. This process is described in detail in Appendix I, Database Design Objectives and Methodology.

The database that emerged from the development process consists of three complementary components. The first two components are contained within a separate digital directory (folder) for each individual exclosure; the third encompasses the entire inventory:

- For *each individual exclosure*, an MS Word file describes the document search effort for that exclosure and summarizes the documents that we found. This file constitutes the *metadata* (the data that describe the data, Michener et al. 1997) for that exclosure record. These metadata emphasize file locations, dates, and document contents. In addition, the MS Word file also includes the completed summary template that we used to populate the electronic database. This template is described in Appendix I, Database Design Objectives and Methodology, Design Stage 13.
- The individual exclosure directories also contain the scanned copies of the documents judged to contain substantive information, including photos, data sheets, and reference documents, saved in .JPG format (Appendix II, Business Rules and Validation Data). The number of scanned documents varies widely among exclosures. While some exclosures have many documents, many exclosures have no scanned documents.
- The electronic relational database contains information for all of the exclosures in the inventory. This MS Access .MDB file, the consequence of an elaborate design process (Appendix I, Database Design Objectives and Methodology), includes information describing individual exclosures, exclosure parts, alterations, treatments, and disturbances, and studies. This digital database summarizes the information extracted from the scanned documents, but does not include a separate document inventory.

Users should keep in mind that our effort, although thorough, was not exhaustive. For some offices, such as the Fishlake National Forest Richfield Ranger District, we were unable to inventory documents that were being updated. For some other offices, such as the Uinta National Forest Kamas Ranger District and the Dixie National Forest Escalante Ranger District, we were told that there were no exclosure files in the office. Finally, for the BLM Richfield District Office, we suspect that exclosure documents do exist, but we were unable to physically find them.

Our inventory does not include studies from agency entities with a research emphasis, such as the USFS Desert Experiment Station and Logan Research Laboratory. Likewise, we did not have

access to academic studies that may have been conducted within agency exclosures but were not also recorded in agency files.

Finally, we were unable to account for exclosures built by academic institutions that were not recorded in agency files. However, many of these exclosures were intended to be temporary, and their absence from agency records suggests that they may have not been maintained. As a consequence, although experimental exclosures are probably underrepresented in the inventory, this problem may not be a significant concern, given the project's original objectives.

RESULTS

Appendix III (Master Table) and Appendix IV (Summary Tables) and the following paragraphs summarize the contents of the MS Access component of the inventory. Additional lessons learned during the document search and database development processes are addressed in the Discussion.

Number of Exclosures

During the course of our search, we found information for 1013 exclosures across all ownerships in the state of Utah (Appendix III, Master Table). Of these, 629 are still functioning, 62 need repairs, 186 are historic (no longer functioning), and 136 are of unknown condition. Our inventory includes all of the exclosures that were listed in Laycock's (1969) inventory, a few that were not included in 1969, and many exclosures that have been built since 1969.

Landowners and Administration

Exclosures are unevenly distributed across administrative units (Ranger Districts or District Offices), both for the BLM and the USFS (Tables IV.1 and IV.2). The BLM appears to be more inclined to construct riparian *Protection* exclosures than the USFS (or at least record them in project accounting files) (Table IV.2), but the USFS appears to be more likely to build *Experimental* and *Monitoring / Demonstration* exclosures than the BLM (Table IV.2).

Range Types

Not surprisingly, *Experimental* and *Experimental-Monitoring / Demonstration* exclosures are most common in the range types that are most likely to be manipulated, such as big sagebrush, pinyon-juniper woodlands, and salt desert shrub, and *Protection* exclosures are most common in aspen woodlands and riparian zones (Tables IV.3 and IV.4). However, exclosures constructed to protect seedlings or regeneration in sagebrush or grassland types (e.g., for emergency fire rehabilitation) may be less likely to be called exclosures than those constructed in aspen woodlands, although both kinds are temporary (Table IV.4).

Herbivores Excluded

The vast majority of exclosure *partitions* were built to exclude livestock (Tables IV.5 and IV.8), and livestock-proof (LX) exclosures occur across all range types (Table IV.5). Deer-proof (DX) exclosures appear to be concentrated in sagebrush, mountain brush, and woodland types, where deer browsing is more likely to have a visible impact, and are uncommon in montane grass and tall forb types (Table IV.5).

Exclosures that exclude smaller herbivores are rare. Exclosures that exclude gophers or other rodents are exceedingly uncommon (Tables IV.5 and IV.8). We did not find any exclosures that

were built to exclude only rabbits, gophers, or rodents--all of these exclosures also exclude livestock or deer.

Exclosure Size

Exclosure partitions tend to be relatively small (less than 2.5 acres) (Tables IV.6, IV.9, and IV.12), and more expensive fences (DX, DRX, and LRX) appear to lead to smaller exclosures (Table IV.9). Most of the smallest exclosures in the inventory were 1-rod square (0.06 acres) exclosures built before WWII. Many of these are no longer functioning (Table IV.12). Exclosure partition size does not appear to be related range type (Table IV.6).

Treatments

A surprisingly large number of exclosures have been manipulated (313 out of 1013, or 30.9 percent) (Table IV.7). For some manipulated range types (e.g., big sagebrush and pinyon-juniper), treated exclosures are almost as common as untreated exclosures. Some exclosures have been subjected to multiple treatment types (e.g., plowed and seeded), while other exclosures have been subjected to the same treatment more than once (e.g., Black Mountain was burned twice).

Part Combinations / Exclosure Design

The vast majority of exclosures have a single partition, and most of these fenced areas exclude only livestock (LX, Tables IV.10 and IV.11). The most common multi-part exclosures have separate partitions that exclude livestock (LX) or deer, elk, and livestock (DX) (Table IV.11). Multi-part exclosures with partitions that differ in terms of their ability to exclude rabbits (LRX and DRX) or not (LX and DX) are also relatively common. Exclosures with three or more parts are extremely rare (Table IV.10).

Exclosure Construction History

Tables IV.13 through IV.16 describe how the exclosure building *program* has changed over time. The 1950s and 1960s were the “glory days” for *Monitoring / Demonstration*, and *Experimental* exclosures (many of which were inventoried as *Experimental-Monitoring / Demonstration* exclosures, Table IV.16). Nowadays, exclosures are more commonly built to protect sensitive resources.

A surprising proportion of the oldest exclosures are still functioning (Table IV.13). Although this observation could reflect the potential longevity of individual exclosures, it also could be that documentation was discarded when exclosures were abandoned.

The BLM did not build many exclosures until the 1960s, but has continued to build many exclosures since then (Table IV.14). However, the kinds of exclosures being built have changed, with most exclosures being built today for protection (Table IV.16). In contrast, the USFS started cutting back on exclosure construction in the 1960s (Table IV.15). Although exclosure removals are not well documented, anecdotal evidence suggests that many USFS exclosures were deliberately removed in the late 1960s. In addition, the USFS does not document protection exclosures very well, so we may have underestimated the current exclosure-building effort.

Study Events and Synthesis

We inventoried more than 10,000 documents representing 1661 quantitative vegetation studies, 551 qualitative vegetation studies, and 3536 photo studies (Table IV.17). These numbers represent annual study events (site visits), rather than individual photos or data sheets (Appendix I, Database Design Objectives and Methodology). Although very few exclosures were visited more than once a year, simultaneous investigations of multiple parts or outside plots were common. Similarly, most site visits resulted in both vegetation studies and photographs. Finally,

study methodologies have varied tremendously over time, and differ among agencies (Appendix II, Business Rules and Validation Data). As a consequence, study data are not fully independent with respect to study year or part studied, and are therefore difficult to summarize. Nevertheless, the study data can be used to make inferences about how exclosures have been used.

Protection exclosures are very rarely studied (Table IV.19). For these exclosures, the term *monitoring* appears to be synonymous with *maintenance*. Qualitative vegetation studies are commonly used to describe *Monitoring / Demonstration* exclosures, but have also been used to describe *Experimental* exclosures (Table IV.19). Surprisingly, *Experimental* exclosures are not necessarily more likely to be studied than *Monitoring / Demonstration* exclosures (Table IV.19).

Vegetation and photo studies were widely available for big sagebrush, aspen, and pinyon-juniper sites, but were very uncommon in riparian zones (Tables IV.21 and IV.22). The vast majority of vegetation and photo studies have been conducted in livestock-excluded (LX) partitions and matching outside plots (OP) (Tables IV.23 and IV.24).

Tables IV.25 and IV.26 summarize the possible pairwise part comparisons (e.g., LX vs. OP) offered by the vegetation and photo studies in the database. Not surprisingly, the most common pairwise combinations involve the most popular part types. However, a surprisingly large number of studies have been conducted in only one part (either inside or outside the exclosure), without a simultaneous attempt to conduct similar studies in matching plots within another partition or outside the exclosure (Tables IV.25 and IV.26, also supported by the sums in tables IV.23 and IV.24).

Unfortunately, exclosure study events are rarely summarized (Table IV.18). Likewise, inside vs. outside comparisons and trend analyses are also uncommon (Table IV.20). This result is most surprising for *Monitoring / Demonstration* exclosures, given that inside vs. outside comparisons and trend analysis are usually cited as the primary reasons for their construction.

DISCUSSION

A reliable large-scale monitoring program would be characterized by a set of representative monitoring sites, consistent data collection methodology, and frequent synthesis. Unfortunately, our analysis suggests that the current set of exclosures and their associated data do not satisfy these criteria (yet).

The following paragraphs describe the most common problems associated with exclosures and exclosure data. Many of these problems are not unique to exclosures, but would be expected of any data set spanning a large area, a long timeframe, several agencies, and many individuals. Because exclosures are so useful, we encourage managers to view this list of problems as a template for an improved system. Although physical limitations, such as small size or poor placement, may represent a *fait accompli*, even exclosures with physical design problems can still be potentially valuable demonstration plots. In contrast, problems associated with monitoring and record keeping should be viewed as opportunities for immediate improvement.

Exclosure Terminology

Range managers have not been especially rigorous in their terminology. Unfortunately, this inconsistency has led to linguistic and logical confusion across a broad spectrum of concepts. For example:

- *Exclosures* are often referred to as *enclosures*. This practice is semantically incorrect: exclosures keep animals out, while enclosures keep animals in.
- Exclosures established for long-term monitoring or to provide demonstration plots are often referred to as *experimental* exclosures, despite the absence of any kind of experimental (active) manipulation or design, beyond the construction of the fence.
- Exclosures may be referred to by either the animals excluded by the fence, or by the animals that can negotiate the fence and enter the site. For example, an exclosure with a fence that excludes cattle and sheep but permits deer passage may be referred to as either a livestock exclosure (because it excludes livestock) or a deer exclosure (because it encloses an area browsed exclusively by deer). Usually when the word “deer,” “elk,” or “cattle” is appended to an exclosure’s name it means that the exclosure is intended to *exclude* those animals. This is the approach that we used to describe these exclosure characteristics in our database (Appendix II, Business Rules and Validation Data).
- The term *total exclosure* is most commonly used to refer to partitions that exclude both game and livestock (DX), but has also been used to refer to partitions that also exclude rabbits (DRX and LRX). Because this term is often used without any direct reference to the herbivores excluded, its usage actually inhibits comparisons among exclosures.
- Range conservationists consistently refer to exclosures with supplemental chicken-wire fencing as *rodent-proof*. Presumably these fences were built to exclude rabbits (which are lagomorphs, not rodents), because chicken-wire fences will not exclude rats, mice, or gophers.

Semantic issues like these are relatively harmless, provided that the associated data are addressed correctly. However, at least one widespread and potentially serious problem appears to have arisen from inconsistent terminology.

Range scientists traditionally refer to the area enclosed by the fence as the *treatment*, and the area outside the fence as the *control*. In the case of exclosures, the *treatment* refers to the *exclusion* of an ecological force (herbivory), rather than the *application* of some kind of force, which is the more conventional use of the term. To express this idea in another way, in exclosure studies the ecological force is actually *controlled* in the area referred to as the *treatment*, and the ecological force is allowed to continue unimpeded (i.e., *not controlled*) in the area referred to as the *control*.

This confusion could easily lead to the incorrect formulation and analysis of null and alternative hypotheses. But more significantly, this confusion may have contributed to the widespread but mistaken perception of exclosures as *passive structures* that can be built and then largely forgotten, which has in turn led to lax maintenance and haphazard monitoring.

Exclosures should be more properly perceived as tools that we use to *control herbivory*, a dynamic ecological process. Naturally, we would expect that a tool intended to control a constantly changing process might also need constant attention and adjustment. In addition, we would also expect that in order to assess the tool’s performance, we would need to carefully monitor the process itself.

Exclosure Placement

Range ecologists have long agreed that exclosures should be located in areas that represent a particular ecological type. For example, Stoddart and Smith (1943) and Laycock (1975) both stated that enclosed areas should be relatively homogeneous, and that matching outside plots should be comparable to the fenced area. Because this point has been recognized for a long time, exclosures are rarely placed in obviously heterogeneous sites. Exceptions include the West Brush Creek, Wire Fence, Taylor Mountain, and Pine Hollow on the Ashley National Forest, which were intentionally placed along aspen-sagebrush ecotones.

However, even this relatively straightforward recommendation has problems. First, how do we define *representative*? Vegetation is dynamic, and sites may change dramatically over time. This is particularly true of manipulated sites (e.g., chained pinyon-juniper reverting to woodland). Likewise, classification schemes, which define what the site is supposed to represent, also change over time. Finally, like most ecological concepts, vegetation community composition is a scale-dependent phenomenon (Bissonette 1997). In other words, the perceived *homogeneity* of a site depends on the *scale* at which we *measure* it. Small sites are more likely to appear homogeneous than large ones, and relatively fine-grained communities (e.g., grasslands) are more likely to appear homogeneous than coarse-grained communities (e.g., forests).

Exclosures tend to be located in circumstances that are of special interest to range managers. As a consequence, exclosures are more likely to be situated in vegetation types that experience widespread herbivory, or in manipulated sites. This bias may not pose any significant problems, as long as evaluated as individual case studies. However, this potential bias does mean that exclosures may represent an imperfect source of data for a general-purpose vegetation monitoring system.

Exclosures also tend to be located in areas of heavy livestock grazing or wildlife browsing pressure. This is not surprising, given that many exclosures were intended for assessing recovery rates or resolving conflicts. Although this widespread bias may also influence the value of exclosures as a *source* of general-purpose monitoring data, it also has several implications for how that monitoring data might be *interpreted*.

Exclosures built in areas experiencing obvious grazing or browsing pressure are almost guaranteed to result in dramatic changes in the vegetation. In these circumstances, the null hypothesis (no effect) is simply not viable, and the alternative hypothesis becomes trivial. Because unexpected or unanticipated results are so rarely encountered, such exclosures are unlikely to teach us anything new. Conversely, exclosures that do not show dramatic results appear to be more likely to be abandoned or removed. For example, the Twin Knolls (Uinta NF Spanish Fork RD) was removed because it did not show visible differences, and was therefore deemed to be “of no further value.”

Because exclosures are biased towards areas with relatively high levels of grazing or browsing pressure, we may also incorrectly infer that grazing or browsing impacts are more widespread than they are. For example, Kay and Bartos (2000) concluded from their analysis that wild ungulate pressure on aspen regeneration was a widespread phenomenon, although the exclosures that they monitored were all placed in areas with heavy browsing pressure. Unfortunately, the magnitude of this problem is difficult to assess, because utilization data are rarely incorporated into exclosure studies.

Exclosure Size

Because of construction and maintenance costs, exclosures are inherently limited in size. This limitation has been recognized as a potential problem for decades. For example, Young (1956) suggested that small exclosures might be more susceptible to site-specific peculiarities. Laycock (1975) concluded that small exclosures are especially susceptible to fence effects and litter accumulation, and that the interior of a small exclosure is more likely to be influenced by its surroundings. Both authors asserted that exclosures should be large enough that the area inside the fence can potentially develop along an *independent* trajectory from the area outside. Although average exclosure size has increased with time, most exclosures in Utah are still smaller than 2.5 acres.

As noted previously, the herbivores that can gain access to an exclosure may be just as important a part of the exclosure's experimental design as the herbivores that are excluded by the fence. Exclosure size may have an effect on herbivore use within fenced areas. Gross and Knight (2000) noted that elk use increased with the size of the fenced area, and concluded that Laycock's (1975) minimum recommended size (0.4 ha, or 1 acre) was not large enough to guarantee elk presence in partitions with livestock-proof fencing. Like Young (1956), Gross and Knight (2000) suggested that exclosure fencing might be perceived as a trap.

Unfortunately, larger exclosures are less likely to be homogeneous than small exclosures, and therefore more difficult to classify. For example, the modestly sized Riddle Swale exclosure (1.8 acres, Dixie NF Powell RD) has been described as "black sagebrush, mixed shrub, partially seeded to intermediate wheatgrass" (Laycock 1969) and "aspen, sagebrush/grassland, and conifer (PJ)." (Kay and Bartos 1996) Obviously heterogeneous sites such as this may fail to yield robust generalizations.

Finally, as the size of a fenced area increases, the likelihood that it will be called an exclosure decreases. Very large fenced and rested areas are more likely to be referred to as pastures or allotments.

At present the question of optimal exclosure size remains unresolved. Most exclosures included in the inventory are large enough for visual demonstration, but many may be too small to adequately address long-term changes in plant community composition. The minimum size needed to effectively capture natural variation varies according to ecological circumstances, and therefore presents an unusually complex challenge for range ecologists.

Exclosure Maintenance

Young (1956) observed that many exclosures were too poorly maintained to be reliable. Our own work also suggests that fence failures are commonplace. In other words, we appear to be building more exclosures than we can maintain.

To understand the costs associated with this benign neglect, we need to be able to answer the following question: How severe, or how frequent, do trespass incidents have to be to completely compromise an exclosure study? The answer may depend on the exclosure's purpose. Trespass incidents appear to be relatively uncommon in *Monitoring / Demonstration* and *Experimental* exclosures, and these incidents typically involve only a few animals. However, even a few trespassing animals can potentially influence total overall biomass and community composition, especially if locally uncommon plants also happen to be highly palatable. Conversely, many riparian *Protection* exclosures experience severe, almost yearly, incursions. However, if the riparian exclosure is still able to facilitate the plant community's recovery, then it has still served its purpose, despite the trespass.

Monitoring Data

Our search uncovered a vast amount of quantitative data collected according to a wide array of methodologies (Appendix II, Business Rules and Validation Data). However, conversations with range professionals suggest that their inferences concerning exclosures are more likely to be based on *informal* monitoring methods, such as visual inspections, than on quantitative data. Unfortunately, informal inspections are also poorly documented, so they rarely appear in agency records.

Because they are relatively quick and easy, casual inspections may appear to be more efficient than rigorous quantitative studies. However, monitoring programs depend on data that are repeatable over long time frames. Rigorous quantitative studies are difficult to replicate because they are labor intensive, but casual inspections may be even more difficult to repeat (in the long term) because they are inherently subjective. A rigorous, repeatable qualitative methodology (e.g., Pellant et al. 2000) may be the ideal compromise.

Long-term monitoring programs also depend on objective methods for detecting significant changes. Photographs yield immediately accessible observations, but can only be used for ordinal studies (i.e., getting better, getting worse, or little change). Unfortunately, visual assessments may be misleading, in that woody species exhibit more dramatic changes in the long term, while herbaceous species are more likely to respond to short-term variation. In addition, casual inspections may be more likely to miss the less common species that typically comprise the majority of species in most plant communities. Fence-line contrast photos are popular because they can be dramatic (e.g., Pine Hollow, Ashley NF), but livestock trailing along the exclosure fence is a common problem (e.g., Henline and Mosby Mountain exclosures, Ashley NF, and Hotel Mesa, BLM Moab DO). Nevertheless, photographs may provide an avenue for injecting some objectivity into a casual monitoring program, in that one observer can assess photographs taken at many exclosures and over many years.

Exclosure studies rarely quantify the browsing or grazing pressure within the exclosure or on the landscape surrounding the exclosure. In fact, utilization studies were sufficiently uncommon that they did not warrant their own field in the digital database.

Browsing and grazing pressure is a product of the number and kinds of herbivores using the landscape surrounding the exclosure, not to mention the degree to which the exclosure fence excludes these herbivores. Multi-part exclosures may be especially valuable in this regard, because these can be used to identify *interactions* among herbivore and site effects. Unfortunately, the only utilization information that is widely available is general to the surrounding area (i.e., allotment or herd unit). As a consequence, the magnitude of the ecological force of interest is rarely known with adequate precision.

Studies that depend on treatment effects that are assumed or asserted, rather than known and demonstrated, are rightly viewed with suspicion. Range ecologists looking to improve the efficiency of exclosure studies would do well to start by measuring utilization and vegetation conditions simultaneously.

Monitoring Study Design

Exclosure monitoring rarely adheres to a regular schedule. Most monitoring occurs within the first few years of construction, with erratic monitoring (if any) thereafter. In most cases, the area was not studied prior to exclosure construction.

Regular, repeated monitoring is needed to account for inter-annual variation attributable to precipitation, such as the dramatic differences between wet and dry years seen at the Big Flat-The Knoll (BLM Moab DO), Delle Cove (BLM Salt Lake DO), and Squaw Hollow (Ashley NF) exclosures. Likewise, repeated monitoring is needed to capture singular events such as the wildfire that consumed the Granite Creek exclosure (BLM Moab DO). Regular sampling would also make it easier to identify the processes that lead to long-term vegetation changes. Monitoring schedules should also be consistent with respect to seasonal variation in livestock and game use.

Finally, exclosure studies rarely account for spatial variation. For example, most of the inside vs. outside and multi-part comparisons that we encountered were based on only one sample for each partition. Similarly, exclosure data are typically analyzed on a case-by-case basis, and comparisons among exclosures are exceedingly rare.

These concerns about monitoring study design are not new. Both Young (1956) and Laycock (1975) concluded that exclosures should be constructed and monitored to rigorous academic specifications (adequate size, sample plot replication, systematic repeated sampling, etc.).

Documentation

The term *metadata* refers to the attributes that we use to describe our data collection efforts, such as sampling methodology, locations, date, personnel, and so on (Michener et al. 1997). Metadata makes it possible for researchers to compare and synthesize data collected with different methods, at different locations, on different dates, and by different personnel—all of which are likely to vary during the course of a broad-scale, long-term monitoring project. Data unaccompanied by adequate metadata cannot contribute to a long-term or large-scale monitoring project. In other words, data unaccompanied by adequate metadata are useless.

For exclosures, sloppy nomenclature proved to be the most widespread metadata problem. Names are often used interchangeably, with the inevitable consequence that study data could not be unambiguously assigned to individual exclosures. Two well-known examples can be used to illustrate this problem.

- The name “Beef Basin” has been applied to 5 different exclosures on the BLM Monticello District (here named South Plain, Beef Basin No. 2, Stanley Park, Beef Basin Wash, and House Park).
- The names “Taylor Flat” and “Browns Park” have been applied interchangeably to 6 exclosures on the BLM Vernal District (here referred to as Taylor Flat, Taylor Flat OMNI, Taylor Flat Pyke North, Taylor Flat Pyke South, Browns Park, and Red Creek Flat).

For both of these cases, we were able to document several instances where studies had been filed under the wrong exclosure name, but only after considerable detective work. Unique names, signs posted on the exclosure, and better attention to detail would solve these problems. Other common metadata problems included incomplete data sheets (what if someone dropped the binder?) and poorly described sampling procedures (e.g., missing plot or transect locations).

Synthesis

Information does not automatically arise from the process of *collecting* data, but instead depends on the *analysis* and *synthesis* of data. Revisiting data prevents the inadvertent repetition of mistakes. Likewise, objectives must be periodically revisited to confirm their relevance. For

exclosures, this means trend summaries and inside vs. outside comparisons. Unfortunately, exclosure data are very rarely synthesized, and comparisons among exclosures are especially rare.

Because the present is a consequence of the past, observations must be placed in the appropriate historical context. Ignorance of the past can lead to serious errors in interpretation. For example, several highly manipulated sites, such as the Ritchie Flat (Dixie NF Pine Valley RD) and Brown's Park (BLM Vernal DO) exclosures, have been recommended as reference areas or "Potential Natural Communities."

Inside vs. outside comparisons are surprisingly rare, given that these comparisons are ostensibly one of the primary reasons for building exclosures. Surprisingly few exclosures have outside plots specifically established as an integral part of their design. In contrast, the opposite condition—exclosures with outside plots, but no plots inside the exclosure—was quite common, especially on BLM lands.

Information Accessibility and Transfer

With a few notable exceptions, most range conservationists were not aware of how much data they had, or where the data were stored. This strongly suggests that the data are not being used. In the most extreme case, we found an entire 5-drawer filing cabinet full of exclosure data that had escaped notice.

Data sharing among agencies (or within an agency) appears to be uncommon. Unfortunately, this lack of information transfer has led to lost opportunities. For example, the Bovine exclosure (BLM Salt Lake DO), a high-quality, old DX exclosure, has been incorporated into the UDWR Big Game Range Trend project. The BLM staff was completely unaware of this effort, and had none of this information in their files.

Synopsis

It should be clear by now that there are serious problems with the ways that exclosures are created, documented, and monitored. However, these problems are hardly unique to exclosures, but are likely to be found in any monitoring data set of this size.

Young (1956) concluded that exclosures have always been more important as demonstration (or "show me") devices than as study instruments. We agree with this assessment, but only because scientific protocols are rarely applied to exclosure monitoring studies, and because relatively few exclosures are actively monitored. Despite these limitations, we believe that exclosures can be potentially valuable learning tools, in that their results can be dramatic and counterintuitive, and real insight can be gained with a relatively modest effort. Unlike other data sets, exclosures are uniquely capable of clarifying local and regional trends in *both* vegetation and herbivory.

The primary goal of this project was to evaluate the potential of the current set of exclosures in Utah as a long-term monitoring database. Unfortunately, we cannot base such a determination on the information that had been collected at the time of our inventory. Clearly, this inventory is only the first step, and if that goal is to be realized, the following tasks will need to be accomplished:

- Some exclosures can be eliminated from consideration right away, either because they are too small, too frequently compromised, or have been too extensively modified. Inadequate monitoring data should *not* in itself be considered an adequate justification for elimination.

- The remaining exclusions will need to be evaluated according to a *common monitoring framework*. This framework should address as many of the characteristics described in Appendix I, Database Design Objectives and Methodology, as possible. This framework should also provide a *baseline* for further assessment. Most baseline data will need to be collected in the field.
- The baseline monitoring data collected in the previous step can be used to *identify* those exclusions with the greatest potential for long-term monitoring. These exclusions are likely to be relatively large, homogeneous, well studied, and unmanipulated.
- A central *information broker* should coordinate the implementation of a long-term monitoring protocol. This protocol should be developed in cooperation with the agency personnel who will be expected to participate in it.

Utah's exclusions represent a uniquely valuable historical legacy that also offers great promise for the future. Unfortunately the range professionals who best understand and most appreciate this legacy are retiring at a rapid rate. Therefore the UDWR, USFS, BLM, and other interested parties should start to implement these steps without delay, and in complete cooperation with each other, if the immense effort that has already been invested is to realize its full potential.

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APPENDIX I

DATABASE DESIGN OBJECTIVES AND METHODOLOGY

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Introduction

We adopted the rigorous database development procedure offered by Hernandez (1997) to create the Utah Exclosure Inventory database. This elaborate process was designed to ensure that the final digital database implementation would be able to satisfy project objectives.

Scientific databases and databases used for resource management rarely include such thorough documentation. However, as this project has progressed, it became clear to us that this documentation, which describes both the database contents and the steps needed to determine that content, could be of great value to anyone interested in developing their own databases.

Design Stage 1: Defining the Mission Statement and Mission Objectives

The UT Exclosure Inventory database is an analytical, rather than operational, database. In other words, the database was intended to be compiled and analyzed only once, and was not intended to be continually updated. Its primary function was to provide the information needed to evaluate the following key questions:

- Have exclosures provided valuable information for range managers?
- Which exclosures are most valuable now?

The process of assembling the database answered the first question, while the information contained in the database was applied to the second question. Figure I.1 elaborates on these questions.

Finally, one more critical, but not necessarily obvious, question needed to be posed: why did we need a *digital* database?

- The exclosure “program” is very complex (has many dimensions) and there are many avenues for exploration. When it comes to manipulating data, electronic databases are far superior to paper databases.
- We also wanted to explore the challenges associated with creating digital databases for natural resource management.

Design Stage 2: Analyzing the Current Database (and Information Requirements)

This analysis focused on the following key questions:

- Information needs
 - What kinds of data do the users currently use?
 - What kinds of data would the users like to have, but do not?
 - Where could the users go to get the data they need?
- Operations
 - How are data collected (forms)?
 - How are those data managed (storage and maintenance)?
 - How are those data retrieved (queries)?
 - How are those data manipulated (analyses)?
 - How are those data presented (reports)?

Figure I.1. Key questions addressed by the UT Exclosure Inventory database project.

Have exclosures provided valuable information for range managers?
What kinds of information do exclosures provide?
What do they tell us about the effects of herbivory?
Do they provide useful information about plant biomass removal?
Do they provide useful information about impacts to individual plant species?
Do they provide useful information about changes in community composition?
What do they tell us about range trends?
Do they provide useful information for assessing short-term trends?
Do they provide useful information for assessing long-term trends?
How is exclosure information being used?
How do exclosures contribute to “ordinary” decision-making?
How do exclosures contribute to long-term planning?
How do exclosures contribute to conflict management?
How do exclosures contribute to resource protection?
How do exclosures contribute to new scientific understanding?
How reliable is this information?
Do we do a good job of stating objectives?
Do we actually collect the data needed to address these objectives?
Do we use scientifically valid methods to collect these data?
Do these methods offer us the opportunity to learn something new?
How well do we translate data into information?
How often do we synthesize?
How often do we revisit old data?
How often do we communicate these lessons to others?
How valuable are exclosures, relative to other information tools?
What unique information do exclosures provide that other tools do not?
What are the costs most commonly associated with exclosures?

Which exclosures are most valuable now, and for what purpose?
What purposes are we most interested in?
Are plots established to evaluate the effects of herbivory also useful for monitoring?
Are plots established to protect resources or experiments also useful for monitoring?
Are plots established for monitoring also useful for experimentation or protection?
What do we need to know about an exclosure to assess its value?
Are the physical and experimental designs appropriate for drawing inferences?
Are the ecological circumstances typical or atypical?
Has the exclosure been adequately maintained throughout its history?
Has the exclosure been adequately monitored throughout its history?

Unfortunately, we found very little information for most exclosures. This obviously limited the amount and kinds of information that could be included in the database.

Table I.1 lists the *ideal* set of information that we would like to have for each exclosure, as determined by consultation with potential database users. Some of this information could only be gained from local sources (files and personal recollection), while others could be derived from maps. Table I.1 also indicates whether the information was widely available, i.e., something that range professionals already monitor out of habit.

Table I.1. Desired exclosure information and its availability. Physiographic, climatic, water, and soil features were derived from NRCS Ecological Site Descriptions (Pellant et al. 2000).

Characteristic	Widely Available?	Obtain From Maps?
Identity		
Exclosure name	Yes	No
Aliases	Yes	No
Location		
Legal description (Township, range, section, subdivision)	Yes	Yes
GPS coordinates	No	No
Narrative (directions)	No	No
Administration		
Land ownership / management agency	Yes	Yes
Management plan (AMP, etc.)	Yes	Yes
County	Yes	Yes
Exclosure design		
Parts		
Animals excluded	Yes	No
Fence type	Yes	No
Dimensions (sides and area)	Yes	No
Comparison (“control”) plots	No	No
Design diagram available	No	No
Physical history		
Date of establishment	Yes	No
Agency responsible for establishment and maintenance	Yes	No
Modifications (enlargements or additions)	No	No
Fence condition and maintenance (full history)	No	No
Physiographic features		
Landform	No	Yes
Elevation	Yes	Yes
Slope and aspect	No	Yes
Water table depth	No	No
Flooding or ponding (frequency, duration, and depth)	No	No
Runoff class	No	No
Climatic features		
Frost-free and freeze-free periods	No	Yes
Mean annual precipitation	No	Yes
Monthly precipitation and temperatures	No	Yes
Water features		
Cowardin wetland classification	No	Yes
Rosgen stream classification	No	Yes
Soil features		
Parent material (kind and depth)	No	Yes
Surface texture and modifiers	No	No
Surface and subsurface fragments	No	No
Drainage class	No	No
Permeability class	No	No
Soil depth	No	No
Electrical conductivity	No	No
Sodium adsorption ratio	No	No
Soil reaction (pH)	No	No
Available water holding capacity	No	No
Calcium carbonate equivalent	No	No

Table I.1, continued. Desired enclosure information and its availability. Physiographic, climatic, water, and soil features were derived from NRCS Ecological Site Descriptions (Pellant et al. 2000).

Characteristic	Widely Available?	Obtain From Maps?
Vegetation features		
Vegetation classification (for each system)		
What is the designation	Yes	Yes
Basis for designation	No	No
Current plant community		
Cover, dominance, and production	Yes	No
Health / condition	No	No
Plant community history		
Expected dynamics (state and transition diagram)	No	No
Treatment and disturbance history	No	No
Herbivores		
Major herbivores	Yes	Yes
Browsing / grazing pressure history	No	No
Studies		
Metadata		
Study (transect) diagram or description	Yes	No
Standard methods used, or methods described	Yes	No
Details adequately noted (date, participants, etc.)	Yes	No
Data treatment		
Quantitative method?	No	No
Forms filed	Yes	No
Study event summarized	No	No
Analysis	No	No
Inside vs. outside comparison?	No	No
Compared to previous studies at this location?	No	No
Compared to other locations?	No	No
Synthesis		
Reason for establishment	Yes	No
Lessons learned (summarized)	No	No
Success or failure (relative to objectives)	No	No
Published or otherwise distributed?	No	No

Design Stage 3: Creating the Preliminary Field List

Unfortunately, due to the paucity of data available for most enclosures, we could only address a subset of the ideal attribute list depicted in Table I.1. This subset constituted the *preliminary field list* (Table I.2). This preliminary field list was a product of many individual decisions concerning the value and availability of different kinds of data:

- We limited the database to descriptors that could be reasonably applied to *all* enclosures, parts, or studies.
- We elected to omit spatial data that were not readily available but could be obtained via maps (e.g., soils information, county, UDWR unit, etc.).
- We chose to use default (“Not found”) values to avoid problems commonly associated with null values (blanks).

- The studies were the most difficult aspect of the database to address.
 - We associated studies with parts instead of entire exclosures to accommodate synthetic studies that addressed all exclosure parts, and fence-line contrast photos that crossed parts.
 - We first tried to describe individual studies in terms of a fixed list of study types, but this proved to be too ponderous. Instead, we adopted a set of Yes/No fields to address the study characteristics that are most relevant to the project objectives.
 - We combined casual photo studies with expressly designed repeat photo studies, because casual photos can be repeated.
 - We decided to omit maintenance visits that simply describe the condition of the exclosure from the list of potential studies.
 - In our original scheme, we defined the term *study* to mean an individual data-gathering event, either within an exclosure partition or at an outside or nearby comparison plot. In this scheme, each part/year combination could have several records. Unfortunately, this approach proved to be too cumbersome. Instead, we decided to combine all of the data-gathering events for a given part/year combination into one record. As a consequence, one record could conceivably represent several separate attempts to gather data. Fortunately, this circumstance was very rare.
- We decided not to record individual study documents in the digital database, but instead opted for a set of Yes/No descriptors.
 - Using the Yes/No format for the different kinds of studies removes the cardinality issue (none or blank) and the need for an extra table.
 - We adopted a standardized document naming system that should make the documents relatively easy to identify (Design Stage 10).
- The digital database does not include fields for supplemental documents (maps, diagrams, and soil descriptions) because these did not contribute to our analysis. The standardized document naming system should make these documents easy to identify.

Table I.2. Preliminary field list for the UT Exclosure Inventory database.

Characteristic	Cardinality	Can this be standardized?
Identity		
Exclosure name	Unique	No
Administration		
Land ownership / management agency	1	Limited set
Location		
Legal description (these fields are tied together)		
Township	0 or 1	Formatted
Range	0 or 1	Formatted
Section	0 or 1	Formatted
Subdivision	0 or 1	Formatted
Exclosure design		
Purpose for establishment (exclosure type)	1	Limited set
Parts (for each part)		
Animals excluded	1	Limited set
Fence type	1	Limited set
Dimensions		
Side dimensions (ft)	0 to 1	Formatted
Area (ac)	0 to 1	Numeric
Physical history		
Date of establishment	1	Numeric
Current condition	1	Limited set
Alterations, treatments, and disturbances		
Type of alteration, treatment, or disturbance	0 to several	No
Year altered, treated, or disturbed	0 to several	Numeric
Vegetation features		
Range Type	1	Limited set
Studies		
Study date (year)	0 to several	Numeric
Part studied (fenced part, outside, or summary)	0 to several	Limited set
Quantitative vegetation study?	1	Yes/No
Qualitative vegetation study?	1	Yes/No
General-view photo study?	1	Yes/No
Close-up photo study?	1	Yes/No
Fenceline contrast photo study?	1	Yes/No
Study event summarized?	1	Yes/No
Inside vs. outside comparison?	1	Yes/No
Trend summarized?	1	Yes/No
Additional Comments	0 to 1	No

Design Stage 4: Creating the Preliminary Table List

The main subjects of interest (tables) could be inferred from the list of attributes (fields). At this stage there were 3 primary data tables:

- *Exclosures (entities)*: This data table contains the information needed to describe an individual exclosure as a whole, where the term *exclosure* refers to one discrete entity on the ground. This table has one record for each exclosure (entity). The fields were limited to those that are needed to assess the exclosure's value as a learning tool or as a source for monitoring data. The exclosure is the most basic unit of analysis.
- *Parts (entities)*: This data table contains the information needed to describe an exclosure part, where the term *part* refers to one enclosed (fenced) area. Although exclosure parts are clearly a component of exclosures, exclosures also vary in the number and kinds of parts that constitute their design. This table has one record for each exclosure part.
- *Studies (events)*: This data table contains the information needed to describe a cohesive data set, where the term *study* refers to the combination of exclosure part and study year for which the data were collected. While the exclosures and parts tables describe physical features, this table describes how the exclosure has been used.

Design Stages 5, 6, and 7: Refining the Preliminary Field List, Creating the Preliminary Table Structures, and Setting Primary Keys

Some of the fields described in Design Stage 3 did not conform to the characteristics of an *Ideal Field* (Hernandez 1997). In database design jargon, the process of modifying tables and fields to minimize errors is called *normalization*. For the UT Exclosure Inventory database, several steps were needed to ensure that the database conformed to the *third normal form*, which defines database integrity at the table level (Whitehorn and Marklyn 2002).

Although the preliminary field list did not include any multipart fields (fields that could be deconstructed into smaller components) or duplicate fields (fields that record separate instances of the same kind of data), it did include multi-valued fields (fields that could contain more than one value per record). These fields needed to be subdivided into component fields representing only one attribute each.

In addition to subdividing multi-valued fields, we also took the following steps to refine the preliminary field list (Table I.3):

- Aliases were included in the [Exclosures].[Additional Comments] field, rather than as a separate field, to simplify the database structure.
- Because it is a calculated field, the number of parts should be re-created in a view, rather than stored in a data table.
- We chose not to link the [Parts].[Animals Excluded] and [Studies].[Part Studied] fields because studies also occur in nearby plots that are not uniquely associated with an exclosure. As a consequence, the *Studies* table includes a [Part Studied] field that introduces a minor amount of redundancy into the overall database.

The act of refining the preliminary field also expanded the set of data tables from 3 to 4 (Table I.3). Because we chose to use one set of characteristics to describe all exclosures, the database does not include any subset tables.

- The *Exclosures* data table has one record for each individual exclosure. We rearranged fields to improve logical continuity.
- The *Parts* data table contains the characteristics needed to adequately describe an exclosure part. Each exclosure has at least one part, and some may have several parts.
- The *Alterations Treatments and Disturbances* data table contains information describing alterations, treatments, or disturbances that have been recorded for exclosures. Most exclosures do not have a treatment or disturbance record. Each record represents one alteration, treatment, or disturbance for a particular exclosure. These were formerly multi-valued fields in the *Exclosures* data table.
- The *Studies* data table contains the information needed to describe the studies that have been conducted in, immediately outside of, or near to exclosures. Each record represents all of the studies conducted in an exclosure part or near an exclosure during a particular year. As a consequence, a record may represent a single study “event,” where the event is defined as a visit to the exclosure, or several events, if the exclosure was visited more than once in a particular year. Likewise, an individual event may include one or several kinds of data collection efforts (photographs, line intercept sampling, etc.). An exclosure may have many studies or none. The Yes/No fields are not mutually exclusive or independent. Note that outside or nearby plots cannot have a “Yes” value for either fence-line contrast photos or inside vs. outside comparisons.

Finally, the tables described in Design Stages and 4 and 6 did not yet conform to the characteristics of *Ideal Tables* (Hernandez 1997). While we removed duplicate fields, minimized redundancy, and ensured that each table addressed a distinct subject, not all tables had primary keys. We used the following criteria to define primary keys:

- The [Exclosure Name] field serves as the primary key for the *Exclosures* table and as a foreign key field for the 3 linked tables (Table I.3). As a general rule, exclosure names were unique. In cases where an exclosure name was used several times (e.g., Cottonwood, Big Flat), we appended additional information (such as location or administrative unit) to the name to provide a unique identifier.
- For the 3 linked tables, we chose to create simple primary key fields by concatenating the [Exclosure Name] field with the combination of fields that uniquely identifies each record.
 - For the *Parts* table, individual exclosure partitions were uniquely identified by concatenating the [Parts].[Animals Excluded] field onto the [Parts].[Exclosure Name] field.
 - For the *Alterations Treatments and Disturbances* table, individual events were uniquely identified by concatenating the [Alterations Treatments and Disturbances].[ATD Year] field onto the [Alterations Treatments and Disturbances].[Exclosure Name] field.
 - For the *Studies* table, individual records were uniquely identified by concatenating the [Studies].[Study Year] and [Studies].[Part Studied] field onto the [Studies].[Exclosure Name] field. This combination was also used to uniquely label individual study documents (Design Stage 10).

APPENDIX II

BUSINESS RULES AND VALIDATION DATA

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Introduction

We implemented two complementary kinds of business rules within the MS Access database, both of which were intended to control database content:

- We defined input formats for the following fields:
 - [Exclosures].[Township]: entered as T#S or T#N
 - [Exclosures].[Range]: entered as R#W or R#E
 - [Exclosures].[Section]: entered as S#
 - [Exclosures].[Subdivision]: entered as XXYY where XX of YY. For example, NESW is the NE ¼ of the SW ¼.
 - [Parts].[Dimensions]: entered as Y ft x Z ft, includes “Irregular” and “Not found.”

- We used combo boxes and validation tables to populate the following fields (defined in detail below):
 - [Exclosures].[Landowner]
 - [Exclosures].[Purpose]
 - [Exclosures].[Condition]
 - [Exclosures].[Range Type]
 - [Parts].[Animals Excluded] and [Studies].[Part Studied]
 - [Parts].[Fence Type]

Likewise, we also standardized the following database components:

- Key words for [Alterations treatments and disturbances].[ATD Description]
- Studies and forms that qualify as:
 - *Quantitative* vegetation studies for the [Studies].[Quantitative] field
 - *Qualitative* vegetation studies for the [Studies].[Qualitative] field
- Photo study classification and assignment to exclosure parts:
 - *General-view* photos for the [Studies].[GV Photo] field
 - *Close-up* photos for the [Studies].[CU Photo] field
 - *Fence-line* contrast [Studies].[FLC Photo] field
- Study document classification:
 - *Study summary* for the [Studies].[Summarized] field
 - *Inside vs. outside comparison* for the [Studies].[IO Comparison] field
 - *Trend summary* for the [Studies].[Trend Summary] field

Land ownership / management agency

We used the following standard values to populate the [Exclosures].[Landowner] field:

USFS Ashley NF Duchesne/Roosevelt RD	USFS Wasatch-Cache NF Salt Lake RD
USFS Ashley NF Flaming Gorge RD/NRA	BLM Cedar City DO
USFS Ashley NF Vernal RD	BLM Fillmore DO
USFS Dixie NF Cedar City RD	BLM Grand Staircase-Escalante NM
USFS Dixie NF Escalante RD	BLM Henry Mountains Field Station
USFS Dixie NF Pine Valley RD	BLM Kanab DO
USFS Dixie NF Powell RD	BLM Moab DO
USFS Dixie NF Teasdale RD	BLM Monticello DO
USFS Fishlake NF Beaver RD	BLM Price DO
USFS Fishlake NF Fillmore RD	BLM Richfield DO
USFS Fishlake NF Loa RD	BLM Salt Lake DO
USFS Fishlake NF Richfield RD	BLM St. George DO
USFS Manti-La Sal NF Ferron/Price RD	BLM Vernal DO
USFS Manti-La Sal NF Moab RD	NPS Bryce Canyon NP
USFS Manti-La Sal NF Monticello RD	NPS Canyonlands NP
USFS Manti-La Sal NF Sanpete RD	NPS Capitol Reef NP
USFS RMRS Desert Experimental Range	NPS Dinosaur NM
USFS Uinta NF Heber RD	NPS Glen Canyon NRA
USFS Uinta NF Pleasant Grove RD	Private
USFS Uinta NF Spanish Fork RD	UT SITLA
USFS Wasatch-Cache NF Evanston RD	UT DWR
USFS Wasatch-Cache NF Kamas RD	UT DWR Great Basin Research Center
USFS Wasatch-Cache NF Logan RD	
USFS Wasatch-Cache NF Mountain View RD	
USFS Wasatch-Cache NF Ogden RD	

Location attributes

Although some exclosures cross section boundaries, we opted to use only one legal description to describe the location of each exclosure (fields [Exclosures].[Township], [Exclosures].[Range], [Exclosures].[Section], and [Exclosures].[Subdivision]). This is appropriate for a pinpoint approach (as opposed to polygons) to locating these entities. It also has the added benefit of greatly simplifying the database structure.

Exclosure Type / Purpose

We used the following standard values to populate the [Exclosures].[Purpose] field:

Code	Interpretation
Ex	Experimental
Ex-M/D	Experimental (Monitoring / Demonstration)
M/D	Monitoring / Demonstration
Pr-C	Protection (Cultural)
Pr-R	Protection (Riparian)
Pr-S/R	Protection (Seeding or regeneration)
Pr-Sp	Protection (Springs)
Pr-T&ES	Protection (T&ES)
?	Not found

Current Condition

We used the following standard values to populate the [Exclosures].[Condition] field:

Code	Interpretation
F	Functioning
H	Historic
R	Needs Repair
?	Not found

Range Type

We used SRM range type descriptions (Shiflet 1994) to populate the field [Exclosures].[Range Type]. Unfortunately, this classification scheme is somewhat inconsistent. Nevertheless, we retained this system even after it became clear that was inadequate (montane parks, mountain brush, and riparian sites were especially problematic), mainly because we did not have time to revisit and re-label all of the exclosures.

Note that these assignments were usually based on photographs or narrative descriptions, and that they should be treated as approximate.

Code	Range Type Description
109	Ponderosa pine shrubland
110	Ponderosa pine grassland
211	Creosote bush scrub (including Joshua tree)
212	Blackbrush
216	Montane meadows (wet and dry)
217	Wetlands
401	Basin big sagebrush
402	Mountain big sagebrush
403	Wyoming big sagebrush
405	Black sagebrush
408	Other sagebrush types
409	Tall forb
410	Alpine rangeland
411	Aspen woodland
412	Pinyon-juniper woodland
413	Gambel oak
414	Salt desert shrub
415	Curlleaf mountain-mahogany
416	True mountain-mahogany
418	Bigtooth maple
421	Chokecherry-Serviceberry-Rose
422	Riparian
501	Saltbush-Greasewood
502	Grama-Galleta
N/A	Montane grasses (see below)
N/A	Not found

Because the information needed to adequately classify exclosures into one of the following range types was often unavailable, we aggregated the following range types into a single “Montane grasses” type:

Code	Range Type Description
302	Bluebunch wheatgrass-Sandberg bluegrass
303	Bluebunch wheatgrass-western wheatgrass
304	Idaho fescue-bluebunch wheatgrass
308	Idaho fescue-tufted hairgrass
309	Idaho fescue-western wheatgrass

Although potentially appropriate, we did not use the following range types:

Code	Range Type Description
104	Antelope bitterbrush-bluebunch wheatgrass
105	Antelope bitterbrush-Idaho fescue
107	Western juniper-big sagebrush-bluebunch wheatgrass
210	Bitterbrush
301	Bluebunch wheatgrass-blue grama
306	Idaho fescue-slender wheatgrass
310	Needle-and-thread-blue grama
404	Threetip sagebrush
406	Low sagebrush
417	Littleleaf mountain-mahogany
419	Bitter cherry
420	Snowbrush
504	Juniper-pinyon pine woodland (SW type)

Animals Excluded and Part Studied

We used combinatorial codes to populate the part-description fields [Parts].[Animals Excluded] and [Studies].[Part Studied]. While Yes/No fields might have been easier to apply, the combinatorial codes (limited set) should be easier to understand.

- Note that any enclosure that excludes game also excludes livestock by default (these fields are not strictly independent).
- We combined the two major kinds of livestock (sheep and cattle) and the two major kinds of game (elk and deer) because fences designed to exclude one are likely to exclude the other.
- We distinguished rabbits, rodents, and gophers because in most cases it was not clear whether range professionals meant to refer to rabbits or true rodents.
- Studies conducted at an enclosure site after the enclosure had been removed were referred to by the part type that used to occur at that location.

We used the following codes to populate the [Parts].[Animals Excluded] and [Studies].[Part Studied] fields:

Code	Interpretation
AX	Antelope and livestock excluded
DRX	Deer, elk, livestock, and rabbits excluded
DX	Deer, elk, and livestock excluded
LGX	Livestock and gophers excluded
LMX	Livestock and rodents excluded
LRX	Livestock and rabbits excluded
LX	Livestock excluded
RR	Livestock excluded
NF	Not found

These codes are exclusive to the [Studies].[Part Studied] field:

Code	Interpretation
OP	Outside (matched) open range plot
NP	Nearby (not matched) open range plot

Fence Type

We used the following standard values to populate the [Parts].[Fence Type] field:

3-strand wire	Electric
3-strand let-down	Log
4-strand let-down	Net wire
4-strand wire	Net wire let-down
5-strand wire	Post and pole
6-strand let-down	Not found
6-strand wire	
9-strand wire	

Alterations, Treatments, and Disturbance Description

Because many exclosures have experienced a combination of alterations, treatments, and disturbances, we did not use standard values to populate the [Alterations Treatments and Disturbances].[ATD Description] field. However, we did use standardized key words to describe the different kinds of alterations, treatments, and disturbances. Therefore, a single record may contain any combination of the following key words in the [Alterations Treatments and Disturbances].[ATD Description] field:

Burned
Chained
Cut
Fertilized
Harvested
Planted (with grasses, forbs, and/or shrubs)
Plowed
Railed
Ripped
Seeded (with grasses, forbs, and/or shrubs)
Sprayed
Trenched
Broken fence repaired (default)

Quantitative Vegetation Studies

Table II.1 lists the forms that we classified as quantitative vegetation studies for the [Studies].[Quantitative] field.

Table II.1. Forms used to populate the [Studies].[Quantitative] field.

Agency	Form Title	Form Code	Form Number
USFS	Age Class of Shrubs Field Data Sheet	ACS	None
USFS	Age-Form Class Height and Availability of Shrubs	SHRUBS	ANF 1991
USFS	Browse Twig and Leaf Utilization	BU	None
USFS	Browse Utilization	BU	222-R-4 rev. Dec. 1957
USFS	Browse Utilization Field Notes	BU	None
USFS	Browse Utilization Summary Sheet		R4-2600-2 (5/61)
USFS	Computation of Frequency and Trend	CFT	None (ANF)
USFS	Cover Analysis	CA	None
USFS	Cover Data Form	CDF	None
USFS	Cover Transects Summary Form for a Site	CT Sum	None
BLM	Data Summary Inside Nested Plot	DSINP	None
USFS	Density, Height, Age Class, Form Class, and Availability of Shrubs	SHRUBS	None
USFS	Ecological and Resource Value Scorecard	ERVS	R4-FS-2200-42 (4/86)
USFS	Green Line Cross Section Composition Level III	GLCSC	None
USFS	Green Line Summary Sheet Level III	GLSS	None
BLM	Ground Cover and Frequency Data	GCFD	NV 6630-2 January 1984
USFS	Ground Cover Point Method	GCPM	None

Table II.1, continued. Forms used to populate the [Studies].[Quantitative] field.

Agency	Form Title	Form Code	Form Number
USFS	Guide to Rating Ecological Status and Resource Values	Guide to Rating ESRV	R4-FS-2200-41 (4/86)
USFS	Height, Age Class, Form, Availability, and Density of Shrubs	SHRUBS	None
BLM	Key Browse Species Transect	KBST	6630-2 (November 1968)
USFS	Line Intercept Data	LID	R4-2200-6 (mod. 4/02)
USFS	Line Intercept and Shrub Density Data	LISDD	R4-2200-6 (mod. 4/02)
USFS	Line Intercept and Shrub Density Summary	LISDS	R4-2200-6 (mod. 4/02)
USFS	Line Intercept Record	LIR	214-R-4 Nov. 1957
USFS	Line Intercept Record	LIR	R4-2600-5 2/63
USFS	Line Intercept Record	LIR	R4-2600-5 (June 1966)
USFS	Line Intercept Record	LIR	R4-2600-5 11/70
USFS	Line Intercept Record	LIR	None (ANF 1995)
USFS	Line Intercept Record Summary	LIR Sum	None (ANF)
USFS	Line Intercept Trend	LIT	None
USFS	Live Vegetation Composition/Structure	LVCS	None
USFS	Nested Frequency and Ground Cover	NFGC	ANF 1998
USFS	Nested Frequency Data	NFD	R4-2200-22 (4/86)
USFS	Nested Frequency Data	NFD	R4-2200-22A (6/89)
USFS	Nested Frequency Data Summary	NFDS	None
BLM	Nested Frequency Record	NFR	None
USFS	Nested Frequency-Shrub Density Plot Layout		None
USFS	Nested Frequency/Shrub Density Summary	NFSDS	None
USFS	Nested Frequency Transects-Summary Form for a Site	NFT Sum	R4-2200-49 (1/93) modified
USFS	Nested Plot Frequency Worksheet	NPFW	None
USFS	Ocular Cover Data	OCD	None (ANF)
USFS	Ocular Crown Cover Data	OCCD	None
USFS	Ocular Estimate of Crown Cover	OECC	None
USFS	Ocular Ground Cover Data	OGCD	None
USFS	Parker Tabulation Sheet	PTS	01-2200-23
USFS	Pellet Group Count Record	PGCR	R4-2600-1 5/64
USFS	Period Trend Record	PTR	None
USFS	Photo Plot Transect Vegetation Map		R4-2200-35 5/63
USFS	Preliminary Score Card Vegetation Condition Guide		None
USFS	Preliminary Score Card Vegetation Trend Guide		None
USFS	Preliminary Score Card Soil Condition Guide		None
USFS	Preliminary Score Card Soil Trend Guide		None
USFS	Quadrat form (two sides: Quadrat Map and Quadrat Data)	QM & QD	Ogden 9-3-25
USFS	Quadrat form (two sides: Quadrat Map and Quadrat Data)	QM & QD	G3 D4 Ogden-8-6-27
USFS	Quadrat form (two sides: Quadrat Map and Quadrat Data)	QM & QD	279 R-4 July 1958
USFS	Range Condition and Trend Site Analysis	RCTSA	DNF and FNF, 6/15/01
USFS	Range Study Photo Field Record		R4-2200-4 June 1959
BLM	Range Trend Data	RTD	None
BLM	Range Trend Plot Data	RTPD	4412-19 April 1967
BLM	Range Trend Plot Data	RTPD	4412-19 July 1968
BLM	Range Trend Plot Data	RTPD	4412-19 July 1971

Table II.1, continued. Forms used to populate the [Studies].[Quantitative] field.

Agency	Form Title	Form Code	Form Number
BLM	Range Trend Plot Data	RTPD	4412-19 October 1975
BLM	Range Trend Study Data	RTSD	None
BLM	Range Utilization Key Forage Plant Method	RU	4412-12 April 1966
USFS	Record of Line Transect	RLT	R4-2200-19 (5/82)
USFS	Record of Permanent Line Transect	RPLT	None
USFS	Record of Permanent Line Transect	RPLT	172-R4 July 1957
USFS	Record of Permanent Line Transect	RPLT	172-R4 May 1958
USFS	Record of Permanent Line Transect	RPLT	R4-2200-19 Jan. 1961
USFS	Record of Permanent Line Transect	RPLT	R4-2200-19, 5/64
USFS	Record of Permanent Line Transect	RPLT	R4-2200-19 5/82
USFS	Resource Field Data Record	RFDR	None
USFS	Riparian Green Line Transect Data	RGLTD	None
USFS	Shrub and Tree Density and Cover Analysis	STDCA	None (MLSNF)
USFS	Shrub Age-Form Class Height and Hedging Summary	SHRUBS Sum	None
USFS	Shrub Density, Age, Height Class, Form Class, and Hedging Category Summary	SHRUBS Sum	ANF 1995
USFS	Site Analysis	SA	R4-2200-13, 5/64
USFS	Site Analysis	SA	R4-2200-13 4/81
USFS	Site Analysis	SA	R4-2200-13 8/81
USFS	Site Analysis for Special Studies	SASS	01-2200-19 9/65
USFS	Site Analysis Summary	SAS	R4-2200-14 8/81
BLM	Soil Vegetation Inventory Method	SVIM	4412-27 June 1979
BLM	Soil-Vegetation Inventory Method	SVIM	4412-27 April 1982
BLM	Species Frequency Data	SFD	None
USFS	Statistical Summary of Transects	SST	01-2200-3 3/70
USFS	Step III Photo Record		R4-2200-7, July 1959
USFS	Step III Photo Record		R4-2200-7, 4/66
USFS	Step III Photo Record		01-2600-7 10/67
USFS	Step III Photo Record		R4-2200-7 8/68
USFS	Studies Site Analysis Summary	SSAS	01-2200-20 9/65
USFS	Study Transect Summary	STS	None (MLSNF)
USFS	Summary Nested Frequency Transect	SNFT	None (MLSNF)
USFS	Summary Nested Frequency Transects for a Site	NFT Sum	None
USFS	Summary of Transect Cluster	STC	R4-2200-21 5/64
USFS	Summary of Transect Cluster	STC	2200-21 3/66, DPSU/66 1573-22
USFS	Summary of Transect Cluster	STC	R4-2200-21 3/80
USFS	Summary of Transect Cluster	STC	R4-2200-21 6/82
USFS	Summary of Range Trend Data	SRTD	R4-2200-20 6/82
USFS	Summary of Transect Cluster and Current Range Condition and Trend Rating		rev. Feb. 1953
USFS	Summary of Transect Cluster and Current Range Condition and Trend Rating		156-R-4 June 1958
USFS	Summary of Transect Cluster and Current Range Condition and Trend Rating		R4-2200-21 March 1961
USFS	3-Step Method for Measuring Trend in Range Condition		R4-2200-7 July 1959
SCS	Total Annual Yield and Composition Record	TAYCR	UT-25 (rev. 1/64)
USFS	Transect Cluster Summary and Current Range Condition and Trend Rating	TCS	None

Table II.1, continued. Forms used to populate the [Studies].[Quantitative] field.

Agency	Form Title	Form Code	Form Number
USFS	Tree and Shrub Cover Analysis	TSCA	MLS-2600-1 4/63
USFS	Tree and Shrub Cover Analysis	TSCA	MLS 2600-1 3/65
USFS	Tree and Shrub Cover Analysis	TSCA	10-2600-1 10/67
BLM	Trend Study Data Quadrat Frequency Method	TSDQFM	None
BLM	WC&D Data Sheet	WC&D	None

Qualitative Vegetation Studies

Table II.2 lists the forms that we classified as qualitative vegetation studies for the [Studies].[Qualitative] field.

Table II.2. Forms used to populate the [Studies].[Qualitative] field.

Agency	Form Title	Form Code	Form Number
USFS	Apparent Trend	AT	R4-2200-25 7/64
BLM	Ecological Site Field Form	ESFF	None
USFS	Experimental Enclosures	EE	None
USFS	Experimental Enclosure Report (two sides)	EER	G-7 D4 Ogden –11-18-27
USFS	Experimental Enclosure Report		G-7 R-4 revised January 1940
BLM	Forage Survey Write-up (Ocular Reconnaissance Method)	FSTWU	4412-1 November 1970
USFS	Grazing Enclosure Report	GER	None
USFS	Grazing Impact Analysis	GIA	R4-2200-8 April 1960
USFS	Grazing Impact Study Form	GISF	R4-2200-8 July 1959
USFS	Grazing Reconnaissance Note Sheet	GRNS	7640 rev. March 1924
USFS	Individual Species Plot Report	ISPR	20-R-4 rev. October 1937
USFS	Individual Species Plot Report	ISPR	20 R-4 revised May 1947
BLM	Observed Apparent Trend	OAT	None
USFS	Photo Plot Transect Condition Record	PPTCR	R-4-2200-38 10/64
USFS	Photo Plot Transect Condition Record	PPTCR	R4-2200-38 11/79
USFS	Photo Plot Form E Vegetation	PP Form E	None
USFS	Plant Community Analysis		10-2200-25
BLM	Range Condition Transect Score Card	RCTSC	4-1419, July 1959
BLM	Range Condition Classification	RCC	.23B5e (3)
USFS	Range Revegetation Project Sheet	RRPS	85 R-4 July 1953
USFS	Sample Plot Report	SPR	None
USFS	SAMPLE PLOT – Transect	SPT	None
USFS	Soil Description form		MLS-2500-2 6/62
BLM	Stream Habitat and Channel Stability Survey		UT-06-6671-2 Nov. 1975
BLM	Stream Habitat Survey Field Form		USO 6671-1 June 1975
USFS	Summary for Grazing Impact Analysis	SGIA	R4-2200-3 rev. April 1960

Other Forms

We also scanned a variety of additional forms when they included valuable information, but did not record these as studies in the digital database. These forms are listed in Table II.3.

Table II.3. Additional forms that did not qualify as quantitative or qualitative studies, but which were incorporated into the digital data set.

Agency	Form Title	Form Code	Form Number
USFS	Browse Utilization Data	BU	None
USFS	Browse Utilization Field Sheet	BU	R4-2600-17 (2/68)
USFS	Browse Utilization Study	BU	None
USFS	Browse Utilization Summary Sheet	BUS	R4-2600-2 (5/61)
BLM	Continuation Sheet		36, July 1966
NRCS	Ecological Site Description	ESD	None
BLM	Final Project Report	FPR	4-1209, March 1952
BLM	Improvement Documentation Report – Master		None
BLM	Job Documentation Report	JDR	1630-8 November 1972
BLM	Job Documentation Report	JDR	1732-1 March 1979
BLM	Job Documentation Report	JDR	1732-1 August 1981
BLM	Job Documentation Report	JDR	1744-1 June 1986
BLM	Job Inspection Record and Maintenance Schedule	JIRMS	7120-3 Sept. 1971
BLM	Lentic Standard Checklist		None (CCDO, rev. 99)
USFS	Location of Browse Utilization Transect	LUBT	None
BLM	Location Plat		4-1216 June 1952
BLM	Pellet Group Count Record	PGCR	R4-2600-1 (5/64)
BLM	Permanent Big Game Pellet Group Transect	PBGP GT	None
BLM	Project Completion Report	PCR	4-1209, July 1959
BLM	Project Completion Report	PCR	4-1209 August 1963
BLM	Project Completion Report	PCR	7220-5 January 1966
BLM	Project Completion Report	PCR	7220-5 February 1967
BLM	Project Estimate	PE	4-1208, March 1952
BLM	Project Estimate	PE	4-1208 August 1959
BLM	Project Estimate	PE	7220-1 June 1965
BLM	Project Estimate	PE	7220-1 April 1967
BLM	Project Expenditures		4-1145 August 1959
BLM	Project Expenditures Tally Sheet		4-1145, Revised Jan. 1951
BLM	Project Inspection Report	PIR	4-1161, August 1959
BLM	Project Inspection Record and Maintenance Schedule	PIRMS	1740-1 July 1986
USFS	Project Work Inventory-Project Sheet	PWIPS	674 rev. March 1941
USFS	Range Study Photo Field Record		R4-2200-4 (June 1959)
BLM	Range Trend Plot Location Data	RTPLD	4412-24 July 1971
BLM	Range-Wildlife-Watershed-Recreation Job Planning Checklist		CCDO-1732-1a
BLM	Rangeland Improvement Project System (RIPS) data entry		None
BLM	Record of Permanent Line Transect		4-1420 July 1959
BLM	Record Sheet for Permanent Pellet Group Transects	RSPPGT	None
BLM	Riparian Inventory Form		None
BLM	Riparian Project Inspection and Maintenance Record		1740-1a September 1989
BLM	Riparian Study Area Information	RS AI	None (CCDO)
BLM	Section Plat		R1-29 January 1954
NRCS	Soil Description	SD	None
BLM	Study Location and Documentation Data	SLDD	None

File-Naming Conventions

We used the following file-naming convention for data sheets associated with formal studies:

[Enclosure Name] [Year] [Part Studied] [Study Type] [Transect, Belt, or Plot #] [Form Type]

For the scanned file names, we used the abbreviated form codes given in the previous tables whenever possible to avoid operating system conflicts.

We also applied this file-naming convention to photographs associated with Parker 3-Step, Nested Frequency, and other formal data collection studies. We used the following file-naming convention for all other photographic documents:

[Enclosure Name] [Year] [Part Studied] [Photo Location] [Photo Document Type]

We used the codes given above for [Studies].[Part Studied] and study type. For scanned file names, we used the following shorthand to describe the photo document type:

CU PS	Close-up photo sheet (includes narrative information)
GV PS	General View photo sheet
OV PS	Overview photo sheet
FLC PS	Fence-line contrast photo sheet
CUP	Close-up photo (photo only)
FLCP	Fence-line contrast photo
GVP	General view photo
OVP	Overview photo
CUS	Close-up slide
FLCS	Fence-line contrast slide
GVS	General view slide
CPPS	Camera point photo sheet

Literature Cited

Shiflet, T.N., editor. 1994. Rangeland Cover Types of the United States. Society for Range Management, Denver CO. 152 p.

Table I.3. Preliminary table structures and refined preliminary field list.

Table and Field	Data Type	Key
Exclosures		
Exclosure Name	Plain text	Primary key
Administration: Land ownership / management agency	Limited text	No
Location: Township	Plain text	No
Location: Range	Plain text	No
Location: Section	Plain text	No
Location: Subdivision	Plain text	No
Exclosure Purpose / Type	Limited text	No
Date of establishment	Numeric	No
Current condition	Limited text	No
Range type	Limited text	No
Additional comments	Memo	No
Parts		
Exclosure Name	Plain text	Foreign key
Animals excluded	Limited text	No
Fence type	Limited text	No
Dimensions (ft)	Plain text	No
Area (ac)	Numeric	No
Alterations Treatments and Disturbances		
Exclosure Name	Plain text	Foreign key
Year altered, treated or disturbed	Numeric	No
Description of alteration, treatment, or disturbance	Plain text	No
Studies		
Exclosure Name	Plain text	Foreign key
Year studied	Numeric	No
Part studied (includes outside plots and summaries)	Limited text	No
Quantitative vegetation study?	Yes/No	No
Qualitative vegetation study?	Yes/No	No
General-view photo study?	Yes/No	No
Close-up photo study?	Yes/No	No
Fence-line contrast photo study?	Yes/No	No
Study event summarized?	Yes/No	No
Inside vs. outside comparison?	Yes/No	No
Trend summarized?	Yes/No	No

Design Stage 8: Field Specifications (Field-Level Data Integrity)

Hernandez (1997) used the term *Field Specifications* to refer to the field information needed to implement the conceptual database in a digital framework. In an MS Access database, this information is stored as *Field Properties*. Rather than catalog the field specifications here, we encourage users to consult the Field Properties associated with each field in the database.

However, two important points should be raised here:

- While the [Exclosure Name] field occurs in all tables, the remaining fields are unique to their respective data tables.
- With the exception of the [Exclosures].[Additional Comments] field, all fields are mandatory. Non-key fields include default values.

Design Stage 9: Table Relationships (Relationship-Level Data Integrity)

The relationships in this database are all simple, direct, dependent, and ownership-oriented. The *Exclosures* table is the parent table in all relationships.

- *Exclosures* to *Parts*
- *Exclosures* to *Alterations Treatments and Disturbances*
- *Exclosures* to *Studies*

All relationships have the following characteristics:

- The field [Exclosure Name] serves as both primary key and foreign key fields.
- Referential Integrity enforced
- Type of Relationship: one-to-many
- Modification Rule: Cascade update (to allow changes from a query-based form)
- Deletion Rule: Cascade delete (ownership-oriented)
- Join Type: Inner join (the dynaset should include only records that have corresponding values in both tables)
- Type of Participation:
 - Parent table = mandatory
 - Child table = optional
- Degree of Participation:
 - Parent table = (1, 1)
 - Child table = (0, N)

Design Stage 10: Business Rules and Validation Tables

The term *business rules* refers to a set of standards adopted during the database design process to make digital database implementation easier and more reliable (Hernandez 1997). Typically, business rules define the range of potential values for individual fields, as well as allowable relationships among fields and tables.

For the Utah Exclosure Inventory database, we implemented business rules as standard conventions recorded in validation tables. With the exception of the Yes/No fields included in the *Studies* table (which use check boxes), data were validated at the form level with combo boxes. Because of their complexity, business rules have been assigned to a separate appendix (Appendix II, Business Rules and Validation Data).

Design Stage 11: Views

Views are virtual tables used to view data in a certain way (Hernandez 1997). These views, more commonly referred to as *queries*, provide the primary interface between the database and the user.

The Utah Exclosure Inventory database was not meant to be continually updated. As a consequence, standardized views are a less critical component of the final product. However, working through queries during the early stages of database design helped prevent many potential design problems. We encourage users to examine the queries included in the MS Access database in Design View to see how they were created.

The master table (Appendix IV, Master Table) includes the most basic descriptive characteristics for each enclosure. This table is essentially a repeat of Laycock's (1969) original effort.

The remaining tables (Appendix V, Summary Table) were created to summarize the enclosure-building program in its entirety. These tables were constructed from crosstab queries based on counts (numeric variables were converted into categorical variables). Because these are summary tables, most include condition as a dimension:

- We created the following queries to summarize the enclosure inventory in terms of physical characteristics:
 - [Landowner by condition] (Table IV.1) summarizes the distribution of enclosures across administrative boundaries.
 - [Landowner by purpose] (Table IV.2) summarizes the distribution of enclosures across administrative boundaries and purpose.
 - [Range type by condition] (Table IV.3) summarizes the distribution of all enclosures across range types and conditions.
 - [Range type by purpose] (Table IV.4) summarizes the distribution of all enclosures across range types and purposes.
 - [Range type by part type] (Table IV.5) summarizes the distribution of enclosures by range types and part types (animals excluded).
 - [Range type by area] (Table IV.6) summarizes the distribution of enclosure parts (not enclosures) by area and range type.
 - [Treatments by range type] (Table IV.7) summarizes the distribution of enclosures by range type and treatment (using keywords).
 - [Animals excluded by condition] (Table IV.8) summarizes the distribution of enclosed partitions (not enclosures).
 - [Animals excluded by area] (Table IV.9) summarizes the distribution of enclosed partitions (not enclosures) by size.
 - [Number of parts by condition] (Table IV.10) demonstrates how rare multiple-partition enclosures are.
 - [Part combinations] (Table IV.11) summarizes the kinds of combinations that are typically seen in multi-part tables.
 - [Area by condition] (Table IV.12) summarizes the distribution of enclosure parts (not enclosures) across sizes.
- We created the following queries to assess how the enclosure building "program" has changed over time.
 - [Year by condition] (Table IV.13) summarizes the distribution of enclosures by year.
 - [Year by condition for BLM] (Table IV.14) summarizes the construction of all BLM enclosures by year.
 - [Year by condition for USFS] (Table IV.15) summarizes the construction of all USFS enclosures by year.
 - [Year by purpose] (Table IV.16) summarizes the distribution of enclosures by year and purpose.
- We created the following queries to evaluate the information content associated with the enclosure inventory. Note that study events are particularly difficult to summarize because they are not independent in terms of part studied or type of study.
 - [Studies by landowner] (Tables IV.17 and IV.18) summarizes the distribution of individual studies and study summaries across administrative boundaries.
 - [Studies by purpose] (Tables IV.19 and IV.20) summarizes the distribution of individual studies and study summaries across different enclosure types.

- [Vegetation studies range type by year] (Table IV.21) summarizes the distribution of vegetation studies across range types and years.
- [Photo studies range type by year] (Table IV.22) summarizes the distribution of photo studies across range types and years.
- [Vegetation studies range type by part] (Table IV.23) summarizes the distribution of vegetation studies across different range types and part types.
- [Photo studies range type by part] (Table IV.24) summarizes the distribution of photo studies across different range types and part types.
- [Part vegetation study comparison] (Table IV.25) addresses the possible pairwise part comparisons (e.g., LX vs. OP) offered by the vegetation studies in the database.
- [Part photo study comparison] (Table IV.26) addresses the possible pairwise part comparisons offered by the photo studies in the database.

Design Stage 12: Reviewing Data Integrity

Hernandez (1997) recommends a modular approach to reviewing data integrity. At this stage in the database design process, we were able to ensure database integrity at the following levels:

- Table-level integrity (Design Stages 6 and 7)
 - There were no duplicate fields in any tables
 - There were no calculated fields in any tables
 - There were no multi-valued fields in any tables
 - There were no multipart fields in any tables
 - There were no duplicate records in any tables
 - Every record in all tables are identified by a primary key value
 - Each primary key conformed to the *Elements of a Primary Key*
- Field-level integrity (Design Stages 5 and 8)
 - Each field conformed to the *Elements of an Ideal Field*
 - A set of *Field Specifications* was defined for each field
- Relationship-level integrity (Design Stage 9)
 - All table relationships were properly established
 - Appropriate deletion rules were established for each relationship
 - The type of participation was correctly identified for each relationship
 - The proper degree of participation was established for each relationship
- Business rules (Design Stage 10)
 - Each rule imposed a meaningful constraint
 - The proper category has been determined for the rule
 - Each rule was properly defined and established
 - The appropriate Field Specification elements or table relationship characteristics were properly modified
 - The appropriate validation tables were established

Design Stage 13: Forms and Reports

We created a single form to ensure valid data entry and provide a meaningful way to interact with the entire database at once (Figure I.2). We also used this template to record exclosure characteristics in the MS Word summary files. In the MS Word templates, we left “Not found”

values blank and replaced “No” values with a dash (-) to improve appearance and readability. The “Not found” and “No” values are recorded in the MS Access database (using default values).

Figure I.2. UT Exclosure Inventory data summary template and digital database data entry form.

Exclosure Name									
<i>Land ownership / management agency</i>		<<std value>>							
<i>Location</i>		<<NESW>>		<<S##>>		<<T#S>>		<<R#W>>	
<i>Purpose for establishment</i>		<<std value>>							
<i>Date of establishment</i>		<<year>>							
<i>Current condition</i>		<<std value>>							
<i>Range Type</i>		<<std value>>							
<i>Parts</i>		<i>Fence Type</i>		<i>Dimensions (ft)</i>		<i>Area (ac)</i>			
<<Animals Excluded std value>>		<<std value>>		<<X ft x Y ft>>		##			
<<Animals Excluded std value>>		<<std value>>		<<X ft x Y ft>>		##			
<i>Alterations, treatments, and disturbances</i>									
year	<<Type of alteration, treatment, or disturbance>>								
year	<<Type of alteration, treatment, or disturbance>>								
<i>Studies</i>		<i>QTV</i>	<i>QLV</i>	<i>GVP</i>	<i>CUP</i>	<i>FLC</i>	<i>Summary</i>	<i>I vs. O</i>	<i>Trend</i>
year	<<part>>	Y/-	Y/-	Y/-	Y/-	Y/-	Y/-	Y/-	Y/-
year	<<part>>	Y/-	Y/-	Y/-	Y/-	Y/-	Y/-	Y/-	Y/-
<i>Additional Comments</i>									
<<comments here>>									

Literature Cited

- Hernandez, M.J. 1997. Database design for mere mortals: a hands-on guide to relational database design. Addison-Wesley, Boston, MA.
- Pellant, M., D.A. Pyke, P. Shaver, and J.E. Herrick. 2000. Interpreting indicators of rangeland health, version 3. USDI Bureau of Land Management Technical Reference 1734-6. USDI-BLM National Science and Technology Center, Information and Communications Group, Denver, CO. (<ftp://ftp.ftw.nrcs.usda.gov/pub/glti/IntIndRangeHealth.pdf>)
- Whitehorn, M., and B. Marklyn. 2002. Inside Relational Databases, 2nd edition. Springer, London, UK.

APPENDIX III
UT ENCLOSURE INVENTORY MASTER TABLE

This appendix summarizes key characteristics associated with individual enclosures and their fenced partitions. The information presented here is analogous to that included in William Laycock's 1969 publication *Enclosures and natural areas on rangelands in Utah* (USFS Intermountain Forest and Range Experiment Station Research Paper INT-62). Condition classes, purpose for establishment, range types, treatments, part codes, and studies are described in Appendix II, Business Rules and Validation Tables.

BLM Cedar City DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Atchison Creek Riparian East	Functioning	Pr-R	SESE	S13	T30S	R19W	1987	P-J wood		LX	1.8			3	
Atchison Creek Riparian West	Functioning	Pr-R	SWNW	S24	T30S	R19W	1987	P-J wood		LX	1.8			3	
Bailer Station Riparian	Functioning	Pr-R	NESE	S8	T31S	R17W	1991	Riparian		LX	1.8			2	
Bald Hills Meadow Riparian	Functioning	Pr-R	SWNW	S22	T31S	R8W	1990	Riparian		LX	5			2	
Big Cedar Cove	Functioning	M/D	NWSE	S14	T27S	R9W	1959	P-J wood	Chained, seeded	DX	1.84				
	-	-	-	-	-	-	-	-	-	LX	1.84				
Bone Hollow Spring	Functioning	Pr-Sp	SESW	S34	T31S	R7W	1970	Riparian		LX	0.25			3	
Buckhorn Exp. Plot	Functioning	Ex-M/D	SWSW	S34	T31S	R8W	1998	Wy. big sage	Plowed, seeded	LRX	2.5				
	-	-	-				-	-	-	LX	10			1	
Buckhorn Spring	Functioning	Pr-Sp	NESE	S27	T28S	R18W	1996	Basin big sage		LX	1.5	1		1	
Bumblebee Spring	Functioning	Pr-Sp	NWSE	S26	T37S	R13W	1989	Gambel oak		LX	50	1		3	
Burnt Spring	Functioning	Pr-Sp	SESW	S4	T32S	R6W	1999	Riparian		LX	0.07			3	
Cattail Riparian	Functioning	Pr-R	NWSE	S30	T26S	R12W	1990	Riparian		LX	3			7	
Cherry Creek Riparian	Functioning	Pr-R		S10	T29S	R9W	1997	Riparian		LX					
Commissary Creek Riparian	Functioning	Pr-R	SESE	S1	T30S	R18W	2001	Riparian	Burned	LX	2.4	2		5	
Cottonwood Canyon	Needs repair	M/D	NESE	S30	T32S	R7W	1961	Mtn. big sage		DRX	0.5	1	1	2	2
	-	-	-	-	-	-	-	-		DX	0.5	1		2	
	-	-	-	-	-	-	-	-		LRX	0.5	1		2	
	-	-	-	-	-	-	-	-		LX	3.5	1		4	

BLM Cedar City DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Cottonwood Creek No. 1	Functioning	Pr-R	NWSE	S30	T32S	R7W	2000	Riparian		LX	1.5			2	
Cottonwood Creek No. 2	Functioning	Pr-R	NESW	S30	T32S	R7W	2000	Riparian		LX	0.69			2	
Cottonwood Creek No. 3	Functioning	Pr-R	NESW	S30	T32S	R7W	2002	Riparian		LX	0.69			1	
Cottonwood Creek No. 4	Functioning	Pr-R	NESW	S30	T32S	R7W	2002	Riparian		LX	0.69			1	
Cottonwood Creek No. 5	Functioning	Pr-R	SESE	S30	T32S	R7W	2002	Riparian		LX	10			3	
Cottonwood Seep	Functioning	Pr-R	NWNW	S1	T32S	R6W	1991	Riparian		LX	0.5	1		4	
Greens Lake	Historic	M/D	SWNE	S25	T36S	R11W	1960	Gambel oak	Chained, burned	DX	1.84	2	1	2	1
Griffith Spring	Functioning	Pr-R		S29	T28S	R9W	1997	Riparian		LX					
Hamblin Valley No. 1	Historic	Ex-M/D	SENE	S4	T32S	R18W	1940	Wy. big sage	Plowed, seeded	LRX	0.002				
	-	-	-	-	-	-	-	-	-	LX	0.89				
Hamblin Valley No. 2	Historic	Ex-M/D	SWSW	S9	T32S	R18W	1940	Wy. big sage	Plowed, seeded	LRX	0.002				
	-	-	-	-	-	-	-	-	-	LX	0.89				
Holtz Creek Riparian No. 1	Functioning	Pr-R	NWNW	S6	T30S	R18W	1989	Riparian		LX	1				
Holtz Creek Riparian No. 2	Functioning	Pr-R		S1	T30S	R18W	1996	Riparian		LX	7				
Indian Creek Riparian	Functioning	Pr-R	NW	S19	T29S	R17W	1989	Riparian		LX					
Jockey's Exp. Plot North	Not found	Ex	NWNW	S18	T30S	R15W	1968	P-J wood	Chained, seeded	LX	60.7				
Jockey's Exp. Plot South	Not found	Ex	SE	S13	T30S	R15W	1968	P-J wood	Chained, seeded	LX	84.9				
Little Mountain Reseeding No. 1	Historic	Ex-M/D	SWSW	S15	T35S	R16W	1940	Wy. big sage	Plowed, planted	LRX	0.002			3	
	-	-	-	-	-	-	-	-	-	LX	0.92				
Little Mountain Reseeding No. 2	Historic	Ex-M/D	SESE	S13	T35S	R16W	1940	Wy. big sage	Plowed, planted	LRX	0.002				
	-	-	-	-	-	-	-	-	-	LX	0.92				
Lower Birch Creek Riparian	Functioning	Pr-R	NW	S9	T30S	R6W	1973	Riparian		LX	60				
Lower Jackrabbit Spring	Functioning	Pr-R	SE	S20	T32S	R9W	2001	Riparian		LX	1.5				
Manganese Wash	Not found	M/D	NENE	S25	T40S	R18W	1936	S. desert shrub		LRX	2.5				
Meadow Spring	Functioning	Pr-Sp	SWSE	S33	T31S	R16W	2001	Riparian		LX					

BLM Cedar City DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Merrills Camp	Needs repair	M/D	NWNW	S21	T30S	R18W	1968	P-J wood		DRX	0.625	3	3	4	5
	-	-	-	-	-	-	-	-		DX	1.25	3		4	
	-	-	-	-	-	-	-	-		LRX	0.625	2		3	
	-	-	-	-	-	-	-	-		LX	2.5	3		5	
Middle Ridge 10-acre	Not found	M/D	NE	S32	T38S	R19W	1958	Chk-svc-rose		LX	10				
Mountain Spring	Functioning	Pr-Sp	SWNW	S12	T32S	R16W	1988	Riparian		LX	0.5				
Muley Point	Historic	Ex-M/D	SWNW	S31	T31S	R7W	1962	Wy. big sage	Planted w/ trees	LRX	40				
Narrow Neck Cove	Historic	M/D	SW	S8	T26S	R8W	1960	P-J wood		DRX	0.5			1	
	-	-	-	-	-	-	-	-		DX	0.5				
	-	-	-	-	-	-	-	-		LRX	0.5				
	-	-	-	-	-	-	-	-		LX	1.5				
Negro Lizza Wash No. 1	Historic	M/D	SWSW	S9	T33S	R17W	1940	Wy. big sage		LRX	0.002				
	-	-	-	-	-	-	-	-		LX	0.92				
Negro Lizza Wash No. 2	Historic	M/D	NENE	S10	T33S	R17W	1940	Wy. big sage		LRX	0.002				
	-	-	-	-	-	-	-	-		LX	0.92				
Negro Mag	Not found	M/D	NWSE	S1	T27S	R8W	1959	P-J wood		DX	1.84				
	-	-	-	-	-	-	-	-		LX	1.84				
Newells Spring	Functioning	Pr-Sp	NESW	S1	T34S	R20W	1952	Riparian		DX	2				
North Sulphur Spring No. 1	Functioning	Pr-Sp	SENW	S26	T27S	R19W	1991	Riparian		LX	1.6				
North Sulphur Spring No. 2	Functioning	Pr-Sp	SWSW	S26	T27S	R19W	1991	Riparian		LX	3				
Old Minersville Road	Needs repair	M/D	NWNW	S7	T33S	R10W	1940	Wy. big sage		LRX	0.002				
	-	-	-	-	-	-	-	-		LX	0.92				
Parowan Front Study Plot	Needs repair	Ex-M/D	NENE	S26	T34S	R9W	1969	P-J wood	Chained, seeded	DRX	0.625	1	3	2	4
	-	-	-	-	-	-	-	-	-	DX	1.25	1		2	
	-	-	-	-	-	-	-	-	-	LRX	0.625	1		2	
	-	-	-	-	-	-	-	-	-	LX	2.5	1		3	
Parowan Gap	Historic	M/D	NWNW	S31	T33S	R10W	1940	Wy. big sage		LRX	0.002				
	-	-	-	-	-	-	-	-		LX	0.92				

BLM Cedar City DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Perry Well North	Functioning	Ex-M/D	SWNW	S24	T33S	R12W	1967	Wy. big sage	Burned, seeded	LRX	0.625		4		5
	-	-	-	-	-	-	-	-	-	LX	2.5	3		4	
Perry Well South	Functioning	Ex-M/D	SENW	S35	T33S	R12W	1967	Wy. big sage	Burned, seeded	LRX	0.625				6
	-	-	-	-	-	-	-	-	-	LX	2.5	3		6	
Pinto Creek North	Functioning	Pr-R	SWSW	S31	T30S	R17W	1988	Mtn. big sage		LX		1		4	
Pinto Creek South	Functioning	Pr-R	NWNW	S6	T31S	R17W	1988	Mtn. big sage		LX				3	
Pollywog Spring	Functioning	Pr-Sp	NWNW	S11	T32S	R16W	2000	Riparian		LX	8.2				
Poorman Spring	Functioning	Pr-Sp	NW	S28	T31S	R8W	1994	Riparian		LX	3.8				
Prout Wash	Functioning	Pr-R	NW	S12	T31S	R15W	1992	Riparian		LX	3.8				
Rip Gut Spring	Functioning	Pr-Sp	NENE	S24	T28S	R19W	1992	Riparian	Burned twice	LX	3				
Roadside Spring	Functioning	Pr-Sp	SWNE	S15	T32S	R6W	2000	Riparian		LX	0.21			3	
Ryan Spring	Functioning	Pr-Sp	SENW	S36	T28S	R19W		Riparian		LX	4				
Seeps	Functioning	Pr-Sp	SENE	S9	T30S	R15W	1995	Riparian		LX					
Sheep Creek Riparian No. 1	Functioning	Pr-Sp	NWSE	S19	T30S	R17W	1993	Riparian		LX	1				
Sheep Creek Riparian No. 2	Functioning	Pr-Sp	SWSW	S20	T30S	R17W	1993	Riparian		LX	1				
Sheep Creek Riparian No. 3	Functioning	Pr-Sp	NESE	S20	T30S	R17W	1993	Riparian		LX	1				
SUSC Study Plot No. 1	Not found	Ex-M/D	SENW	S10	T35S	R19W	1960	Wy. big sage		LRX	0.3				
	-	-	-	-	-	-	-	-		LX	0.92				
SUSC Study Plot No. 2	Not found	Ex-M/D	NWNE	S21	T35S	R19W	1960	Wy. big sage		LRX	0.3				
	-	-	-	-	-	-	-	-		LX	0.92				
SUSC Study Plot No. 3	Not found	Ex-M/D	NWNW	S29	T35S	R19W	1960	Wy. big sage		LRX	0.3				
	-	-	-	-	-	-	-	-		LX	0.92				
SUSC Study Plot No. 4	Not found	Ex-M/D	NWNE	S28	T35S	R19W	1960	P-J wood		LRX	0.3				
	-	-	-	-	-	-	-	-		LX	0.92				
SUSC Study Plot No. 5	Not found	Ex-M/D	SENW	S33	T35S	R19W	1960	Wy. big sage		LRX	0.3				
	-	-	-	-	-	-	-	-		LX	0.92				
SUSC Study Plot No. 6	Historic	Ex-M/D	NESE	S5	T35S	R19W	1960	Wy. big sage		LRX	0.3				
	-	-	-	-	-	-	-	-		LX	0.92				

BLM Cedar City DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies In Out		Photo Studies In Out	
Upper Birch Creek Riparian	Functioning	Pr-R	NE	S9	T30S	R6W	1976	Riparian		LX	60	1		2	
Upper Jackrabbit Spring	Needs repair	Pr-R	SENE	S21	T32S	R9W	1940	Riparian		LX	0.3				
Upper Pine Valley	Needs repair	Ex-M/D	SESE	S1	T27S	R17W	1932	S. desert shrub	Seeded	LX	4.42				
Wah Wah Valley No. 1	Needs repair	M/D	NWNW	S4	T28S	R14W	1940	S. desert shrub		LX	0.86				
Wah Wah Valley No. 2	Needs repair	Ex-M/D	NWSW	S25	T28S	R14W	1940	S. desert shrub	Seeded	LX	10.73				
Wildcat Riparian	Functioning	Pr-R	N	S26	T27S	R7W	2001	Riparian		LX					
Willow Creek Spring	Functioning	Pr-R	SWSE	S2	T29S	R16W	1985	Riparian		LX	15				
Woods Well	Functioning	M/D	NWNW	S19	T26S	R16W	1932	S. desert shrub		LX	4.42				

BLM Fillmore DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies In Out		Photo Studies In Out	
Breck's Knoll	Functioning	Ex-M/D	N2N2	S24	T23S	R17W				LX					
Confusion	Functioning	Ex-M/D	NENE	S36	T14S	R17W				LX					
Death Canyon	Functioning	Ex-M/D	SW	S10	T17S	R13W	1938	Wy. big sage		LX	1.19				
Hole in the Ground Sinkhole	Functioning	Pr-C	SENW	S8	T19S	R18W				LX					
Jensen Spring	Functioning	Pr-Sp		S22	T19S	R9W	1993	Riparian		LX					
Keg Mtn. No. 1 (Riverbed)	Not found	M/D	NENE	S4	T13S	R9W	1964	S. desert shrub		LRX	2.5				
Keg Mtn. No. 2 (Desert Mtn.)	Not found	M/D	NENW	S10	T11S	R6W	1964	S. desert shrub		LRX	2.5				
Keg Mtn. No. 3 (Fish Springs)	Not found	M/D	SESW	S30	T14S	R16W	1964	S. desert shrub		LRX	2.5				
Lime Spring	Functioning	Pr-Sp	NWNE	S30	T13S	R18W	1992	Riparian		LX	0.1				
Miller Canyon Sinkhole	Functioning	Pr-C	NENE		T18S	R13W				LX					
Mountain Home Springs	Functioning	Pr-Sp		S19	T25S	R18W	1993	Riparian		LX	0.1				
Red Cedar Spring	Functioning	Pr-Sp	NESW	S6	T12S	R17W	1992	Riparian		LX	0.1				

BLM Grand Staircase-Escalante NM	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
BYU Kaiparowits Site 6	Functioning	M/D	NW	S9	T41S	R4E	1971	P-J wood		LX	0.009	2		1	
BYU Kaiparowits Site 7	Functioning	M/D	SW	S22	T41S	R4E	1971	Blackbrush		LX	0.007	2		1	
BYU Kaiparowits Site 8	Functioning	M/D	SE	S34	T41S	R4E	1971	Grama-galleta		LX	0.007	4		1	
BYU Kaiparowits Site 12	Historic	M/D	SW	S9	T42S	R3E	1971	Blackbrush		LX		3		1	
BYU Kaiparowits Site 13	Historic	M/D	NE	S17	T42S	R3E	1971	Grama-galleta		LX		2		1	
BYU Kaiparowits Site 14	Functioning	M/D	NE	S28	T42S	R3E	1971	Blackbrush		LX	0.014	3		1	
BYU Kaiparowits Site 23	Functioning	M/D	NE	S33	T41S	R3E	1971	Blackbrush		LX	0.037	3		1	
BYU Kaiparowits Site 25	Historic	M/D	NW	S30	T41S	R3E	1971			LX		2		1	
BYU Kaiparowits Site 27	Historic	M/D	SE	S2	T40S	R2E	1971	P-J wood		LX	0.1	2		1	
BYU Kaiparowits Site 30	Functioning	M/D	SW	S27	T41S	R1W	1971	Basin big sage		LMX	0.029	3		1	
	-	-	-	-	-	-	-	-		LRX	0.029	3		1	
	-	-	-	-	-	-	-	-		LX	0.029	3		1	
BYU Kaiparowits Site 34	Functioning	M/D	NE	S13	T42S	R3E	1971	Riparian		LX	0.021	2		1	
Camp Flat	Functioning	Ex-M/D	NWSE	S8	T37S	R3E	1979	P-J wood	Chained, seeded	LX				1	
Cockscomb	Functioning	Ex-M/D	SE		T43S	R2W		Gambel oak		LX	1.5	1	1	1	1
Escalante	Not found	Ex-M/D	SESE	S24	T35S	R2E	1974	P-J wood	Chained, seeded	LX					
Pool Hollow	Not found	Pr-R	NWNW	S2	T41S	R7E	1990	Riparian		LX	1.72				
Sheep Creek No. 1	Historic	M/D	NESW	S33	T37S	R3W	1959			LX					
Sheep Creek No. 2	Historic	M/D	SWSW	S29	T37S	R3W	1959			LX					
Sheep Flat Rain Gauge	Functioning	Pr-C		S27	T37S	R3W				LX					
Sunset Flat	Functioning	M/D	SESE	S2	T38S	R5E	1954	Grama-galleta		LX	0.46	2	2	1	2
Wiggle Rim Rain Gauge	Functioning	Pr-C		S17	T42S	R1W				LX					

BLM Henry Mountains Field Station	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Airplane Springs	Functioning	Ex-M/D	NWNW	S28	T32S	R10E	1961	P-J wood	Chained, seeded	DRX	1				
	-	-	-	-	-	-	-	-	-	LRX	1				
	-	-	-	-	-	-	-	-	-	LX	5				
Bert Avery Seep	Functioning	Pr-Sp	SESE	S21	T29S	R10E	1990			LX					
Bitter Creek Divide	Functioning	M/D	SW	S5	T33S	R8E	1952	S. desert shrub		LX	0.1				
Halfway Bench	Functioning	M/D	NE	S13	T29S	R11E	1930	S. desert shrub		LX	0.59				
Horn	Functioning	M/D	NWSW	S22	T32S	R10E	1956	Black sage		LX	6.2				
Moroni Peak	Functioning	M/D	SWNE	S31	T28S	R2E	1975			DRX	1.25				
	-	-	-	-	-	-	-			DX	1.25				
	-	-	-	-	-	-	-			LRX	1.25				
	-	-	-	-	-	-	-			LX	1.25				
Row of Pines	Functioning	Ex-M/D	NESE	S11	T27S	R2E	1989	Wy. big sage	Chained, seeded	DRX	2.5	1	2	1	2
	-	-	-	-	-	-	-	-	-	LRX	2.5	1		1	
Sidehill Spring	Functioning	M/D	NWSW	S24	T33S	R10E	1959	T. mtn-mahog.		DX	1.99			1	
	-	-	-	-	-	-	-	-		LX	1.99				
South Creek Ridge	Functioning	M/D	NWSW	S9	T32S	R10E	1963	P-J wood	Chained, seeded	DX	0.92				
	-	-	-	-	-	-	-	-	-	LX	0.92				
South Creek Species Plot	Functioning	Ex	SWSW	S9	T32S	R10E	1975	P-J wood	Chained, seeded	DRX	1.28				
	-	-	-	-	-	-	-	-	-	LX	1.32				
Terza Flat	Functioning	M/D	SENE	S34	T28S	R2E				LX	1.03				
West Spring	Functioning	Pr-Sp	SESE	S33	T27S	R2E	1998	Riparian		LX					

BLM Kanab DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Alton Coal Seed Test No. 1	Functioning	Ex		S14	T40S	R5W				LX	0.5				
Alton Coal Seed Test No. 2	Functioning	Ex		S18	T40S	R4.5W				LX	3				
Alton Coal Seed Test No. 3	Functioning	Ex		S18	T40S	R4.5W				LX	3.5				
Alton Coal Seed Test No. 4	Functioning	Ex		S13	T40S	R4.5W				LX	8				
Alton Coal Weather Station	Functioning	Pr-C		S34	T40S	R5W				LX					
Asay Creek North	Historic	Pr-R	NWSE	S6	T37S	R5W	1987	Riparian		LX	2.5				
Asay Creek South	Historic	Pr-R	NWSW	S7	T37S	R5W	1987	Riparian		LX	2.5				
BLM Seed Test No. 1	Functioning	Ex		S8	T40S	R4.5W	1975			LX	0.058				
BLM Seed Test No. 2	Functioning	Ex		S18	T40S	R4.5W	1975			LX	0.058				
BLM Seed Test No. 3	Functioning	Ex		S13	T40S	R4.5W	1975			LX	0.058				
BYU Kaiparowits Site 1	Historic	M/D	NW	S21	T43S	R2E	1971	Gramma-galleta		LX		4		1	
BYU Kaiparowits Site 2	Historic	M/D	NW	S3	T44S	R2E	1971	P-J wood		LX		4		1	
BYU Kaiparowits Site 3	Functioning	M/D	NW	S10	T44S	R2E	1971	Gramma-galleta		LMX	0.029	4		1	
	-	-	-	-	-	-	-	-		LRX	0.029	4		1	
	-	-	-	-	-	-	-	-		LX	0.029	4		1	
Cove Experimental Plot	Functioning	Ex-M/D	NENE	S23	T31S	R4W	1960	Wy. big sage	Plowed, planted	LRX	0.002				
	-	-	-	-	-	-	-	-		LX	21			1	
East Clark Bench Rain Gauge	Functioning	Pr-C		S36	T42S	R1W				LX					
Eightmile Reservoir	Functioning	Pr-Sp	NE	S11	T42S	R2W				LX					
Elbow	Functioning	M/D	SE	S27	T42S	R5W	1967	P-J wood		DRX	0.67				
	-	-	-	-	-	-	-	-		DX	0.67	1		1	
	-	-	-	-	-	-	-	-		LRX	0.67				
	-	-	-	-	-	-	-	-		LX	2.5				
Elephant Butte Spring	Functioning	Pr-Sp	NWSW	S22	T43S	R9W	2000	Riparian		LX	1				
Elephant Cove	Functioning	M/D	NWSW	S25	T42S	R9W	1961	P-J wood		DRX	0.5	1	4	13	16
	-	-	-	-	-	-	-	-		DX	0.5			13	
	-	-	-	-	-	-	-	-		LRX	0.5			13	
	-	-	-	-	-	-	-	-		LX	1.5	6		18	
Five Mile Mountain	Functioning	Ex-M/D	SE	S4	T40S	R5W	1990	Black sage	Burned	LX	1.5	1	1	1	1

BLM Kanab DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Hawkins Riparian	Functioning	Pr-R	SE	S14	T32S	R5W	1997	Riparian		LX					
John R. Flat	Functioning	M/D	SENE	S3	T42S	R6W	1961	Basin big sage		DRX	0.5	2	1	13	13
	-	-	-	-	-	-	-	-		DX	0.5	1		12	
	-	-	-	-	-	-	-	-		LRX	0.5	1		13	
	-	-	-	-	-	-	-	-		LX	1.5	2		14	
Judd Hollow	Functioning	Ex		S6	T44S	R2E				LX					
Nephi Pasture	Functioning	M/D	SENE	S1	T42S	R4W	1967	Basin big sage		DRX	0.67		3		3
	-	-	-	-	-	-	-	-		DX	0.67	1		1	
	-	-	-	-	-	-	-	-		LRX	0.67				
	-	-	-	-	-	-	-	-		LX	2.5	1		1	
N. Fork Indian Canyon Riparian	Functioning	Pr-R	NWNW	S17	T43S	R7W	2000	Riparian		LX	6.2				
Shune Hollow Special Mgt Area	Functioning	Pr-R	SW	S19	T42S	R9W	1989	Riparian		LX					
Upper Sevier Riparian	Functioning	Pr-R	E2	S6	T32S	R4W	2001	Riparian		LX					
Wahweap Fish Ponds	Functioning	Pr-Sp		S3	T42S	R3E		Riparian		LX					

BLM Moab DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Agate	Not found	M/D	SWSE	S19	T20S	R25E	1962	Wy. big sage		LX	1				
Athena	Not found	?	SESE	S9	T22S	R18E				LX					
Big Flat-The Knoll	Functioning	M/D	SE	S11	T26S	R18E	1965	S. desert shrub		LX	0.59	2		6	
Blue Chief	Not found	M/D	NESE	S35	T23S	R24E	1962	Blackbrush		LX	1				
Blue Hill	Not found	M/D	SWNW	S20	T27S	R23E		S. desert shrub		LX	10	1		3	
Buckhorn 674	Functioning	M/D	SWNE	S33	T22S	R25E	1962	Wy. big sage		LX	1	2		3	
Cisco Mesa	Functioning	M/D	NWNW	S22	T20S	R23E	1960	S. desert shrub		LX	1			3	
Cisco Wash 381	Not found	M/D	SENW	S6	T21S	R23E		S. desert shrub		LRX				1	
Cisco Wash 674	Functioning	M/D	NWSE	S6	T21S	R23E	1962	S. desert shrub		LX	1			1	
Cottonwood 1960	Functioning	M/D		S28	T20S	R24E	1960	S. desert shrub		LX	1				
Cottonwood 674	Functioning	M/D	SENE	S35	T19S	R24E	1962	S. desert shrub		LX	1				

BLM Moab DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Cowskin	Not found	M/D	NESE	S28	T23S	R24E	1962	S. desert shrub		LX	1				
Granite Creek	Functioning	M/D	SWSW	S29	T22S	R26E	1969	P-J wood	Chained, burned, seeded	LX	5	5	8	10	11
Harley Dome	Historic	M/D	SWNE	S22	T18S	R25E	1960	S. desert shrub		LX	1				
Horse Pasture	Needs repair	M/D	SENE	S14	T20S	R21E	1965	Wy. big sage		LRX	1				
	-	-	-	-	-	-	-	-		LX	4				
Hotel Mesa	Functioning	M/D	SE	S34	T22S	R24E	1962	S. desert shrub		LX	1	2		3	
Klondike Flat	Functioning	M/D	SENE	S19	T23S	R20E		S. desert shrub		LX				2	
Little Hole	Functioning	M/D	NWNE	S30	T20S	R25E	1999	S. desert shrub		LX					
Lost Spring	Functioning	M/D	NWSE	S8	T23S	R22E	1960	S. desert shrub		LX	1			2	
Lower Coutes Creek	Not found	?	SWNW	S7	T22S	R25E	1981			LX					
Microwave	Not found	Pr-C	SESE	S13	T23E	R19E				LX	1				
Poverty Flat	Not found	Ex-M/D	NW	S20	T27S	R23E	1956	S. desert shrub	Planted	LX	10	2			
Pumphouse	Historic	M/D	SWSE	S28	T21S	R24E	1962	S. desert shrub		LX	1			2	
Sager's Flat	Historic	Ex		S7	T21S	R24E	1958	S. desert shrub		LX				1	
Sager's Flat Halogeton No. 1	Not found	Ex-M/D	NESE	S13	T22S	R23E	1962	S. desert shrub	Plowed, seeded	LX	40				
Sager's Flat Halogeton No. 2	Functioning	M/D	NWSW	S20	T21S	R23E	1962	S. desert shrub		LX	40			1	
Sager's Flat Halogeton No. 3	Not found	M/D	NE	S8	T22S	R23E	1966	S. desert shrub		LX					
Sager's Flat Halogeton No. 4	Not found	Ex-M/D	NW	S5	T22S	R23E	1966	S. desert shrub	Plowed, seeded	LX	80				
Sager's Flat Halogeton No. 5	Functioning	Ex-M/D	SW	S3	T22S	R23E	1965	S. desert shrub	Plowed, seeded	LX					
Sager's Flat UF&G	Functioning	M/D	NESW	S27	T21S	R21E	1960	S. desert shrub		LX	1			1	
Salt Valley No. 1	Functioning	?	NE	S25	T22S	R19E				LX					
Salt Valley No. 2	Functioning	?	SWNW	S30	T23S	R20E				LX	0.62				
San Arroyo	Functioning	Ex	NWSE	S30	T17S	R26E	1987	Wy. big sage	Plowed, sprayed, seeded	LX	11.8	7	7	8	7
Sand Flat	Functioning	M/D	NWSW	S6	T22S	R25E	1962	S. desert shrub		LX	1	2		4	
Sand Flat Seep	Functioning	Pr-Sp	NWNE	S7	T22S	R25E	1981	Riparian		LX					

BLM Moab DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Steamboat Mesa	Functioning	Ex-M/D	SWNW	S29	T23S	R26E	1968	P-J wood	Chained, seeded	LX	5	3	10	6	10
Tenmile	Not found	?	NWSW	S8	T24S	R18E	1982			LX					
Thompson Wash	Not found	Ex-M/D	NWNE	S31	T21S	R20E	1938	S. desert shrub	Burned, seeded	LX	1	1	2	3	3
Upper Coutes Creek	Not found	Pr-R	NESW	S7	T22S	R25E	1981	Riparian		LX					
Westwater	Functioning	M/D	SWSW	S31	T18S	R25E	1962	S. desert shrub		LX	1				

BLM Monticello DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Alkali	Functioning	Ex-M/D	SENE	S23	T36S	R23E	1962	P-J wood	Chained, seeded	DRX	0.5		5		7
	-	-	-	-	-	-	-	-	-	DX	0.5			1	
	-	-	-	-	-	-	-	-	-	LRX	0.5				
	-	-	-	-	-	-	-	-	-	LX	0.5			2	
Baullies	Functioning	Ex-M/D	NWNW	S5	T38S	R20E	1958	P-J wood	Chained, seeded	DX	1	5	5	6	6
	-	-	-	-	-	-	-	-	-	LX	1	5		6	
Beef Basin Wash	Historic	Pr-R	NWSE	S35	T32S	R18E	1980	Riparian		LX	2				
Cave Canyon	Functioning	Ex-M/D	SWNE	S5	T38S	R24E	1939	Wy. big sage	Plowed, planted	LX	1	1	5	6	4
Comb Wash	Functioning	Pr-R	SWNW	S31	T38S	R21E	1992	Riparian		LX	3.5	2	2	2	2
Cross Canyon Ranch	Functioning	Pr-R	SWSW	S27	T38S	R25E	1996	Riparian		LX					
Deer Flat	Functioning	M/D	NWSE	S12	T36S	R17E	1951	Mtn. big sage	Plowed, planted	DX	2.75	1	14	2	17
	-	-	-	-	-	-	-	-	-	LX	2.75	1		3	
Dry Valley	Functioning	M/D	NENE	S28	T30S	R23E	1978	Gramma-galleta		LX	1	6	9	7	8
	-	-	-	-	-	-	-	-	-	RR	4	6		6	
East Canyon	Not found	M/D	SESW	S25	T31S	R23E	1945	Wy. big sage		LX					
East Cross Canyon No. 1	Functioning	Pr-R	SENE	S35	T38S	R25E	1996	Riparian		LX	4				
East Cross Canyon No. 2	Functioning	Pr-R	NENW	S34	T38S	R25E	1997	Riparian		LX					

BLM Monticello DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Hart Point	Functioning	M/D	NESW	S3	T32S	R22E	1960	Mtn. big sage		DX	1			2	1
	-	-	-	-	-	-	-	-		LX	1			1	
Horsehead-Montezuma	Functioning	Pr-R	SE	S2	T36S	R26E	2002	Riparian		LX					
House Park	Functioning	M/D	SW	S21	T32S	R19E	1958	Wy. big sage		DX	1				
	-	-	-	-	-	-	-	-		LX	1				
Indian Creek Demo. Area	Functioning	Pr-R	SWSW	S21	T32S	R22E	1988	Riparian		LX				2	
Indian Creek Fish North	Functioning	Pr-R	NW	S28	T32S	R22E	2002	Riparian		LX	11.4				
Indian Creek Fish South	Functioning	Pr-R	SW	S28	T32S	R22E	2002	Riparian		LX	7.6				
Junction Well	Functioning	M/D	SESW	S17	T39S	R13W	1981	S. desert shrub		LX	1	7	7	8	7
Lost Park	Functioning	M/D	SESE	S13	T36S	R18E	1958	Wy. big sage		DX	1				
	-	-	-	-	-	-	-	-		LX	1				
McCracken Mesa No. 2	Historic	Ex	NENE	S3	T39S	R23E	1939	Wy. big sage	Plowed, planted	LX	1			1	
McCracken Mesa No. 3	Historic	Ex	SWNW	S10	T38S	R22E	1939	Wy. big sage	Plowed, planted	LX	1				
McCracken Mesa No. 4	Historic	Ex	SWNE	S5	T40S	R22E	1939	Wy. big sage	Plowed, planted	LX	1				
Middle Cross Canyon	Functioning	Pr-R	NWNW	S31	T38S	R26E	1999	Riparian		LX					
Middle Park	Functioning	M/D	SWNW	S17	T32S	R19E	1970			LX	5.7			1	
Montezuma Creek No. 1	Functioning	Pr-R	SWSE	S12	T37S	R24E	1997	Riparian		LX					
Montezuma Creek No. 2	Functioning	Pr-R	SWNE	S23	T37S	R24E	1997	Riparian		LX					
Montezuma Creek No. 3	Functioning	Pr-R	NESW	S10	T37S	R24E	1999	Riparian		LX					
Montezuma Creek No. 4	Functioning	Pr-R	NWNE	S23	T37S	R24E	1999	Riparian		LX					
Monument Canyon No. 1	Functioning	Pr-R	NESW	S18	T37S	R25E	1997	Riparian		LX					
Monument Canyon No. 2	Functioning	Pr-R	NENW	S20	T37S	R25E	1999	Riparian		LX					
North Cottonwood	Functioning	M/D	NWNW	S27	T32S	R21E	1958	Wy. big sage		DX	1	4	4	7	6
	-	-	-	-	-	-	-	-		LX	1	4		6	
Salt Creek Mesa No. 1	Functioning	Ex-M/D	SWNE	S35	T32S	R20E	1970	P-J wood	Chained, seeded	LX	5.74			1	
Salt Creek Mesa No. 2	Functioning	M/D	SESE	S34	T32S	R20E	1970	Wy. big sage		LX	5.74			1	
Shay Mesa	Functioning	Ex-M/D	SWNE	S20	T32S	R22E	1958	Wy. big sage	Seeded	DX	1	4	4	9	8
	-	-	-	-	-	-	-	-		LX	1	4		10	

BLM Monticello DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Sheiks Flat	Not found	Ex-M/D	SW	S29	T38S	R18E	1968	P-J wood	Chained, burned, seeded	LX	120				1
South Plain	Functioning	M/D	SWSE	S34	T32S	R18E	1970	Wy. big sage		LX	5.7		1	2	
Stanley Park	Functioning	M/D	NESE	S25	T32S	R18E	1959	Wy. big sage		DX	1	4	7	8	6
	-	-	-	-	-	-	-	-		LX	1	4		9	
Texas Flat	Functioning	Ex-M/D	NW	S7	T37S	R20E	1958	P-J wood	Seeded	DX	1	5	5	7	6
	-	-	-	-	-	-	-	-	-	LX	1	5		7	
Three Kiva	Not found	?	NESE	S1	T37S	R24E	1978			LX					
Upper East Cross Canyon No. 1	Functioning	Pr-R	NESE	S22	T38S	R26E	1997	Riparian		LX					
Upper East Cross Canyon No. 2	Functioning	Pr-R	NESW	S22	T38S	R26E	2002	Riparian		LX	6.9				
West Cross Canyon	Functioning	Pr-R	SESW	S28	T38S	R25E	1996	Riparian		LX	1.3				
Wild Cow Point	Needs repair	Ex-M/D	SESW	S9	T33S	R18E	1958	P-J wood	Seeded	DX	1	4	4	6	6
	-	-	-	-	-	-	-	-	-	LX	1	4		6	
Willow Flats	Functioning	?	SESE	S12	T25S	R20E				LX	0.13				
Wingate	Functioning	Ex-M/D	SESW	S31	T36S	R16E	1971	P-J wood	Seeded, planted	LX				2	2

BLM Price DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Blackbrush	Functioning	M/D	NESW	S18	T23S	R14E	1941	Blackbrush		LRX	4			2	
Buckhorn-Red Knoll	Functioning	Ex-M/D	SESW	S15	T19S	R10E	1937	S. desert shrub		LRX	4				
Cedar Mountain	Needs repair	Ex-M/D	NWNW	S28	T18S	R11E	1938	Wy. big sage		LRX	2			2	
	-	-	-	-	-	-	-	-		LX	2			3	
Clark's Valley	Not found	Ex-M/D	NESE	S28	T14S	R12E	1963	Salt-greasewd	Chained, seeded	LRX	3				
	-	-	-	-	-	-	-	-	-	LX	1.5				
Dutch Flat	Functioning	Ex-M/D	SESW	S31	T20S	R8E	1940	S. desert shrub	Plowed, planted	LRX	2			2	
	-	-	-	-	-	-	-	-		LX	2				

BLM Price DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Green River Coop. Demo. Little Park	Not found	Ex	SWSW	S31	T20S	R16E	1963	S. desert shrub		LX	0.25			2	
	Functioning	M/D	SENW	S25	T16S	R14E	1962	Mtn. big sage		DRX	1.35		3		3
	-	-	-	-	-	-	-	-		LRX	1.35				
Mud Springs PDO Porphyry Bench	Functioning	Pr-Sp	SE	S14	T15S	R12E	1988	Riparian		LX					
	Functioning	Ex-M/D	SENW	S15	T14S	R19E	1958	Wy. big sage	Plowed, planted	DRX	0.46				
	-	-	-	-	-	-	-	-	-	DX	0.46			1	
	-	-	-	-	-	-	-	-	-	LRX	0.46				
	-	-	-	-	-	-	-	-	-	LX	0.46				
	Functioning	M/D	NENE	S4	T21S	R7E	1988	S. desert shrub		LX	0.11			1	
Rochester No. 2	Functioning	M/D	NENE	S8	T21S	R7E	1988	S. desert shrub		LX	0.11			1	
Sinbad	Needs repair	Ex-M/D	NWNW	S20	T22S	R12E	1937	S. desert shrub	Planted, seeded	LRX	4			2	
Walker Flat	Functioning	M/D	SWNW	S1	T23S	R5E	1941	S. desert shrub		LRX	2				
	-	-	-	-	-	-	-	-		LX	2				

BLM Richfield DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Martel's Study Plot	Functioning	Ex-M/D	SE	S19	T29S	R3W	1964	Wy. big sage	Plowed, planted	LX	20				
Praetor	Functioning	?	NWNE	S7	T16S	R1E	1965			LX					
Sage Flat	Functioning	M/D	NW	S35	T22S	R1W	1955	Wy. big sage		DRX	0.5				
	-	-	-	-	-	-	-	-		DX	0.5				
	-	-	-	-	-	-	-	-		LX	1				

BLM Salt Lake DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Bettridge Creek	Functioning	Pr-R	NE	S22	T4N	R19W	1980	Riparian		LX	2.3			1	
Big Creek No. 3	Functioning	Pr-R	SW	S27	T10N	R5E	1999	Riparian		LX					
Bovine	Functioning	M/D	SWNE	S18	T9N	R16W	1956	Basin big sage		DX			4		4
	-	-	-	-	-	-	-	-		LX					
Crawford Mountain No. 1	Functioning	M/D	SENE	S7	T10N	R8E	1981	Wy. big sage		DX	2			1	
	-	-	-	-	-	-	-	-		LX	2			1	
Crawford Mountain No. 2	Functioning	M/D	N2	S17	T11N	R8E	1981	Wy. big sage		DX	2			1	
	-	-	-	-	-	-	-	-		LX	2			1	
Curlew Junction	Functioning	Ex-M/D	NW	S14	T14N	R11W		Wy. big sage		LX	40				
Dan Freed	Functioning	M/D	SWSE	S24	T4S	R11W	1994			LX	2				
Delle Cove	Functioning	M/D	NENW	S13	T1N	R9W	1985	S. desert shrub		LX	1	8	10	2	
Duck Creek No. 2	Functioning	Pr-R	SESE	S8	T12N	R7E	1984	Riparian		LX	0.06				
Duck Creek No. 6	Functioning	Pr-R	NWSW	S7	T12N	R7E	1984	Riparian		LX	0.11				
Duck Creek-Red Spring	Functioning	Pr-R	NWSE	S9	T12N	R7E	1984	Riparian		LX	0.33				
Eight Mile	Functioning	Ex	SESE	S18	T3S	R9W	1994			LX					
Five Springs No. 1	Functioning	Pr-R	NWNE	S3	T11N	R6E	1984	Riparian		LX	0.1			2	2
Five Springs No. 2	Functioning	Pr-R	NWNE	S3	T11N	R6E	1984	Riparian		LX	0.1			2	2
Five Springs No. 3	Functioning	Pr-R	NWNE	S3	T11N	R6E	1984	Riparian		LX	0.1			2	2
Five Springs No. 4	Functioning	Pr-R	SWNE	S3	T11N	R6E	1984	Riparian		LX	0.1			2	2
Five Springs No. 5	Functioning	Pr-R	SWNE	S3	T11N	R6E	1984	Riparian		LX	0.1			2	2
Forks Meadow East	Functioning	Pr-R	NW	S1	T11N	R5E	1990	Riparian	Planted- willows	LX					
Forks Meadow West	Functioning	Pr-R	SWNW	S1	T11N	R5E	1990	Riparian	Planted- willows	LX					
Kelton Pass No. 1	Functioning	Ex-M/D	SESE	S15	T13N	R11W		S. desert shrub		LX					
Kelton Pass No. 2	Functioning	Ex-M/D	SENE	S14	T13N	R11W		S. desert shrub		LX					
Kelton Pass No. 3	Functioning	Ex-M/D	SENE	S14	T13N	R11W		S. desert shrub		LX					
Laketown Creek	Needs repair	Pr-R	W2	S13	T12N	R5E	1981	Riparian		LX				1	
Laycock No Name No. 1	Not found	Ex-M/D	NW	S31	T14S	R16W	1963	Black sage		LX	2				
Laycock No Name No. 2	Not found	Ex-M/D	NE	S4	T13S	R9W	1963	S. desert shrub		LX	2				
Laycock No Name No. 3	Not found	Ex-M/D	NW	S10	T11S	R6W	1963	Black sage		LX	2				

BLM Salt Lake DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Laycock USU No. 1	Not found	Ex-M/D		S24	T11N	R12W		S. desert shrub		LX					
Laycock USU No. 2	Not found	Ex-M/D		S31	T12N	R11W		S. desert shrub		LX					
Laycock USU No. 3	Not found	Ex-M/D		S16	T13N	R12W		S. desert shrub		LX					
Laycock USU No. 4	Not found	Ex-M/D		S17	T13N	R11W		S. desert shrub		LX					
Lower Big Creek	Functioning	Pr-R	SW	S19	T10N	R6E	1971	Riparian	Sprayed	LX	8	4		4	1
Lower Middle Otter Creek	Functioning	Pr-R	SW	S3	T11N	R6E	1983	Wy. big sage		LX	6	2	1	1	1
North Kelton No. 1	Functioning	Ex-M/D	SWSW	S15	T13N	R11W		S. desert shrub		LX					
North Kelton No. 2	Functioning	Ex-M/D	NWSE	S15	T13N	R11W		S. desert shrub		LX				1	
North Kelton No. 3	Functioning	Ex-M/D	NWSE	S15	T13N	R11W		S. desert shrub		LX				1	
North Kelton No. 4	Functioning	Ex-M/D	SESE	S15	T13N	R11W		S. desert shrub		LX					
North Otter Spring No. 1	Functioning	Pr-R	NESE	S33	T12N	R6E	1981	Riparian		LX	2.3			1	
North Otter Spring No. 3	Needs repair	Pr-Sp	W2	S2	T11N	R5E	1981	Riparian		LX	0.11			1	
North Otter-Dead Moose	Functioning	Pr-R	SWNW	S1	T12N	R5E	1984	Riparian		LX	4.5			2	1
North Otter-Elk Calf	Functioning	Pr-R	NENW	S2	T11N	R5E	1989	Riparian		LX	4				
North Otter-Macks	Functioning	Pr-R	NESW	S2	T11N	R5E	1989	Riparian		LX	2				
North Spring SLDO	Needs repair	Pr-Sp	SESE	S6	T12N	R7E	1984	Riparian		LX	0.37				
Ophir Canyon Spring	Functioning	Pr-Sp	SWNW	S19	T5S	R3W	1989	Riparian		LX		2		2	
Patterson Pass Spring	Functioning	Pr-Sp	NWSE	S35	T6N	R19W	1992	Riparian		LX	0.11			2	
Photo 3-19-19 No. 1	Functioning	Ex-M/D	SWNE	S34	T6S	R4W		S. desert shrub		LX					
Photo 3-19-19 No. 2	Functioning	Ex-M/D	SWNW	S35	T6S	R4W		S. desert shrub		LX					
Photo 3-19-19 No. 3	Functioning	Ex-M/D	NWSW	S35	T6S	R4W		S. desert shrub		LX					
Photo 3-19-19 No. 4	Functioning	Ex-M/D	NENE	S35	T6S	R4W		S. desert shrub		LX					
Randolph Creek No. 1	Functioning	Pr-R	NE	S14	T10N	R5E	1983	Riparian		LX	6			1	
Randolph Creek No. 2	Functioning	Pr-R	NW	S13	T10N	R5E	1983	Riparian		LX	9			1	
Randolph Creek No. 3	Functioning	Pr-R	NE	S13	T10N	R5E	1983	Riparian		LX	10			1	
Randolph Creek No. 4	Functioning	Pr-R	NWSW	S12	T10N	R5E	1983	Riparian		LX	3.4			1	
Randolph Creek No. 5	Functioning	Pr-R	SESW	S12	T10N	R5E	1983	Riparian		LX	3.4			1	
Red Butte	Functioning	M/D	SWSW	S10	T11N	R17W	1964	Basin big sage		DRX	0.55		4		4
	-	-	-	-	-	-	-	-		DX	0.55				
	-	-	-	-	-	-	-	-		LRX	0.55				
	-	-	-	-	-	-	-	-		LX	0.55				

BLM Salt Lake DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Rush Valley	Not found	Ex-M/D	NW	S34	T6S	R4W	1940	S. desert shrub		LX	5.74				
Rush Valley IA	Needs repair	Ex-M/D	SE	S35	T6S	R4W		S. desert shrub		LX	3.08	1	1	1	1
Rush Valley IB	Needs repair	Ex-M/D	SE	S35	T6S	R4W		S. desert shrub		LX	0.98				
Rush Valley IIA	Functioning	Ex-M/D	SW	S35	T6S	R4W		S. desert shrub		LX	3.07	1	1	1	1
Rush Valley IIB	Functioning	Ex-M/D	SW	S35	T6S	R4W		S. desert shrub		LX	1	1	1	1	1
Rush Valley IIC	Functioning	Ex-M/D	SW	S35	T6S	R4W		S. desert shrub		LRX	0.08		1		1
-	-	-	-	-	-	-	-	-		LX	3.04	1		1	
Snowville No. 1	Functioning	Ex-M/D	SESW	S6	T13N	R10W		S. desert shrub		LX					
Snowville No. 2	Functioning	Ex-M/D	NESE	S10	T13N	R10W		Salt-greasewd		LX					
Snowville No. 3	Functioning	Ex-M/D	SESW	S6	T13N	R10W		Salt-greasewd		LX					
South Otter Creek East	Functioning	Pr-R	SWSW	S9	T11N	R6E	1991	Riparian		LX					
South Otter Creek West	Functioning	Pr-R	NESE	S8	T11N	R6E	1991	Riparian		LX					
Spring Creek	Functioning	Pr-R	N2	S28	T11S	R6E	1983	Riparian		LX	36.4			1	
Straight Fork Springs	Functioning	Pr-Sp	SESW	S18	T12N	R18W	1993	Basin big sage		LX	1.5			1	
Upper Big Creek	Functioning	Pr-R	SWNE	S26	T10N	R5E	1983	Riparian		LX	9.1	3		3	
Upper Middle Otter Creek	Functioning	Pr-R	SW	S4	T11N	R6E	1983	Basin big sage		LX	8	2	1	1	1
Vernon Hills IVA	Functioning	Ex-M/D	NW	S9	T8S	R5W		S. desert shrub		LX	3.03	1	1	1	1
Vernon Hills IVB	Functioning	Ex-M/D	NW	S9	T8S	R5W		Black sage		LX	1.34	1	1	1	1
Well 78	Functioning	M/D	NWSE	S8	T2N	R10W	1985	S. desert shrub		LX	1	10	11	1	
Wildcat	Not found	Ex-M/D	NE	S11	T13N	R11W		Wy. big sage		LX	0.92				
Woodruff	Not found	M/D	NENW	S11	T9N	R6E	1963	Wy. big sage		DRX	0.5				
-	-	-	-	-	-	-	-	-		DX	0.5				
-	-	-	-	-	-	-	-	-		LRX	0.5				
-	-	-	-	-	-	-	-	-		LX	2				
Woodruff Test No. 1	Not found	Ex-M/D	S2	S15	T9N	R6E	1981	Wy. big sage	Plowed, planted	DX	2.1				
-	-	-	-	-	-	-	-	-	-	LX	2.1				
Woodruff Test No. 2	Not found	Ex-M/D	S2	S5	T9N	R6E	1981	Wy. big sage	Plowed, planted	DX	2.1				
-	-	-	-	-	-	-	-	-	-	LX	2.1				

BLM St. George DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Beaver Dam	Functioning	M/D	SWSW	S19	T43S	R18W	1956	Creosote scrub		LX	1	1	1	5	4
Castle Cliff	Functioning	M/D	NWNW	S7	T43S	R18W	1956	Blackbrush		LX	1	1	1	4	3
Gould	Functioning	Ex-M/D	NE	S30	T42S	R12W	1959	S. desert shrub	Plowed, seeded	LX	10	1			
Gunlock Riparian	Functioning	Pr-R	W2SE	S8	T42S	R17W	1999	Riparian		LX					
Middle Ridge 5-acre	Functioning	M/D	SWSE	S29	T38S	R19W	1956			LX	5				
Natural Burn	Functioning	Ex-M/D	NESW	S11	T40S	R19W	1982	Blackbrush	Burned	DX	2.5				
Red Hollow Burn	Functioning	Ex-M/D	SWSE	S15	T40S	R19W	1982	Blackbrush	Burned, seeded	DX	2.5				
Red Hollow Exp. Plot	Functioning	Ex-M/D	NWSW	S11	T40S	R19W	1949	Blackbrush	Seeded	LRX	0.83	1			
Woodbury Desert Study Area	Functioning	Pr-T&ES		S15	T43S	R18W	1979	Creosote scrub		LX	1030	1	1	1	

BLM Vernal DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Atchee Ridge	Functioning	M/D	NWNE	S4	T13S	R25E	1964	T. mtn-mahog.		DX	1				
	-	-	-	-	-	-	-	-		LX	4				
Big Park	Needs repair	M/D	NWSE	S3	T13S	R24E	1964	Wy. big sage		DX	1		1		
	-	-	-	-	-	-	-	-		LX	4	1			
Blue Mountain	Needs repair	M/D	SWNW	S15	T5S	R25E	1965	Mtn. big sage		DX	2				
	-	-	-	-	-	-	-	-		LX	3				
Boulevard Watershed Study	Functioning	Ex-M/D	W2	S16	T13S	R25E	1971	P-J wood	Chained, burned, seeded	LX	106				
Brown's Park	Functioning	Ex-M/D	NWNW	S33	T2N	R25E	1958	Wy. big sage	Railed, seeded	LX	40	1	1		
Brush Creek	Functioning	M/D	NENE	S35	T2S	R22E	1965	Wy. big sage	Plowed, planted	DRX	0.028				1
	-	-	-	-	-	-	-	-	-	DX	2				
	-	-	-	-	-	-	-	-	-	LX	3			1	
Burns Bench	Functioning	M/D	NENW	S22	T4S	R22E	1964	S. desert shrub		LX	0.79				

BLM Vernal DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Burnt Elk Spring No. 1	Functioning	Pr-Sp	SWNE	S4	T3S	R24E	1991	P-J wood	Burned, seeded	LX	0.18				
Castle Peak Salinity	Functioning	Ex-M/D	NWNE	S29	T9S	R16E	1992	S. desert shrub		LX	10	2	1	1	1
Cherry Spring	Functioning	Pr-Sp	SWNE	S22	T2S	R25E	1990	Riparian		LX	0.5				
Chipeta Springs	Functioning	Pr-Sp	SWNE	S33	T15.5S	R25E	1995	Wy. big sage		LX	2				
Clay Basin	Needs repair	M/D	SENE	S28	T3N	R24E	1958	S. desert shrub		LX	3.67				
Crow Knoll	Functioning	M/D	NENE	S10	T9S	R17E	1992	S. desert shrub		LX		1	1		
Crow's Roost	Functioning	M/D	NWNW	S4	T14S	R22E	1968	Wy. big sage		DX	1		13		6
	-	-	-	-	-	-	-	-		LX	4				
Deadman Bench	Functioning	Ex-M/D	SWSW	S13	T7S	R24E	1963	Wy. big sage	Plowed, seeded	LX	40				
Dick Canyon	Functioning	Pr-S/R		S30	T15S	R24E	2002	Aspen	Burned	DX					
East Grindstone Springs	Functioning	Pr-Sp	SWNE	S24	T3N	R22E	1996	Riparian		LX					
Edith Aspden Spring	Functioning	Pr-Sp	SWSE	S23	T3N	R23E	1983	Riparian		LX	5				
Five Mile	Functioning	M/D	SENE	S35	T10S	R14E	1995	Wy. big sage		DX	2	1			
	-	-	-	-	-	-	-	-		LX	2	1			
Ford Spring	Functioning	Pr-Sp	SWSE	S21	T3N	R22E	1996	Riparian		LX					
Green River Bottoms	Historic	M/D	SESE	S10	T11S	R18E	1983	Riparian		DX	1.64	1	1	1	1
	-	-	-	-	-	-	-	-		LX	1.64	1		3	
	-	-	-	-	-	-	-	-		RR	1.64				
Grindstone Springs	Functioning	Pr-Sp	NWNE	S23	T3N	R22E	1996	Riparian		LX					
GYP Plant Hill	Historic	M/D	NENW	S16	T4S	R22E	1964	S. desert shrub		LX	1				
Junction Spring	Functioning	Pr-Sp	NW	S33	T3S	R20E	1991	Riparian		LX	0.5				
Kennedy Flat	Not found	?	NW	S24	T8S	R23E				LX	5				
Kings Point Pyke East	Functioning	Ex-M/D	NESW	S33	T2N	R25E	1986	Wy. big sage		DX	3				
	-	-	-	-	-	-	-	-		LX	1.5				
Kings Point Pyke West	Functioning	Ex-M/D	NESE	S32	T2N	R25E	1986	Wy. big sage		DX	3				
	-	-	-	-	-	-	-	-		LX	1.5				
LaPoint OMNI	Functioning	M/D	SENE	S26	T4S	R19E	1983	Wy. big sage		LX	2.28	2	2	2	2
Lil's Spring	Functioning	Pr-Sp	NWSE	S6	T2S	R25E	1990	Riparian		LX	0.5				
Lower Blackhorse Canyon	Functioning	Pr-S/R		S30	T15S	R24E	2002	Aspen	Burned	DX		1	1	1	1

BLM Vernal DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Lower McCook Ridge	Needs repair	M/D	SESW	S31	T13S	R24E	1964	Basin big sage		DX	1	2	5	2	5
	-	-	-	-	-	-	-	-		LX	4	2		2	
Middle Spring	Functioning	Pr-Sp	NWSW	S3	T3S	R20E	1993	Riparian		LX					
Monument Ridge Brush Control	Functioning	Ex-M/D	NWSE	S11	T15S	R23E	1981	Wy. big sage	Plowed, sprayed, planted	LX	2.5				
Pigeon Canyon	Needs repair	M/D		S9	T3N	R23E	1968	Mtn. big sage		DX	0.75				
	-	-	-	-	-	-	-	-		LX	3.25				
Pot Creek	Functioning	Pr-R	SWSE	S35	T10S	R25E	1991	Riparian		LX	1			1	
PR Spring	Functioning	M/D	SWSW	S31	T15S	R24E	2001	Mtn. big sage		DX	1	1	1	1	1
	-	-	-	-	-	-	-	-		LX	1	1		1	
PR Spring Riparian	Functioning	Pr-Sp	SESE	S36	T15S	R23E	1982	Riparian		LX					
Rector Ridge	Not found	?	NE	S4	T13S	R25E				LX	5				
Red Creek	Functioning	M/D					2002			DX	1				
Red Creek Flat Species Plot	Needs repair	Ex-M/D	NWSW	S21	T2N	R24E	1963	Wy. big sage	Plowed, planted, seeded	DX	2.5	1	1		
	-	-	-	-	-	-	-	-		LX	2.5				
Seep Ridge Brush Control	Functioning	Ex-M/D	NWSW	S22	T15S	R23E	1981	Wy. big sage	Plowed, sprayed, planted	LX	2.5				
South Canyon Spring	Functioning	Pr-Sp	NWSW	S33	T15S	R24E	1996	Riparian		LX	9.1	1	1		
Sweetwater Canyon Brush Control	Functioning	Ex-M/D	NWNW	S7	T14S	R24E	1981	Salt-greasewd	Burned, plowed, sprayed, seeded	LX	2.5				
Taylor Flat	Functioning	Ex-M/D	SWNW	S35	T2N	R24E	1963	Wy. big sage	Plowed, seeded	DX	2.5				
	-	-	-	-	-	-	-	-		LX	2.5				
Taylor Flat OMNI	Functioning	Ex-M/D	SWNE	S35	T2N	R24E	1985	Wy. big sage		DX	1.25	2	2	1	1
	-	-	-	-	-	-	-	-		LX	3.75	2		1	
Taylor Flat Pyke North	Functioning	Ex-M/D	SENE	S26	T2N	R24E	1986	Wy. big sage		DX	3				
	-	-	-	-	-	-	-	-		LX	1.5				

BLM Vernal DO	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Taylor Flat Pyke South	Functioning	Ex-M/D	SWNW	S36	T2N	R24E	1986	Wy. big sage		DX	3				
	-	-	-	-	-	-	-	-		LX	1.5				
Twelve Mile	Not found	?	NE	S3	T6S	R20E		Wy. big sage		LX	5				
Upper Blackhorse Canyon	Functioning	Pr-S/R		S30	T15S	R24E	2002	Aspen	Burned	DX				1	
White River	Historic	M/D		S23	T10S	R23E	1991	Riparian		LX		1	1		
Wild Mountain	Functioning	Pr-R	NENW	S10	T2S	R25E	1991	Riparian		LX	1				
Willow Canyon	Functioning	Pr-S/R		S30	T15S	R24E	2002	Aspen	Burned	DX		1	1	1	1
Willow Creek Riparian 1991	Functioning	Pr-R	NWNW	S34	T3S	R25E	1991	Riparian		LX	1				
Winter Ridge	Needs repair	M/D	NENW	S26	T15S	R21E	1964	Mtn. big sage		DX	1	2	2	2	2
	-	-	-	-	-	-	-	-		LX	4	2		2	
Winter Ridge Brush Control	Functioning	Ex-M/D	NWSE	S30	T15S	R22E	1981	Wy. big sage	Plowed, sprayed, planted	LX	2.5				
Wolf Point Brush Control	Functioning	Ex-M/D	S2NW	S14	T15S	R21E	1981	Wy. big sage	Plowed, sprayed, planted	LX	2.5				

Ashley NF Duchesne/Roosevelt RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
77 Flat	Functioning	M/D	SWNE	S25	T2N	R4W	1998	Mtn meadows		LX		2	1	3	2
Anthro Mountain Pilot Plot	Functioning	Ex-M/D	NWNE	S22	T6S	R5W	1955	Black sage	Plowed, seeded	LRX	1	8	1	3	1
Bear Park	Historic	M/D	NENE	S14	T2N	R5W	1927	Mtn grasses		LX	0.006	11	3	3	1
Bennion Park	Historic	M/D	SE	S11	T3N	R2W	1923	Mtn grasses		LX	0.006				
Bull Pasture	Functioning	M/D	NWNW	S24	T2N	R1W	1979	Mtn. big sage		LX			2	1	2
Burnt Mill No. 1	Historic	M/D	SENE	S25	T2N	R4W	1925	Mtn grasses		LX	0.006	13	2		
Burnt Mill Spring	Functioning	Pr-Sp	SENE	S25	T2N	R4W	1980	Riparian		LX	1				8
Cottonwood Ridge Pilot Planting	Functioning	Ex-M/D	NESE	S17	T6S	R6W	1956	Black sage	Plowed, drilled	LRX	1	6	5	4	
Cow Park Riparian	Functioning	Pr-R	NW	S9	T2N	R5W	1989	Riparian	Seeded,	RR				6	2

Ashley NF Duchesne/Roosevelt RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Dry Gulch No. 7	Historic	M/D	SESE	S16	T2N	R3W	1929	Mtn grasses		LX	0.006	9			
Dry Gulch Riparian	Functioning	Pr-R	NWSW	S9	T2N	R3W	1991	Mtn meadows		LX		2	3	5	7
Farm Creek Proper Use	Historic	Ex-M/D	NE	S15	T2N	R1W	1956	Mtn. big sage	Sprayed, seeded	LX	1				
Farm Creek Study Plot	Historic	Ex-M/D	NW	S23	T2N	R1W	1922	Mtn. big sage	Seeded	LX	0.006				
Indian Canyon	Not found	M/D	NWSE	S28	T6S	R7W	1940			LX	1				
Jackson Park	Historic	M/D	SESW	S26	T3N	R4W	1928	Mtn grasses		LX	0.006	10	4	1	1
Kidney Lakes	Historic	M/D	SESW	S21	T5N	R3W	1956	Alpine		LX	1	7	5	8	7
Lake Canyon	Historic	M/D	NWSE	S14	T6S	R8W	1929	Aspen		LX	0.013	10			
Lake Ford Canyon	Historic	M/D	SW	S34	T2N	R5W		Mtn. big sage		LX	0.006				
Lake Fork No. 3	Historic	M/D	SESW	S34	T2N	R5W	1925	Mtn. big sage	Plowed, planted	LX	0.0074	13		6	
Little Meadow Riparian	Functioning	Pr-R	SESW	S8	T2N	R5W	1988	Mtn meadows	Seeded	LX	10	6	2	4	3
Lower Yellowstone	Historic	Ex-M/D	SW	S33	T2N	R4W	1951	Mtn. big sage	Sprayed, seeded	LX	0.9				
Mud Spring ANF	Historic	M/D		S10	T7S	R8W	1927	Mtn grasses		LX	0.007	8			
Ottoson Basin No. 4	Historic	M/D	SESW	S6	T3N	R6W	1926	Alpine		LX	0.006	12		1	
Pigeon Water Riparian	Functioning	Pr-R	SWSW	S13	T1N	R6W	1998	Riparian		LX				4	5
Pole Creek	Not found	M/D	SE	S34	T3N	R2W	1923	Mtn. big sage		LX	0.006				
Sowers Canyon Exp. Seeding	Historic	Ex-M/D	N2	S31	T6S	R6W	1958	Riparian	Seeded	LX	40				
Summit Park	Historic	M/D	SW	S1	T3N	R1W	1923	Alpine		LX	0.006				
Timber Canyon ELSA	Needs repair	M/D	SESW	S20	T5S	R9W	1943	Gambel oak		LX	0.5	1	1	1	1
Timber Canyon Riparian	Functioning	Pr-R			T5S	R9W	1989	Riparian		LX		1		4	1
Timothy Creek	Functioning	M/D	SWSE	S12	T2N	R4W	1997	Aspen		DX	1.06	1	1	1	1
-	-	-	-	-	-	-	-	-		LX	1.06	1		1	
Trail Hollow	Not found	Ex-M/D	NE	S33	T2N	R9W	1955	Mtn. big sage	Seeded	LX	1				
Twin Hollow Riparian	Functioning	Pr-R	NESW	S24	T6S	R7W	2001	Riparian		LX		1	1	4	1
Twin Hollow-Sowers Canyon	Functioning	Ex-M/D	NESW	S24	T6S	R7W	2001	Basin big sage	Seeded	LX		1	1	4	1
Wire Fence	Functioning	Ex-M/D	SWSW	S32	T6S	R5W	1979	Mtn. big sage	Plowed, seeded	DX	1	2	3	6	5
-	-	-	-	-	-	-	-	-		LX	1	3		6	

Ashley NF Duchesne/Roosevelt RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Wire Fence Aspen	Functioning	M/D	NWSW	S5	T7S	R5W	2001	Aspen		DX				1	
	-	-	-	-	-	-	-	-		LX					
Yellowstone Power Plant	Functioning	Ex-M/D	NW	S27	T2N	R4W	1950	Mtn. big sage	Sprayed, seeded	LX	0.9				
Yellowstone-Swift Creek	Functioning	M/D	SESE	S4	T2N	R4W	1998	Mtn. big sage		LX	0.9	13	2	3	

Ashley NF Flaming Gorge RD/NRA	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Anvil	Functioning	M/D	NENW	S33	T13N	R108 W	1990	S. desert shrub		LX	1	8	8	9	9
Death Valley	Needs repair	M/D	NENE	S24	T2N	R19E	1951	Mtn. big sage		DX	1.4	4	2	8	6
	-	-	-	-	-	-	-	-		LX	1.2	5		7	
Dowd Mountain	Historic	M/D	NE	S28	T2N	R20E	1950	T. mtn-mahog.		DX	0.69	5	5	8	6
	-	-	-	-	-	-	-	-		LX	0.69	5		7	
Dowd's Hole	Functioning	Ex-M/D	NENE	S30	T2N	R20E	1922	Mtn. big sage	Sprayed	LX	1	11	5	6	3
Dutch John	Functioning	M/D	SESW	S33	T3N	R22E	1955	P-J wood		DX	0.69	3	2	10	2
	-	-	-	-	-	-	-	-		LX	0.69	3		4	
Hickerson Park	Historic	M/D		S19	T2N	R18E	1922	Mtn meadows		LX	0.009				
Long Park	Historic	M/D		S14	T2N	R18E	1923	Mtn meadows		LX	1	8		1	
Lucerne	Functioning	M/D	SESW	S18	T3N	R21E	1965	Wy. big sage		AX	0.25	3		7	
	-	-	-	-	-	-	-	-		LX	600	4		5	
Meadow Park	Historic	M/D	SWNE	S2	T1N	R20E	1929	Mtn. big sage		LX	1	8	1	1	
Sheep Creek Park	Historic	M/D		S36	T2N	R18E	1924	Mtn grasses		LX	0.1	8		1	
Squaw Hollow	Functioning	M/D	NWSW	S22	T14N	R108 W	1991	S. desert shrub		LX	1	3	2	9	5

Ashley NF Vernal RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Big Lake Park	Historic	Ex-M/D	SESE	S27	T1S	R21E	1932	Mtn grasses	Planted	LX	0.006	6		2	
Cedar Point Species Plot	Not found	Ex-M/D	SWSW	S13	T2N	R18E	1986	Mtn. big sage	Plowed, seeded	DX		3		3	
Davis Hollow	Historic	M/D		S13	T5S	R6W	1923	Mtn grasses		LX	0.006			2	
Diamond Mountain	Functioning	M/D	NWNW	S4	T2S	R22E	1952	Mtn. big sage		DX	1	4	4	6	3
	-	-	-	-	-	-	-	-		LX	1	4		6	
Diamond Mtn. L & C 1-1	Functioning	Ex-M/D	NWNW	S11	T2S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025	1		1	
Diamond Mtn. L & C 1-2	Functioning	Ex-M/D	NWSE	S4	T2S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025	1		2	
Diamond Mtn. L & C 1-3	Functioning	Ex-M/D	SWNE	S4	T2S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025	1		1	2
Diamond Mtn. L & C 1-4	Functioning	M/D	SWNE	S3	T2S	R22E	1959	Aspen		LX	0.025			1	
Diamond Mtn. L & C 1-5	Functioning	Ex-M/D	SENE	S3	T2S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 1-6	Functioning	M/D	SENE	S3	T2S	R22E	1959	T. mtn-mahog.		LX	0.025			1	
Diamond Mtn. L & C 2-1	Functioning	M/D	SESW	S1	T2S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 2-2	Functioning	Ex-M/D	NESE	S2	T2S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 2-3	Functioning	M/D	NESE	S1	T2S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 2-4	Needs repair	M/D	NWNW	S1	T2S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 3-1	Needs repair	Ex-M/D	SESE	S33	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 3-2	Needs repair	M/D	SWNE	S33	T1S	R22E	1959	Mtn. big sage		LX	0.025			2	
Diamond Mtn. L & C 3-3	Functioning	M/D	SWSW	S28	T1S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 3-4	Historic	M/D	NESW	S28	T1S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 4-1	Functioning	M/D	SWSE	S34	T1S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 4-2	Functioning	M/D	NENW	S3	T2S	R22E	1959	Aspen		LX	0.025			1	
Diamond Mtn. L & C 4-3	Historic	Ex-M/D	NENE	S3	T2S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 4-4	Historic	Ex-M/D	SESW	S27	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 5-1	Historic	Ex-M/D	SESE	S36	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 5-2	Historic	Ex-M/D	SENE	S36	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	

Ashley NF Vernal RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Diamond Mtn. L & C 5-3	Historic	Ex-M/D	NWNW	S36	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 5-4	Historic	Ex-M/D	NESW	S25	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 5-5	Historic	Ex-M/D	SWNW	S25	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 6-1	Needs repair	M/D	SWSE	S20	T1S	R22E	1959	Aspen		LX	0.025			1	
Diamond Mtn. L & C 6-2	Historic	Ex-M/D	SWSE	S20	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 6-3	Historic	M/D	NWSW	S21	T1S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 6-4	Functioning	M/D	SESW	S21	T1S	R22E	1959	Aspen		LX	0.025			1	
Diamond Mtn. L & C 7-1	Historic	Ex-M/D	SESW	S22	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 7-2	Historic	Ex-M/D	SWSW	S23	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Diamond Mtn. L & C 7-3	Functioning	M/D	NWNE	S21	T1S	R22E	1959	Mtn. big sage		LX	0.025			1	
Diamond Mtn. L & C 7-4	Historic	Ex-M/D	SWSE	S15	T1S	R22E	1959	Mtn. big sage	Plowed, seeded	LX	0.025			1	
Dutch Charlie Flat	Historic	M/D		S31	T1S	R22E	1923	Mtn. big sage		LX	0.006	7	1	4	
East Brush Creek	Needs repair	M/D	NENW	S9	T2S	R22E	1962	Mtn. big sage		DX	2.5	1	1	6	2
-	-	-	-	-	-	-	-	-	-	LX	2.5	1		3	
East McKee	Historic	M/D	SWSE	S29	T1N	R22E	1939	Mtn. big sage		LX	1	6		1	1
Government Park	Historic	M/D		S7	T1S	R20E	1929	Mtn grasses		LX	0.006	6			
Henline	Functioning	M/D	NWSE	S12	T2S	R21E	1939	Mtn. big sage		LX	1	7		5	
Lake Mountain	Functioning	Ex-M/D	SWSW	S33	T2S	R19E	1961	Mtn. big sage	Plowed, seeded	DX	2.5	3	3	5	5
-	-	-	-	-	-	-	-	-	-	LX	2.5	4		3	
Lake Mountain Fertilizer Plot	Historic	Ex-M/D	SWSW	S33	T2S	R19E	1968	Mtn. big sage	Plowed, seeded, fertilized	LX	0.6	2		2	
Lake Mountain No. 3	Historic	M/D	NENE	S32	T2S	R19E	1924	Mtn. big sage		LX	0.007	8			
Leidy Peak	Functioning	M/D	SW	S31	T1N	R19E	1957	Alpine		LX	2.5	4	3	6	4
Little Brush Creek Riparian	Functioning	Pr-R			T3S	R22E	2000	Riparian		LX				2	
Miner's Gulch	Historic	M/D	NE	S36	T2N	R7W	1943	Mtn. big sage		LX	0.006	1			
Mosby Canyon No. 4	Functioning	M/D	SWSE	S31	T2S	R19E	1922	Mtn. big sage		LX	0.006	6		1	

Ashley NF Vernal RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Mosby Mountain	Functioning	M/D	NENE	S14	T3S	R18E	1959	Mtn. big sage	Burned	DX	2.5	3	2	9	5
	-	-	-	-	-	-	-	-	-	LX	2.5	4		11	
Pine Hollow Admin. Study	Functioning	Ex-M/D	SW	S3	T2S	R21E	1965	Aspen	Sprayed	DX	2	5	4	4	2
	-	-	-	-	-	-	-	-	-	LX	2	5		4	
Stringham Cabin	Functioning	Pr-C	SW	S4	T1S	R22E	1991	Mtn meadows		LX				3	3
Taylor Mountain	Needs repair	M/D	SWSW	S20	T2S	R21E	1962	Mtn. big sage		DX	2.5	2		2	
	-	-	-	-	-	-	-	-		LX	2.5			1	
West Brush Creek	Functioning	M/D	SWSE	S2	T2S	R21E	1962	Mtn. big sage		DX	2.5			1	
	-	-	-	-	-	-	-	-		LX	2.5	3		3	

Dixie NF Cedar City RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Asay Bench	Functioning	Ex-M/D	SE	S31	T37S	R6W	1960	Mtn. big sage	Sprayed	DX	1	2	2	3	2
	-	-	-	-	-	-	-	-	-	LX	2	2		3	
Black Lava	Not found	M/D	NE	S29	T36S	R7W	1960	P. Pine shrub		DX	0.5				
Blow Hard	Needs repair	M/D	NW	S14	T37S	R9W	1925	Tall forb		LX	0.027	4	2	2	3
Blowup	Needs repair	M/D	NE	S19	T34S	R7W	1930	P. Pine shrub		DX	0.19	4	4	4	2
	-	-	-	-	-	-	-	-		LX	0.23	4		4	
Bowers Flat	Functioning	M/D	SW	S27	T37S	R7W	1938	P. Pine grass		LX	1			1	
Bowery	Needs repair	M/D	SW	S9	T35S	R8W	1952	Mtn. big sage		LX	1	4	1	5	1
Bowery Creek Riparian	Functioning	Pr-R	NE	S16	T36S	R8W	2002	Riparian		LX	1.5				
Burrows Flat	Not found	M/D	NW	S26	T37S	R7W	1909	P. Pine grass		LX	5	2	1	1	
Castle Creek Riparian	Functioning	Pr-R	NW	S17	T36S	R8W	2002	Riparian		LX	1.5				
Corral Hollow	Functioning	M/D	SE	S26	T34S	R7W	1930	Mtn. big sage		LX	0.33			4	
Long Valley	Not found	Ex-M/D	SW	S12	T37S	R8W	1960	Mtn grasses	Seeded	LX	6.5				
Lowder Creek Willow	Functioning	M/D	NW	S1	T37S	R8.5W	1996	Riparian		DX	0.014			1	
	-	-	-	-	-	-	-	-		LX	0.014			1	

Dixie NF Cedar City RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Lower Tippetts Valley	Historic	M/D	SW	S23	T37S	R8W	1952	Aspen		LX	1	2	2	3	2
Lower West Pass	Functioning	Ex-M/D	NW	S7	T36S	R6W	1952	Mtn. big sage	Plowed, seeded	LX	0.88	1	1	4	
Midway	Functioning	M/D	NW	S25	T37S	R9W	1925	Mtn meadows		LX	0.027	2	1	3	1
Panguitch Lake	Functioning	Ex-M/D	SW	S27	T35S	R7W	1950	Mtn. big sage	Plowed, seeded	LX	2.98			3	
Sage Valley	Not found	Ex-M/D	NW	S30	T29S	R8W	1962	Other sage	Seeded	LX	5				
Sheep Herder Camp Az. Willow	Functioning	M/D	NW	S1	T37S	R8.5W	1996	Riparian		DX	0.014			1	
-	-	-	-	-	-	-	-	-		LX	0.014			1	
Sidney Valley Willow	Functioning	Pr-T&ES			T37S	R8.5W	1996	Riparian		LX				1	
Six Lakes	Not found	M/D	SE	S8	T36S	R9W	1925	Aspen		LX	1.2				
Strawberry Valley	Needs repair	M/D	NE	S31	T38S	R7W	1925	Mtn grasses		LX	1	4	5	6	6
Tall Forb	Functioning	Ex-M/D	SW	S11	T37S	R9W	1997	Tall forb		LX	50			1	
Tommy Creek Riparian	Functioning	Pr-R	SWNW	S13	T37S	R7W	1994	Riparian		LX		1		2	
Uinta Flat	Needs repair	Ex-M/D	NW	S1	T38S	R7W	1960	P. Pine grass	Seeded	LX	5			1	
Upper Tippetts Valley	Functioning	M/D			T37S	R8W		Aspen		DX				1	
Upper West Pass	Functioning	Ex-M/D	NW	S1	T36S	R7W	1952	Mtn. big sage	Plowed, seeded	LX	0.92		1	4	2
Webster Flat	Not found	M/D	SE	S30	T37S	R9W	1965	Aspen		DX	6.43				
-	-	-	-	-	-	-	-	-		LX	12.4				

Dixie NF Escalante RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Allen Canyon	Not found	M/D	NE	S30	T35S	R1E	1962	Gambel oak		DX	1				
Davis Flat	Functioning	Ex-M/D	SE	S19	T32S	R2E	1952	Mtn grasses	Seeded	LX	0.42				
Griffin Top Pilot Plot	Functioning	Ex-M/D	NW	S2	T34S	R1W	1962	Mtn grasses	Seeded	LX	6.3				
Middle Deer Creek	Functioning	Ex-M/D	SW	S19	T32S	R5E	1944	Mtn grasses	Seeded	LX	0.5				
North Creek	Not found	Ex-M/D		S19	T33S	R1E	1940		Seeded	LX	1				

Dixie NF Pine Valley RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Browse	Needs repair	Ex-M/D	NE	S19	T39S	R13W	1921	P. Pine shrub		DX	0.99	1		1	
	-	-	-	-	-	-	-	-		LX	129	1			
Calf Springs Riparian	Functioning	Pr-R		S4	T37S	R17W	1995	Riparian		LX				1	
Cave	Functioning	M/D	NW	S10	T38S	R18W	1920	Wy. big sage		LX				2	2
Colie Flat	Functioning	M/D	SW	S2	T38S	R19W	1950	Gambel oak		DX	0.92	6	4	7	4
	-	-	-	-	-	-	-	-		LX	0.92	5		6	
General Stream Road	Not found	M/D		S22	T39S	R17W		P-J wood		LX	5				
Grass Valley	Functioning	M/D	SENE	S25	T38S	R15W	1940	P-J wood		DX	1	5	4	4	4
	-	-	-	-	-	-	-	-		LX	1	2		2	
Iron Peg	Functioning	M/D		S36	T37S	R15W	1954	T. mtn-mahog.		DX	1.05	3	2	3	2
	-	-	-	-	-	-	-	-		LX	1.05	1		1	
Jessie Tie	Not found	Ex-M/D	SE	S30	T36S	R19W	1946	Wy. big sage	Sprayed, plowed, seeded	LRX	1.5	3		3	
	-	-	-	-	-	-	-	-	-	LX	3.5	3		3	
Mahogany Bench	Historic	M/D		S20	T39S	R15W	1928	Gambel oak		LX	0.01	1	1		
Moody Wash	Historic	M/D		S25	T38S	R19W	1929	Mtn. big sage		LX	0.006	2			
Mud Spring DNF	Not found	M/D		S33	T37S	R15W		Mtn. big sage		LX					
Pine Creek	Not found	Ex-M/D	NE	S1	T38S	R19W	1920		Seeded	LX	5				
Pine Valley	Not found	M/D	SW	S20	T39S	R14W	1935	Mtn. big sage		DX	0.5	1	1	1	1
	-	-	-	-	-	-	-	-		LX	0.5				
Racer Canyon	Functioning	M/D	NW	S24	T38S	R18W	1933	Gambel oak		DX	0.125	2	2	3	2
	-	-	-	-	-	-	-	-		LX	0.17	2		3	
Ritchie Flat	Functioning	Ex-M/D	SW	S30	T37S	R14W	1956	Wy. big sage	Plowed, seeded	DX	1.05				
	-	-	-	-	-	-	-	-	-	LX	1.05				
Rock Hole	Not found	Ex-M/D	NE	S9	T37S	R19W	1946	Wy. big sage	Sprayed, seeded	LRX	5	1	1	1	1
Roundup Flat PJ	Not found	M/D	SW	S18	T37S	R19W	1927	P-J wood		LX	1	1	1	1	1
Truman Bench	Not found	M/D	NE	S12	T40S	R16W	1939	P-J wood		DX	1.33	1	9	1	2
Twin Spring Creek	Not found	M/D		S24	T37S	R17W		Wy. big sage		LX					
Water Canyon	Functioning	M/D	NE	S2	T38S	R19W	1932	Mtn. big sage		LX	1.25				

Dixie NF Powell RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Bridge Hollow	Functioning	Ex-M/D			T37S	R4.5W	1957	Mtn meadows		LX	15.9	3		5	
Cougar Hollow	Historic	M/D	SW	S5	T39S	R4W	1961	Aspen		DX	1				
	-	-	-	-	-	-	-	-		LX	1				
Coyote Hollow	Not found	Ex-M/D	SW	S21	T32S	R1E		Mtn. big sage	Plowed, seeded	LX	10				
East Creek	Historic	M/D	NE	S21	T34S	R3W	1961	Mtn. big sage		DX	1				
	-	-	-	-	-	-	-	-		LX	1			1	
East Creek Riparian	Functioning	Pr-R			T34S	R3W	1999	Mtn. big sage		LX				1	
Jones Corral Burn No. 1	Functioning	Ex-M/D	NWSW	S35	T31S	R2.5W	1996	Aspen	Burned	DX	0.26			4	
	-	-	-	-	-	-	-	-	-	LX	0.13				
Jones Corral Burn No. 2	Functioning	Ex-M/D	NWSW	S35	T31S	R2.5W	1996	Aspen	Burned	DX	0.26			4	
	-	-	-	-	-	-	-	-	-	LX	0.13				
Jones Corral Guard Station	Functioning	M/D	NWSW	S35	T31S	R2.5W		Mtn grasses		LX	1		7	1	
Lightning Draw	Needs repair	M/D			T35S	R4W		Mtn. big sage		LX				1	
Lower Blubber	Functioning	Pr-R			T37S	R4.5W		Wetlands		LX				1	
Lower Blubber Az. Willow	Functioning	Pr-T&ES			T37S	R4.5W		Riparian		LX				1	
Mule Flat	Functioning	Ex-M/D			T31S	R3W	1964	Aspen	Seeded	DX		2	2	5	2
	-	-	-	-	-	-	-	-	-	LX		2		3	
Riddle Swale	Functioning	Ex-M/D	NW	S19	T33S	R1W	1962	Black sage	Seeded	DX	1.8	1	1	1	1
	-	-	-	-	-	-	-	-	-	LX	1.2	1		1	
Sheep Creek	Functioning	Ex-M/D	SE	S30	T37S	R3W	1960	P-J wood	Railed, seeded	DRX	1				
	-	-	-	-	-	-	-	-	-	DX	1				
	-	-	-	-	-	-	-	-	-	LX	1				
Suicide	Functioning	M/D						Mtn grasses		LX	1		6		
Winnemucca Flat	Functioning	Ex-M/D	NESE	S6	T32S	R3W	1991	Mtn grasses	Ripped, seeded	DX	1		7		
	-	-	-	-	-	-	-	-	-	LX	1				
Woodchuck	Needs repair	M/D	SWSW	S28	T31S	R2.5W	1947	Aspen		DX	1	3	10	3	2
	-	-	-	-	-	-	-	-		LX	1	10		3	

Dixie NF Teasdale RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Antelope Spring	Not found	M/D		S22	T31S	R1E	1929	Mtn. big sage		LX	0.013	8			
Antelope Spring Riparian	Functioning	Pr-R		S22	T31S	R1E	1974	Riparian		LX				1	
Baker Spring Riparian	Functioning	Pr-R	SE	S14	T30S	R3E	1998	Riparian		LX				2	
Beef Meadows	Functioning	M/D		S36	T31S	R4E		Mtn grasses		LX				1	
Big Lake Elk	Functioning	M/D	SW	S13	T31S	R4E	1991	Mtn meadows		LX		1	1	3	2
Big Lake Experimental	Functioning	M/D	SE	S21	T31S	R2E	1957	Mtn. big sage		LX	1			4	5
Big Lake Wildlife	Functioning	Pr-R	SW	S28	T31S	R2E		Wetlands		LX				1	
Blind Lake	Functioning	M/D	NW	S24	T30S	R4E	1958	Tall forb		LX	1	4	4	5	3
Bluebell Knoll	Functioning	Ex-M/D		S31	T30S	R4E	1950	Mtn grasses	Plowed, seeded	LX	5.5	1		1	
Boulder Creek	Functioning	M/D		S4	T30S	R4E	1923	P. Pine grass		LX	1	16	1	3	2
Dark Valley	Functioning	Pr-R			T30S	R3E	1978	Wetlands		LX				1	
Dog Lake	Functioning	M/D		S9	T31S	R2E	1927	Mtn grasses		LX	1	11		1	
Dry Bench Mud Spring	Functioning	Pr-Sp			T32S	R6E		Riparian		LX					
East Boulder Draw	Historic	M/D		S16	T31S	R4E	1928	Alpine		LX	0.013	10			
Edmond's Hole	Functioning	M/D			T31S	R5E	1957	Gambel oak	Burned	LX	1	1	1	5	3
Elbow Lake	Historic	M/D		S32	T30S	R4E	1924	Alpine		LX	0.006	14			
Fish Creek	Historic	M/D		S19	T30S	R5E	1928	Aspen		LX	0.013	10			
Flat Iron Lake	Historic	M/D		S29	T29S	R4E	1926	Aspen		LX	0.013	11			
Giles Hollow	Functioning	Ex-M/D			T29S	R3E	1958	Mtn. big sage	Plowed, seeded	LX	1			1	
Jorgensen Flat	Needs repair	M/D			T31S	R6E		Wy. big sage		LRX				1	2
Park Pasture	Functioning	M/D	SE	S22	T31S	R5E	1957	Mtn grasses		LX	2.29	2	3	6	6
Pelham Draw	Functioning	M/D	SW	S17	T31S	R2E	1927	Aspen		LX	1	2	5	8	8
Pelham Pond	Functioning	Pr-R			T31S	R2E		Wetlands		LX					
Pine Creek Riparian	Functioning	Pr-R						Riparian		LX				1	
Pleasant Creek	Historic	M/D		S19	T31S	R5E	1927	Mtn grasses		LX	0.013	10			
Pole Corral Draw	Functioning	M/D	SW	S1	T32S	R6E	1958	Aspen		LX	1	2	2	5	4
Pot Holes	Functioning	M/D	SE	S22	T30S	R3E	1922	Mtn. big sage		LX	0.96	11	1	2	1
Raft Lake	Functioning	M/D			T30S	R4E	1981	Alpine		LX	4.5	1	1	2	1
Raft Lake-Boulder Top	Not found	M/D		S32	T30S	R4E	1924	Alpine		LX	0.006	14			

Dixie NF Teasdale RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Rock Spring	Functioning	Pr-T&ES	SE	S27	T31S	R2E		Mtn grasses		LX				2	
Roundup Flat TF	Needs repair	M/D	NWSW	S11	T37S	R19W	1957	Tall forb		LX	1	1	1	4	6
Salt Lick Draw	Functioning	M/D			T31S	R5E	1990	Aspen		LX	10			3	
Salt Lick Flat	Historic	M/D		S36	T31S	R5E	1925	Chk-svc-rose		LX	0.006	14			
Spring Branch	Historic	M/D		S11	T30S	R4E	1926	Aspen		LX	0.013	11			
Station Creek	Functioning	M/D			T30S	R3E		Riparian		LX				1	
Steep Creek	Functioning	M/D		S16	T32S	R5E	1925	Tall forb		LX	1	15		5	
Upper Pleasant Creek	Functioning	M/D		S19	T31S	R5E	1990	Riparian		RR	10	3	3	4	3
West Boulder Draw	Functioning	M/D			T31S	R3E	1983	Alpine		LX	4.5	1	1	4	3

Fishlake NF Beaver RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Baker Canyon	Not found	M/D	NW	S16	T29S	R6W	1932	T. mtn-mahog.		LX	0.25	6	6	2	3
Bentenson Flat Burn	Historic	Ex-M/D	SW	S30	T29S	R4W	1961	Aspen	Burned	LX	42				
Bentenson Flat No. 1	Not found	Ex-M/D		S1	T30S	R5W	1954	Mtn. big sage	Plowed, seeded	LX	0.63				
Bentenson Flat No. 2	Not found	Ex-M/D		S1	T30S	R5W	1958	Mtn. big sage	Plowed, seeded	LX	0.63				
Big Flat	Functioning	Ex-M/D	NW	S18	T29S	R4W	1934	Aspen	Trees harvested	DX	0.63	6	9	7	4
	-	-	-	-	-	-	-	-	-	LX	0.63	7		5	
Birch Creek-Pole Canyon	Not found	M/D	SW	S25	T30S	R5W	1952	Mtn. big sage		DX	0.63	3	5	3	5
	-	-	-	-	-	-	-	-		LX	0.63	4		4	
Girl's Home Riparian	Functioning	Pr-R			T29S	R5W	1994	Riparian		LX	27				
Grindstone Flat	Functioning	Ex-M/D		S29	T29S	R4W	1934	Aspen	Burned	DX	0.46	6	6	5	3
	-	-	-	-	-	-	-	-	-	LX	0.46	7		3	
Lower Lake Stream Riparian	Functioning	Pr-R		S10	T29S	R5W	1994	Riparian		LX	1.03				
Merchant Valley	Historic	M/D	NW	S3	T29S	R5W	1932	Aspen		DX	0.2	4	4	1	
	-	-	-	-	-	-	-	-		LX	0.2	4		1	

Fishlake NF Beaver RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Merchant Valley Riparian No. 1	Functioning	Pr-R	SE	S17	T29S	R5W	1994	Riparian		LX	1.03				
Merchant Valley Riparian No. 2	Functioning	Pr-R	SE	S17	T29S	R5W	1994	Riparian		LX	1.03				
North Cedars	Functioning	Ex-M/D	SW	S12	T26S	R5W	1963	P-J wood	Ripped, seeded	DX	1	7	5	4	4
	-	-	-	-	-	-	-	-	-	LRX	0.02	1		2	
	-	-	-	-	-	-	-	-	-	LX	9	6		4	
Timid Springs	Not found	Ex-M/D		S18	T29S	R4W	1964	Aspen	Trees harvested	DX	0.31	2	2	2	2
	-	-	-	-	-	-	-	-	-	LX	0.31	2		2	
Upper Lake Stream Riparian	Functioning	Pr-R		S11	T29S	R5W	1994	Riparian		LX	5				

Fishlake NF Fillmore RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Big Bench	Not found	Ex-M/D	SWSE	S9	T24S	R4.5W	1963	Mtn. big sage	Sprayed, seeded	LX	10	4	4	4	3
Corn Creek Grass Plot	Not found	Ex-M/D	NE	S4	T24S	R4.5W	1938	Bigtooth maple	Seeded	LX		2	1	2	1
Corn Creek-Kanosh	Not found	M/D	NW	S23	T23S	R5W	1931	Gambel oak		LX	10	5			
Dameron Canyon	Functioning	M/D	NW	S5	T24S	R5W	1935	P-J wood		DX	0.75	5	5	6	7
	-	-	-	-	-	-	-	-		LX	0.75	5		3	
Misery Creek	Not found	M/D	SE	S19	T23S	R4W	1963	Aspen		RR	1	2	2	3	2
North Spring FNF	Historic	M/D		S18	T20S	R2.5W				LX					
Oak Creek Canyon	Functioning	M/D	NE	S8	T17S	R3W	1952	Gambel oak		DX	1.5	2	6	1	5
	-	-	-	-	-	-	-	-		LX	1.5	6		5	
Robins Valley	Not found	M/D		S25	T20S	R3.5W	1948	Tall forb		LX	1		2	1	2
Robins Valley Lake	Functioning	Pr-R	NW	S31	T20S	R2.5W	1984	Wetlands		LX	7				
Rockwood	Historic	M/D	NE	S34	T24S	R4.5W	1939	Aspen		DX	0.5	2	2	1	1
	-	-	-	-	-	-	-	-		LX	0.5	2		1	
West Corn Creek	Not found	Ex-M/D	NE	S7	T23S	R4W	1958	Aspen	Seeded	LX	1	1	1	1	1

Fishlake NF Loa RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Cedarless Flat	Historic	Ex-M/D	SW	S28	T26S	R3E	1946	Wy. big sage	Plowed, seeded	LX	1			1	
Clear Creek	Historic	M/D		S31	T21S	R4E	1924	Aspen		LX	0.006	2			
Crevice Spring	Historic	Ex-M/D	NE	S25	T26S	R2E	1946	Mtn. big sage	Plowed, seeded	LX	1			1	
Deep Creek	Historic	M/D		S35	T27S	R4E	1923	Aspen		LX	0.006	2			
Hancock Flat	Functioning	M/D		S11	T26S	R2E	1962	Aspen		DX	0.92	1	1	1	1
-	-	-	-	-	-	-	-	-		LX	0.92	1		1	
Jahu Flat	Historic	Ex-M/D	NW	S17	T27S	R4E	1947	Mtn grasses	Seeded	LX	1		2	5	2
Jahu Ranch	Functioning	M/D	NW	S17	T27S	R4E	1923	Mtn grasses	Seeded	LX	0.007	2		3	
Lower 7-Mile Creek Riparian	Functioning	Pr-R	SE	S11	T25S	R2E	1987	Riparian		LX				2	
Mt. Terrel	Historic	Ex-M/D	NW	S22	T24S	R2E	1947	Other sage	Sprayed, seeded	LX	5			1	1
Polk Creek	Historic	M/D		S14	T27S	R4E	1921	Chk-svc-rose		LX	0.006	2			
Sheep Valley	Historic	M/D		S23	T24S	R3E		Mtn grasses		LX	0.006	2			
Sheep Valley Study Plot	Historic	Ex-M/D	NE	S22	T24S	R3E	1958	Mtn grasses	Seeded	LX	10				
Tasha Springs	Historic	Ex-M/D	NW	S30	T25S	R2E	1959	Alpine	Plowed, seeded	DX	2.5	1			
-	-	-	-	-	-	-	-	-		LX	2.5	1			
Tidwell Revegetation Pilot Plot	Historic	Ex-M/D	NW	S4	T26S	R4E	1962	Mtn. big sage	Sprayed, seeded	LX	25				
Upper 7-Mile Creek Riparian	Functioning	Pr-R		S27	T24S	R2E	1980	Riparian		RR				2	

Fishlake NF Richfield RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Badlands	Historic	M/D		S31	T21S	R3E	1924	Gambel oak		LX	0.006	1			
Big Flat-Manning Creek	Historic	Ex-M/D	NE	S19	T27S	R2W	1950	Mtn. big sage	Plowed, seeded	LX	0.14				
Black Mountain	Not found	M/D		S20	T22S	R1E	1939	P-J wood	Burned, seeded	DRX	0.5	4	5		4
-	-	-	-	-	-	-	-	-		DX	0.5	4		2	
-	-	-	-	-	-	-	-	-		LX	1			2	

Fishlake NF Richfield RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Briggs Aspen No. 1	Functioning	Pr-S/R						Aspen	Burned	DX	15				
Briggs Aspen No. 2	Functioning	Pr-S/R						Aspen	Burned	DX	15				
Briggs Aspen No. 3	Functioning	Pr-S/R						Aspen	Burned	DX	15				
Briggs Aspen No. 4	Functioning	Pr-S/R						Aspen	Burned	DX	15				
Briggs Aspen No. 5	Functioning	Pr-S/R						Aspen	Burned	DX	15				
Bull Valley Mountain	Historic	M/D		S25	T21S	R2E	1923	Tall forb		LX	0.006	1			
Cottonwood Bars	Historic	M/D	SESE	S23	T21S	R2E	1961	Tall forb		LX	0.006			1	1
Dry Creek Aspen No. 1	Functioning	Pr-S/R						Aspen	Burned	LX	100				
Dry Creek Aspen No. 2	Functioning	Pr-S/R						Aspen	Burned	DX	100				
Duncan Mountain	Not found	Ex-M/D	SW	S2	T22S	R4E	1947	Mtn. big sage	Plowed, seeded	LX	1.03	5	5	5	5
East Tidwell Aspen No. 1	Functioning	Pr-S/R					1997	Aspen	Burned	DX	3				
East Tidwell Aspen No. 2	Functioning	Pr-S/R					1999	Aspen	Burned	DX	3				
East Tidwell Aspen No. 3	Functioning	Pr-S/R					1999	Aspen	Burned	LX	5				
East Tidwell Aspen No. 4	Functioning	Pr-S/R					1999	Aspen	Burned	LX	1				
Fishlake Aspen	Functioning	Pr-S/R					1995	Aspen	Burned	DX	15				
Forshea Springs Aspen	Functioning	Pr-S/R			T29S	R2W	2000	Aspen	Burned	LX	10				
Glenwood Mountain	Not found	Ex-M/D	NE	S30	T24S	R1W	1957	Mtn. big sage	Sprayed, seeded	LX	0.52	4	6	2	5
Hen's Peak Aspen No. 1	Functioning	Pr-S/R					1998	Aspen	Burned	LX	27.5				
Hen's Peak Aspen No. 2	Functioning	Pr-S/R					1998	Aspen	Burned	LX	27.5				
John Willis Flat	Not found	Ex-M/D	NW	S33	T27S	R2W	1948	Mtn. big sage	Plowed, seeded	LX	0.14	2	3	1	3
Koosharem Canyon Aspen No. 1	Functioning	Pr-S/R					1997	Aspen	Burned	LX	8.75				
Koosharem Canyon Aspen No. 2	Functioning	Pr-S/R					1997	Aspen	Burned	LX	8.75				
Little Duncan Mountain	Not found	Ex-M/D	NE	S6	T22S	R5E	1961	Mtn. big sage	Seeded	LX	70	3		5	
Mud Spring FNF	Not found	Ex-M/D		S27	T22S	R1E	1943	Mtn. big sage	Plowed, seeded	DX	1	1	1		
	-	-	-	-	-	-	-	-	-	LX	1			4	
Post Mountain	Historic	M/D		S35	T21S	R1E	1939	P-J wood		DX	1				
	-	-	-	-	-	-	-	-		LX	1				

Fishlake NF Richfield RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Prowse Spring	Not found	Ex-M/D	SW	S29	T22S	R1E	1965	Mtn. big sage	Plowed, planted	LX	10	3	3	2	3
Sheep Valley-UM Aspen	Functioning	Pr-S/R					1996	Aspen	Burned	LX	30				
Smith Canyon	Not found	M/D	SW	S17	T27S	R2.5W	1950	Mtn. big sage		LX	2	1	1	1	1
South Forshea Mountain No. 1	Historic	Ex-M/D	NE	S25	T29S	R2.5W	1949	Mtn. big sage	Burned, seeded	LX	0.055	1	1	1	1
South Forshea Mountain No. 2	Historic	Ex-M/D	NE	S25	T29S	R2.5W	1949	Mtn. big sage	Plowed, seeded	LX	0.055	1	1	1	1
South Last Chance Aspen	Functioning	Pr-S/R						Aspen	Burned	RR	100				
South Water Hollow	Not found	M/D	NWSW	S2	T23S	R4E	1961	C. mtn-mahog.		DRX	0.037		1		1
	-	-	-	-	-	-	-	-		DX	0.88	1		1	
	-	-	-	-	-	-	-	-		LX	0.92	1		1	
Washburn Reservoir	Not found	Ex-M/D	NW	S28	T25S	R2W	1966	Aspen	Seeded	LX	3.5				
Water Hollow	Historic	M/D		S32	T21S	R3E	1924	Gambel oak		LX	0.006	1	1		
White Ledge Aspen No. 1	Functioning	Pr-S/R					1997	Aspen	Burned	LX	10				
White Ledge Aspen No. 2	Functioning	Pr-S/R					1997	Aspen	Burned	LX	10				
White Ledge Aspen No. 3	Functioning	Pr-S/R					1997	Aspen	Burned	LX	10				
White Ledge No. 1	Functioning	M/D					2000	Aspen	Burned	DX	0.11				
	-	-	-	-	-	-	-	-	-	LX	0.11				
White Ledge No. 2	Functioning	M/D					2000	Aspen	Burned	DX	0.11				
	-	-	-	-	-	-	-	-	-	LX	0.11				
Willow Creek-Truman's Pasture	Not found	Ex-M/D	NE	S12	T21S	R2E	1965	Mtn. big sage	Plowed, seeded	LX	0.44				

Manti-La Sal NF Ferron/Price RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Aldous White Knoll	Not found	Ex-M/D	SW	S10	T18S	R5E	1922	Tall forb		LX	0.25				
Amasa's Back	Needs repair	Ex-M/D	SW	S25	T27S	R23E	1954	P-J wood	Plowed, seeded	DX	1	4	1	1	
	-	-	-	-	-	-	-	-	-	LX	1	4		1	
Bear Creek Bottom Slope	Not found	Ex-M/D	NE	S2	T18S	R4E	1913	Tall forb		LX	0.25				
Bear Creek High Slope	Not found	Ex-M/D	NE	S2	T18S	R4E	1951	Tall forb		LX	0.25				
Bear Creek Low Slope	Not found	Ex-M/D	NE	S2	T18S	R4E	1951	Tall forb		LX	0.25				
Bear Creek Mid-Slope Above Rd	Not found	Ex-M/D	NE	S2	T18S	R4E	1951	Tall forb		LX	0.25				
Bear Creek Mid-Slope Below Rd	Not found	Ex-M/D	NE	S2	T18S	R4E	1913	Tall forb		LX	0.25				
Bear Creek Old Smooth Brome	Not found	Ex-M/D	NE	S2	T18S	R4E	1914	Tall forb	Seeded	LX	0.25				
Dairy Creek	Historic	Ex-M/D	NW	S34	T19.5S	R5E	1954	Mtn. big sage	Plowed, seeded	LX	0.23				
East Mountain Gap	Historic	M/D	SW	S6	T17S	R7E	1962	Mtn grasses		LX	1				
East Rim Horn Mountain	Needs repair	Ex-M/D	SE	S29	T18S	R7E	1954	Black sage	Plowed, seeded	DRX	1	5	5	3	4
	-	-	-	-	-	-	-	-	-	DX	1	5		3	
	-	-	-	-	-	-	-	-	-	LX	1	5		3	
Flagstaff Peak	Historic	Ex-M/D	SE	S13	T20S	R5E	1952	Aspen	Seeded	LX	2				
Green's Hollow	Needs repair	Ex-M/D	NW	S29	T20S	R5E	1960	Mtn. big sage	Plowed, seeded	DX	1	2		3	
	-	-	-	-	-	-	-	-	-	LX	1	2		3	
Grime's Wash	Functioning	Ex-M/D	NW	S22	T17S	R7E	1962	Mtn. big sage	Plowed, seeded	LX	1				
Little Creek	Functioning	M/D	NW	S31	T17S	R6E	1930	P-J wood		DX	4.82	4	3	1	2
	-	-	-	-	-	-	-	-	-	LX	4.82	4			
Long Ridge	Functioning	Ex-M/D		S5	T18S	R6E	1975	Mtn. big sage	Trench, seeded	DX	0.23	4	4	3	3
Lower Joe's Valley	Functioning	M/D	SE	S22	T17S	R4E	1945	P-J wood		DX	4	1		2	
	-	-	-	-	-	-	-	-	-	LX	4	1		2	
Reeder Canyon	Functioning	M/D		S32	T16E	R5E	2001	Alpine		LX	1	2		2	

Manti-La Sal NF Ferron/Price RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
South Horn Mountain	Needs repair	Ex-M/D	NWNW	S23	T19S	R6E	1963	Mtn. big sage	Railed, pruned, cleared, sprayed, plowed, seeded	DX	6	7	2	3	2
	-	-	-	-	-	-	-	-	-	LX	6	7		4	
South Trail Mountain	Needs repair	M/D	NW	S34	T17S	R6E	1960	Black sage		DX	1	1	2	1	2
	-	-	-	-	-	-	-	-		LX	1	1		1	
South Trail Mountain Exp.	Not found	Ex-M/D	NW	S27	T17S	R6E	1962	Black sage	Plowed, seeded	LX	1	1			1
Wagon Road	Functioning	Ex-M/D	SW	S9	T18S	R5E	1913	Aspen		LX	0.25				
Wrigley Flat	Historic	M/D	SW	S26	T19S	R5E	1957	Mtn. big sage		LX	2				
Wrigley Hill Burn	Functioning	M/D		S34	T19S	R5E				LX					

Manti-La Sal NF Moab RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Buckeye	Functioning	M/D	SE	S14	T48N	R20W	1961	P. Pine shrub		DX	1	4		1	
	-	-	-	-	-	-	-	-		LX	1	3		1	
Lower Brumley Ridge	Functioning	M/D	SE	S4	T27S	R24E	1961	Aspen		LX	1				
North Beaver Mesa	Functioning	Ex-M/D	NE	S9	T25S	R25E	1961	Gambel oak	Plowed, seeded	DX	1	5	3	1	
	-	-	-	-	-	-	-	-	-	LX	1	5		1	
Upper Brumley Ridge	Functioning	M/D	SE	S4	T27S	R24E	1957	Aspen		LX	1				

Manti-La Sal NF Monticello RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Dry Mesa	Functioning	M/D	SE	S16	T34S	R18E	1947	Mtn. big sage	Plowed, seeded	DX	1	4	4	2	2
	-	-	-	-	-	-	-	-	-	LX	1	4		2	
East Hop Canyon	Functioning	?		S6	T28S	R6E				LX					
Hart's Draw	Functioning	M/D	NWNW	S34	T32S	R22E	1957	Wy. big sage		DX	1	3	1	3	3
	-	-	-	-	-	-	-	-		LX	1	3		3	
Joshua Flat	Functioning	Ex-M/D	SE	S17	T36S	R19E	1947	Aspen	Seeded	LX	1				
Little Notch	Functioning	M/D	NW	S35	T35S	R19E	1947	P. Pine grass		LX	1				
North Long Point	Needs repair	Ex-M/D	NW	S4	T34S	R19E	1960	Aspen	Sprayed	DX	1	4	4	3	2
	-	-	-	-	-	-	-	-	-	LX	1	4		3	
North Sego Flat	Historic	M/D	SW	S1	T34S	R19E	1947	Gambel oak		LX	1				
Peavine	Functioning	?		S8	T36S	R19E				LX					
Peters Point	Functioning	Ex-M/D	SWNE	S1	T37S	R22E	1960	Gambel oak	Chained, plowed, seeded	DX	1.5	5	2	1	
	-	-	-	-	-	-	-	-	-	LX	1.5	5		1	
Sego Flat	Functioning	Ex-M/D	NE	S12	T34S	R19E	1947	Aspen	Seeded	LX	1				

Manti-La Sal NF Sanpete RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Alpine Cattle Pasture	Functioning	Ex-M/D	NW	S35	T17S	R4E	1922	Tall forb		LX	60				
Aspen Area	Functioning	Ex-M/D	NW	S17	T17S	R4E	1928	Aspen		LX	11				
Bedground	Functioning	Ex-M/D	SE	S20	T17S	R4E	1940	Tall forb		LX	1				
Birchleaf Mahogany	Functioning	Ex-M/D	NE	S18	T17S	R4E	1922	T. mtn-mahog.		DX	0.25				
Bitterbrush	Functioning	Ex-M/D	NW	S18	T17S	R4E	1919	Gambel oak		DX	0.25				
Bluebell	Functioning	Ex-M/D	SE	S21	T17S	R4E	1922	Tall forb		LX	0.25				
Bluebell Runoff	Historic	Ex-M/D	SE	S21	T17S	R4E	1935	Mtn. big sage		LX	2				
Carrying Capacity Pasture	Functioning	Ex-M/D	SW	S26	T17S	R4E	1912	Tall forb		LX					

Manti-La Sal NF Sanpete RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Cattle Pasture	Functioning	Ex-M/D	NE	S34	T17S	R4E	1922	Tall forb		LX					
Clear Creek Flat Tarweed Study	Functioning	Ex-M/D	NW	S29	T20S	R3E	1958	Tall forb	Seeded	LX	0.9				
Cottonwood 1927	Historic	M/D	SW	S11	T18S	R3E	1927			LX	0.007				
Dahl's Dugway North	Functioning	Ex	NW	S18	T17S	R4E	1957	Gambel oak	Plowed, planted, seeded	LX	2				
Dahl's Dugway South	Functioning	Ex	NW	S18	T17S	R4E	1955	Gambel oak	Plowed, planted, seeded	DX	5				
Dairy Fork	Functioning	M/D	SE	S21	T10S	R5E	1963	Gambel oak		DRX	0.25				
	-	-	-	-	-	-	-	-		DX	1				
	-	-	-	-	-	-	-	-		LX	1				
Dry Pole	Functioning	M/D	SE	S14	T15S	R5E	1954	Mtn grasses	Seeded	LX	0.25				
Dungeon	Functioning	Ex-M/D	NW	S27	T17S	R4E	1940	Tall forb		LX	0.5				
Dusterburg Ridge Burn	Historic	Ex-M/D	NW	S8	T17S	R4E	1945	Gambel oak	Burned, seeded	LX	1				
Erosion Area A	Functioning	Ex-M/D	SW	S26	T17S	R4E	1912	Tall forb		LX	11.24				
Erosion Area B	Functioning	Ex-M/D	SW	S26	T17S	R4E	1912	Tall forb	Seeded	LX	8.97				
Gopher Study	Functioning	Ex-M/D	SW	S23	T17S	R4E	1941	Tall forb		LGX	2				
	-	-	-	-	-	-	-	-		LX	2				
Great Basin Headquarters Stn.	Functioning	Pr-C	SE	S20	T17S	R4E	1912	Aspen		LX	80				
Julius Flat	Functioning	?		S26	T19S	R3E				LX					
Lasson Draw	Needs repair	M/D	NWSW	S28	T11S	R4E	1960	Gambel oak		DRX		2			
	-	-	-	-	-	-	-	-		DX	1	2			
	-	-	-	-	-	-	-	-		LX	1	2			
Left Fork Gully Channel	Historic	Ex-M/D	SE	S22	T17S	R4E	1959	Tall forb		LX	1				
Left Fork Summit	Historic	Ex-M/D	SW	S23	T17S	R4E	1936	Tall forb	Seeded	LX	4				
Lower Horseshoe	Functioning	Ex-M/D	SE	S14	T17S	R4E	1912	Tall forb		LX	0.25				
Lower Seeley Creek North	Functioning	Ex-M/D	NW	S32	T17S	R5E	1916	Aspen		LX	0.5				
Lower Seeley Creek South	Functioning	Ex-M/D	NE	S31	T17S	R5E	1916	Aspen		LX	0.5				
Lower Thistle Flat	Functioning	Ex-M/D	SE	S32	T17S	R5E	1922	Aspen		LX	0.25				
Lower Willow Creek	Historic	Ex-M/D	NE	S36	T17S	R3E	1933	Mtn. big sage		LX	0.25				

Manti-La Sal NF Sanpete RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Lowery Cove	Historic	M/D		S10	T18S	R4E	1932	Tall forb		LX	0.01				
Lyon's	Functioning	Ex-M/D	NE	S18	T17S	R4E	1922	Gambel oak		LX	0.25				
Major's Flat Deerproof	Functioning	Ex	NW	S18	T17S	R4E	1928	Gambel oak	Plowed, planted, seeded	DX	10				
Major's Flat Stockproof	Functioning	Ex	NW	S18	T17S	R4E	1947	Gambel oak	Plowed, planted, seeded	LX	20				
Manti Canyon Middle Fork	Historic	M/D	SE	S16	T18S	R4E	1930	Mtn grasses		LX	0.009				
Manti Canyon South Fork	Historic	M/D	NW	S29	T18S	R4E	1930	Tall forb		LX	0.01				
Maple Canyon	Historic	Ex-M/D	SE	S18	T17S	R4E	1928	Gambel oak		LX	32				
McCadden Flats	Historic	Ex-M/D	SE	S1	T16S	R7E	1963	Mtn. big sage	Sprayed, seeded	LX	1				
McCadden Hollow	Historic	Ex-M/D	NW	S1	T16S	R7E	1963	Mtn. big sage	Seeded	LX	1				
Meadows	Functioning	Ex-M/D	NE	S34	T17S	R4E	1922	Mtn meadows		LX	0.25				
North Bluebell Above Road	Functioning	Ex-M/D	SE	S21	T17S	R4E	1950	Aspen		LX	1				
North Bluebell Below Road	Historic	Ex-M/D	SE	S21	T17S	R4E	1950	Aspen		LX	1				
North Bluebell Moist Meadow	Historic	Ex-M/D	SE	S21	T17S	R4E	1950	Mtn meadows		LX	1				
North Fork Twelve Mile No. 1	Historic	M/D	SE	S24	T19S	R3E	1927	Tall forb		LX	0.016				
North Fork Twelve Mile No. 2	Historic	M/D	NE	S26	T19S	R3E	1927	Tall forb		LX	0.016				
Oak-Sage Runoff	Historic	Ex-M/D	NW	S17	T17S	R4E	1934	Gambel oak		LX	1.5				
Philadelphia Flat 1913	Functioning	Ex-M/D	NE	S34	T17S	R4E	1913	Tall forb		LX	0.25				
Philadelphia Flat 1922	Functioning	Ex-M/D	NE	S34	T17S	R4E	1922	Tall forb		LX	1				
Philadelphia Flat 1954	Functioning	Ex-M/D	SE	S27	T17S	R4E	1954	Tall forb		LX	1				
Pigeon Creek	Functioning	M/D	NW	S31	T16S	R4E	1962	P-J wood		DX	1	3		1	
	-	-	-	-	-	-	-	-		LX	1	3		1	
Pigpen Springs	Functioning	Ex-M/D	NW	S17	T17S	R4E	1948	Aspen		LX	2				
Sampson's Left Fork	Functioning	Ex-M/D	SE	S15	T17S	R4E	1922	Tall forb	Seeded	LX	0.25				
Sand Ridge Six Mile Canyon	Historic	M/D	NE	S35	T18S	R3E	1928	Tall forb		LX	0.016				
Seeley Creek Cove	Functioning	Ex-M/D	SW	S25	T17S	R4E	1914	Tall forb		LX	0.25				
Seeley Creek Dipping Vat	Historic	Ex-M/D	NE	S26	T17S	R4E	1920	Tall forb		LX	0.25				
Seeley Creek East	Historic	Ex-M/D	NE	S26	T17S	R4E	1914	Mtn grasses	Seeded	LX	0.25				

Manti-La Sal NF Sanpete RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Seeley Creek West	Functioning	Ex-M/D	NE	S26	T17S	R4E	1914	Mtn grasses	Seeded	LX	0.25				
Snowberry	Functioning	Ex-M/D	NW	S17	T17S	R4E	1928	Aspen		DX	5				
Thursby Dusterburg Ridge	Historic	Ex-M/D	SW	S8	T17S	R4E	1921	Mtn. big sage		LX	0.1				
Tom's Ridge Log	Historic	Ex-M/D	NW	S36	T17S	R4E	1918	Tall forb		LX	0.1				
Tom's Ridge Wire	Historic	Ex-M/D	NW	S25	T17S	R4E	1940	Tall forb		LX	0.5				
Twelve Mile-Pinchot	Functioning	M/D	SW	S32	T19S	R3E	1937	Mtn. big sage		DX	0.63	1		1	
-	-	-	-	-	-	-	-	-		LX	3.5	1		1	
Upper Horseshoe	Functioning	M/D	NE	S14	T17S	R4E	1912	Tall forb		LX	0.25				
Upper Seeley Creek	Functioning	Ex-M/D	NE	S26	T17S	R4E	1916	Tall forb		LX	0.25				
Upper Willow Creek	Historic	Ex-M/D	SW	S30	T17S	R4E	1933	Gambel oak	Seeded	LX	0.125				
West Haystack	Historic	Ex-M/D	SE	S20	T17S	R4E	1950	Aspen		DX	0.125				
-	-	-	-	-	-	-	-	-		LX	0.125				
Willow Creek Aspen	Historic	Ex-M/D	SW	S19	T17S	R4E	1940	Aspen		LX	2				
Wiregrass or Oaks	Functioning	Ex-M/D	NE	S18	T17S	R5E	1928	P. Pine shrub		DX	5				

USFS RMRS Desert Experimental Range	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Desert Exp. Range Headquarters	Functioning	Ex-M/D	SWNW	S34	T25S	R17W	1933	S. desert shrub		LX	10				
Desert Exp. Range HQ 1-acre	Functioning	Ex-M/D	NESE	S33	T25S	R17W	1933	S. desert shrub		LX	0.86				
Desert Exp. Range S12 10-acre	Functioning	Ex-M/D	NESE	S12	T25S	R17W	1933	S. desert shrub		LX	10				
Desert Exp. Range S12 4-acre	Functioning	Ex-M/D	SENE	S12	T25S	R17W	1933	S. desert shrub		LX	4.42				
Desert Exp. Range S18	Functioning	Ex-M/D	SWSE	S18	T25S	R17W	1933	S. desert shrub		LX	4.42				
Desert Exp. Range S22	Functioning	Ex-M/D	NWSW	S22	T25S	R18W	1933	S. desert shrub		LX	4.42				
Desert Exp. Range S23	Functioning	Ex-M/D	SESE	S23	T25S	R18W	1933	S. desert shrub		LX	4.42				
Desert Exp. Range S27	Functioning	Ex-M/D	NENW	S27	T25S	R18W	1933	S. desert shrub		LX	4.42				
Desert Exp. Range S4	Functioning	Ex-M/D	NWSW	S4	T25S	R17W	1933	S. desert shrub		LX	4.42				
Paddock 3	Functioning	Ex-M/D	NENE	S9	T25S	R17W	1933	S. desert shrub		LRX	0.86				

Manti-La Sal NF Sanpete RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Paddock 4	Functioning	Ex-M/D	NWSW	S9	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 5	Functioning	Ex-M/D	SENE	S8	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 6	Functioning	Ex-M/D	NESW	S8	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 8 North	Functioning	Ex-M/D	NWNE	S16	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 8 South	Functioning	Ex-M/D	SESE	S16	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 9 North	Functioning	Ex-M/D	SENE	S16	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 9 South	Functioning	Ex-M/D	SESW	S16	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 10	Functioning	Ex-M/D	NENE	S17	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 11 North	Functioning	Ex-M/D	SENE	S17	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 11 South	Functioning	Ex-M/D	NESW	S17	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 12 North	Functioning	Ex-M/D	NWNE	S20	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 12 South	Functioning	Ex-M/D	SWNW	S20	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 13 North	Functioning	Ex-M/D	NENW	S28	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 13 South	Functioning	Ex-M/D	SWNW	S28	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 14 North	Functioning	Ex-M/D	SENE	S29	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 14 South	Functioning	Ex-M/D	SWNE	S29	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 15 North	Functioning	Ex-M/D	NENE	S29	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 15 South	Functioning	Ex-M/D	SWSW	S28	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 16 North	Functioning	Ex-M/D	NWSW	S29	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 16 South	Functioning	Ex-M/D	SWSE	S29	T25S	R17W	1933	S. desert shrub		LRX	0.86				
Paddock 19	Functioning	Ex-M/D	NESE	S21	T25S	R17W	1933	S. desert shrub		LX	4.42				

Uinta NF Heber RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Bryant's Fork	Functioning	Pr-R	NW	S36	T3S	R12W	1987	Riparian		LX					
Buffalo	Functioning	M/D	NWNW	S22	T5S	R11W	1993	Mtn. big sage		DX	0.52	1	1	1	1
	-	-	-	-	-	-	-	-		LX	0.52	1		1	
Cold Springs	Functioning	Pr-Sp	NE	S32	T3S	R8E	1987	Riparian		LX					
Crooked Creek	Not found	Ex-M/D	SW	S24	T4S	R12W	1956	Mtn. big sage	Sprayed	LX	1	3	3	3	3
Cummings Flat	Functioning	M/D	NESE	S17	T5S	R6E	1945	Mtn. big sage		DX	0.25	5	6	8	5
	-	-	-	-	-	-	-	-		LX	0.25	3		6	
Dock Flat Spring	Functioning	Pr-Sp	SW	S3	T6S	R6W	1989	Riparian		LX					
Head of Center Creek	Historic	M/D			T5S	R6E	1926	Tall forb		LX		1			
Heart Lake	Not found	M/D		S19	T1N	R10W	1951	Tall forb		LX	1.25			4	4
Hogsback	Functioning	M/D	NWSW	S3	T5S	R6E	1945	Tall forb		LX	1	8	6	9	6
Horse Creek	Historic	M/D	SW	S1	T4S	R12W	1951	Tall forb		RR	1.41	2	1	2	1
Ice Spring	Functioning	M/D	NE	S31	T5S	R11W	1989	Mtn. big sage	Plowed, seeded	LX		2	2	4	3
Lake Creek	Functioning	M/D	SWSE	S31	T4S	R7E	1951	Tall forb		LX	1	6	6	7	5
Lower Soapstone	Historic	M/D	SWSW	S22	T3S	R8E	1925	Tall forb		LX	0.006	2	7	5	7
Mill B	Functioning	Pr-R	NW	S34	T1S	R12W	1987	Riparian		LX					
Mill Hollow Snowbank	Functioning	M/D	NWNE	S22	T4S	R7E	1938	Alpine		LX	6	6	6	8	8
Mud Creek	Functioning	M/D	SWNE	S24	T3S	R12W	1951	Mtn. big sage		LX	1	7	7	8	7
Mud Creek No. 1	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 2	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 3	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 4	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 5	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 6	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 7	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 8	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 9	Not found	Ex-M/D	SE	S22	T3S	R12W	1959	Aspen		LX	5				
Mud Creek No. 10	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				

Uinta NF Heber RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Mud Creek No. 11	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 12	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 13	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Mud Creek No. 14	Historic	Ex-M/D		S21	T3S	R12W	1959	Tall forb		LX	0.1				
Murdock Hollow	Historic	M/D	SESE	S20	T2S	R12W	1925	Aspen		LX	0.006	1	1	1	1
Racetrack	Functioning	M/D	NWNW	S28	T5S	R11W	1993	Mtn. big sage		DX	0.34	1	1	1	1
-	-	-	-	-	-	-	-	-		LX	0.54	1		1	
Soapstone Pass	Needs repair	M/D	NWSE	S27	T3S	R8E	1946	Tall forb		LX	1	3		3	
Strawberry River	Functioning	Pr-R	W2	S1	T3S	R12W	1988	Riparian		LX					
Upper Soapstone	Historic	M/D	SE	S25	T3S	R8E	1925	Tall forb		LX	0.006	2	1		
Willow Creek Riparian 1989	Functioning	Pr-R	NW	S32	T5S	R11W	1989	Riparian		LX					
Wolf Creek	Functioning	M/D		S17	T4S	R8E	1945	Mtn grasses		LX	1	5	6	7	7

Uinta NF Pleasant Grove RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Ironton	Functioning	Ex	NWNE	S23	T7S	R3E	1996	Mtn. big sage		DX	1.23	3		5	
Mollies Flat	Functioning	Ex	SWSE	S16	T4S	R2E	1995	Mtn. big sage		DX	1.23	3		5	
Mollies Slope	Functioning	Ex	NESW	S16	T4S	R2E	1995	Mtn. big sage		DX	1.23	3		5	
Timpanogos	Historic	M/D	SW	S26	T5S	R2E	1955	Mtn. big sage		DX	0.61	1	1	1	1
-	-	-	-	-	-	-	-	-		LX	0.61	1		1	

Uinta NF Spanish Fork RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Bemac	Functioning	?	NWNE	S8	T9S	R5W		Wy. big sage		LX				2	
Benmore No. 1	Functioning	Ex-M/D	SENE	S8	T10S	R5W	1970	Wy. big sage	Plowed, planted	LX	0.05				
Benmore No. 2	Needs repair	Ex-M/D	NESW	S20	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Benmore No. 3	Needs repair	Ex-M/D	SWSE	S17	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Benmore No. 4	Needs repair	Ex-M/D	NWSE	S17	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Benmore No. 5	Needs repair	Ex-M/D	NESW	S18	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Benmore No. 6	Needs repair	Ex-M/D	NESW	S18	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Benmore No. 7	Needs repair	Ex-M/D	SWSW	S18	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Benmore No. 8	Needs repair	Ex-M/D	SENE	S19	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Benmore No. 10	Needs repair	Ex-M/D	SENE	S20	T9S	R5W	1955	Wy. big sage	Plowed, planted	LX	0.05			1	
Bennion Creek Pipeline Headbox	Functioning	Pr-Sp	S2	S8	T10S	R5W	1992	Wetlands		LX	0.05			1	
Birch Creek	Not found	Ex-M/D	NW	S21	T12S	R1E	1930	Wy. big sage	Plowed, seeded	LX	2.5				
Brimhall Riparian	Functioning	Pr-R	NW	S1	T9S	R4E	1995	Riparian		LX	0.9			1	
Burraston	Historic	Pr-S/R		S34	T10S	R2E	1954			LX	30				
Diamond Fork	Not found	Ex-M/D		S31	T7S	R6E	1931	Gambel oak		LX	10				
Diamond Fork Fish	Historic	Pr-R	NW	S1	T9S	R4E	1965	Riparian		LX	0.6			3	8
Footes Canyon	Not found	M/D		S19	T12S	R2E	1962	Aspen		DX	0.083				
Four Mile Canyon Aspen	Not found	Ex-M/D	NW	S8	T14S	R2E	1965	Aspen	Seeded	DX	0.1				
Gardner Canyon	Needs repair	M/D	SW	S22	T12S	R1E	1930	T. mtn-mahog.		DX	0.5	2	1	2	2
Grove Hollow	Functioning	Pr-R	NENW	S7	T10S	R5W		Riparian		LX				1	
Harker Creek	Not found	M/D	NW	S11	T10S	R6W	1956	Aspen		DX	2.5				
-	-	-	-	-	-	-	-	-		RR	2.5				
Hobble Creek	Not found	Ex-M/D	NW	S17	T8S	R6E	1949	Tall forb	Seeded	LX	0.63				
Holman Flat	Functioning	M/D	NWSE	S35	T10S	R2E	1951	Tall forb		LX	1	1	1	3	3

Uinta NF Spanish Fork RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Holman Springs	Historic	Ex-M/D	SE	S30	T10S	R2E	1951	Tall forb	Plowed, seeded	RR	1	1	1	2	
Jumpoff	Historic	Pr-S/R		S4	T11S	R2E	1954		Plowed, seeded	LX	30				
Little Sheep Creek	Historic	Ex-M/D	NE	S26	T7S	R5E	1938	Aspen	Seeded	LX	0.16	1		4	
Little Sheep Creek 31-A	Historic	M/D		S26	T7S	R5E	1927	Aspen		LX	0.16	8			
Little Valley Riparian	Functioning	Pr-R	SE	S16	T10S	R5W	1996	Riparian		LX				1	
Lower Tank Hollow	Functioning	Ex-M/D	SW	S35	T9S	R5E	1949	Mtn. big sage	Plowed, seeded	DX	0.94	2	2	3	2
-	-	-	-	-	-	-	-	-	-	LX	0.94	2		4	
Miller's Flat	Historic	Pr-S/R	NENE	S24	T9S	R5E	1950	Mtn. big sage	Plowed, seeded	RR	1				
Monk's Hollow	Needs repair	Ex-M/D	SWSW	S33	T9S	R5E		Wy. big sage	Plowed, planted	LX	0.017			1	
Morgan-Willow Creek	Historic	M/D		S34	T5S	R11W	1948	Mtn grasses		LX	1	2		2	3
Mud Springs UNF	Historic	M/D	SW	S15	T11S	R2E	1951	Aspen	Seeded	LX	3	1		1	
Neil C. Frischknecht	Functioning	M/D	NWNE	S20	T9S	R5W	1975	Wy. big sage		LX		1		3	
North Pine Ponds No. 1	Functioning	Pr-Sp	NWSE	S22	T9S	R6W		Gambel oak		LX	1			3	
Pheasant Pasture East	Functioning	M/D	NWNW	S9	T9S	R5W	1985	Wy. big sage		LX	133.12			3	
Pheasant Pasture West	Functioning	M/D	NENE	S8	T9S	R5W	1985	Wy. big sage		LX				3	
Pole Canyon BYU	Not found	Ex-M/D		S9	T6S	R3E	1949	Gambel oak		LX					
Provo Shrub Lab 3RA3153	Functioning	Ex-M/D					1990	Wy. big sage		DX	0.063			1	
Provo Shrub Lab 3RA3155	Functioning	Ex-M/D					1990	Wy. big sage	Plowed planted, seeded	DX	0.057			1	
Pump House Ridge	Not found	Ex-M/D	NESE	S22	T7S	R5E	1955	Mtn. big sage	Plowed, seeded	LX	1.41	2			
Pump Wildlife	Historic	Ex-M/D			T7S	R5E	1980	Mtn grasses	Seeded	LX				1	
Quaking Aspen Unit	Not found	Ex-M/D		S22	T15S	R2E	1950	Mtn. big sage	Seeded	LRX	1				
Range Ex. No. 3	Functioning	Pr-Sp					1952	Mtn meadows		LX	0.05			1	
Ray's Valley Fifth Water	Historic	Ex-M/D	NW	S17	T8S	R6E	1949	Mtn. big sage	Burned, seeded	LX	0.63	1		1	
Red Creek Flat	Functioning	M/D	SWSE	S10	T12S	R2E	1954	Aspen		DX	23.1	8	4		3
-	-	-	-	-	-	-	-	-		RR	16.2			5	

Uinta NF Spanish Fork RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Sabie Bench	Functioning	?	NWNW	S13	T10S	R5W				LX					
Salt Creek	Functioning	Ex-M/D	SWSE	S32	T12S	R2E	1990	Mtn. big sage		DX	0.055			2	
Sawmill Hollow	Functioning	M/D	NWSE	S35	T11S	R2E	1980	Riparian		LX	0.006			3	
South Red Creek Flat	Functioning	Pr-R	NWSE	S15	T12S	R2E	1965	Gambel oak		RR				3	2
Swett Shanty Flat	Functioning	Ex-M/D	NWSE	S13	T10S	R2E	1952	Aspen	Seeded	RR	0.5	1	1	6	5
Tank Hollow	Not found	Ex-M/D	SE	S26	T9S	R5E	1961	Mtn. big sage	Plowed, seeded	DRX	125				
Tank Hollow Exp. Grass Plot	Historic	Ex-M/D	NENW	S35	T9S	R5E	1959	P-J wood	Planted	LX	0.37	1		2	
Tank Hollow Rabbit Pasture	Functioning	Ex-M/D	SENE	S35	T9S	R5E	1971	Mtn. big sage	Plowed, seeded	DX	1.32			2	
Twin Knolls	Historic	Ex-M/D	NW	S15	T11S	R2E	1945	Aspen	Seeded	DX	0.34	5	3	3	2
	-	-	-	-	-	-	-	-		LX	0.34	5		3	
Upper Tank Hollow	Needs repair	M/D	NESW	S25	T9S	R5E	1951	T. mtn-mahog.		DX	2	2	3	2	1
	-	-	-	-	-	-	-	-		RR	3	1		1	
Vernon Creek	Functioning	Ex-M/D	NWNE	S5	T9S	R5W	1980	Salt-greasewd	Planted w/ trees	LX	2.5			2	
Wales Top Spray	Not found	Ex-M/D	SE	S32	T15S	R2E	1959	Mtn. big sage	Sprayed, seeded	LX	3				
West Well	Needs repair	Ex-M/D	NENE	S10	T9S	R6W	1980	Wy. big sage	Plowed, seeded, planted w/ trees	LX	2.5	1	1	2	1

Wasatch-Cache NF Kamas RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Moon Canyon	Historic	Ex-M/D	NW	S6	T3S	R7E	1950	Mtn grasses	Seeded	LX	1				
Paulsin Basin	Historic	Ex-M/D	SE	S6	T2S	R7E	1957	Mtn grasses	Seeded	LX	1				
Paulsin Basin Pilot Reseeding	Historic	Ex-M/D	NW	S12	T2S	R7E	1964	Mtn grasses	Seeded	LX	1.2				
Slate Creek	Historic	M/D	NE	S19	T2S	R7E	1959	Mtn. big sage		LX	1				

Wasatch-Cache NF Logan RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Bubble Springs	Functioning	Pr-R	NW	S16	T13N	R3E	2003	Riparian		RR					
Card Canyon	Functioning	M/D	SW	S19	T12N	R3E	1946	Bigtooth maple		DX	0.5	1		2	
Cottonwood-Mud Flat	Historic	M/D		S11	T12N	R3E	1924	Tall forb		LX	0.006	2	2	1	1
Elk Valley	Not found	Ex-M/D	NW	S27	T12N	R4E	1955	Mtn. big sage	Sprayed, seeded	LX	4.9				
Hansen's Draw	Functioning	M/D	NE	S29	T12N	R2E	1936	T. mtn-mahog.		DX	0.2	1	1	2	1
Hell's Hollow	Functioning	Pr-R	NE	S22	T12N	R4E	2003	Riparian		LX					
Jebo Pond	Functioning	Pr-R		S22	T13N	R4E	2003	Riparian		LX					
Mill Hollow	Functioning	Pr-R	NW	S15	T12N	R4E	2003	Riparian		LX					
Mud Flat	Historic	Ex-M/D	NE	S9	T12N	R3E	1955	Tall forb	Seeded	LX	6			2	1
Pleasant Valley	Not found	Ex-M/D	NE	S34	T11N	R3E	1954	Mtn. big sage	Plowed, seeded	LX	2				
Red Banks	Historic	M/D	SE	S1	T13N	R3E	1924	Tall forb		LX	0.006	2	1	1	
Saddle Creek Springs	Functioning	Pr-R	NW	S3	T11N	R4E	2003	Riparian	Planted- willows	LX					
Steam Mill Flat	Historic	M/D	SW	S13	T13N	R3E	1924	Mtn. big sage		LX	0.006	2	1		
Tincup Springs	Functioning	Pr-R	NW	S9	T12N	R4E	2003	Riparian	Plowed, planted	LX					
Tony Grove	Historic	M/D	SW	S12	T13N	R3E	1924	Tall forb		LX	0.006	2	1		
Wasatch Ridge	Not found	Ex-M/D	NE	S28	T8N	R4E	1960	Mtn. big sage	Sprayed, seeded	LX					

Wasatch-Cache NF Mountain View RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
East Fork Bear River	Functioning	M/D	SE	S26	T2N	R10E	1961	Mtn. big sage		LX	1	3	5	5	6
Gregory Basin	Functioning	M/D	SE	S26	T3N	R16E	1992	T. mtn-mahog.		DX	0.22		6		1
Lyman Lake	Functioning	M/D	SE	S4	T2N	R12E	1961	Mtn. big sage		LX	1	3	3	4	4
Poison Mountain	Functioning	M/D	SW	S33	T3N	R15E	1992	T. mtn-mahog.		DX	0.22		7	2	5
Telephone Hollow	Functioning	M/D	NW	S26	T3N	R15E	1992	T. mtn-mahog.		DX	0.13		8	3	4
West Fork of Smith's Fork	Functioning	M/D	NE	S20	T3N	R13E	1960	Mtn meadows		LX	1	2	2	4	4

Wasatch-Cache NF Mountain View RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Whitney	Functioning	M/D	SWSE	S4	T1N	R9E	1960	Tall forb		LX	1	2	2	3	3
Widdop Mountain	Functioning	M/D	SENW	S36	T3N	R16E	1993	T. mtn-mahog.		DX	0.22		6		2
Gold Hill	Historic	M/D	SESE	S14	T1N	R9E	1960	Other sage		LX	1	2		2	2
Humpy	Historic	M/D	SE	S6	T1N	R9E	1962	Other sage		LX	1	1	1	3	1

Wasatch-Cache NF Salt Lake RD	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Davenport Summer	Not found	M/D	NW	S22	T3S	R7W	1963	Aspen		DX	1				
	-	-	-	-	-	-	-	-		LX	1				
East Hickman Canyon	Not found	Ex-M/D	NW	S36	T4S	R7W	1945	Aspen	Seeded	DX	0.8	1	1	1	1
	-	-	-	-	-	-	-	-		LX	0.8	1		1	
Rock Canyon	Functioning	M/D	SW	S10	T9S	R7W	1938	Mtn. big sage		DX	0.33	1	1	2	2
	-	-	-	-	-	-	-	-		LX	0.33	1		2	
Round Canyon	Not found	M/D	SW	S5	T3S	R7W	1948	Mtn. big sage		DX	1				
	-	-	-	-	-	-	-	-		LX	1				

Bryce Canyon NP	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Bryce Canyon	Historic	M/D		S22	T37S	R4W	1957	P. Pine grass		DX	1				

Capitol Reef NP	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Bull Spring	Functioning	Pr-T&ES			T28S	R6E	1993	Grama-galleta		LX	0.5			1	
Cathedral Valley	Functioning	M/D	SESW	S34	T26S	R6E	1983	S. desert shrub		LX	0.67	3	3	1	
Hartnet	Functioning	M/D	NE	S25	T27S	R7E	1983	S. desert shrub		LX	0.27	3	3	1	
Hartnet USU	Functioning	M/D			T27S	R7E	1983	S. desert shrub		LX				1	
Muley Twist	Functioning	M/D	NWNW	S21	T34S	R8E	1983	S. desert shrub		LX	0.27	3	3	1	
Post	Functioning	M/D		S25	T34S	R8E	1985	S. desert shrub		LX	0.27	2	2	1	
Red Slide	Functioning	M/D	SWSW	S4	T36S	R9E	1985	S. desert shrub		LX	0.27	2	2		
South Desert	Functioning	M/D	NENE	S32	T28S	R6E	1986	S. desert shrub		LX	0.27	1	1		
Surprise Canyon	Functioning	M/D		S23	T34S	R8E	1984	S. desert shrub		LX	0.67	3	3	1	1

Dinosaur NM	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Dinosaur NM Deer & Livestock	Not found	M/D	SE	S25	T3S	R24W	1965	P-J wood		DX	5				
	-	-	-	-	-	-	-	-		LX	5				

Glen Canyon NRA	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
BYU Kaiparowits Site 9	Functioning	M/D	NE	S30	T42S	R5E	1971	S. desert shrub		LX	0.016	2		1	
BYU Kaiparowits Site 10	Historic	M/D	NW	S8	T43S	R5E	1971	Grama-galleta		LX		3		1	
BYU Kaiparowits Site 11	Historic	M/D	SE	S8	T43S	R5E	1971	Blackbrush		LX		2		1	
BYU Kaiparowits Site 15	Functioning	M/D	SE	S32	T41S	R5E	1971	Riparian		LX	0.005	1		1	

US DOE	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Tahyago	Not found	?	NW	S21	T13S	R19E				LX					

UT DWR	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Delle Ranch	Not found	M/D	SW	S5	T3S	R7W	1948	Mtn. big sage		DX	1	1	1	1	1
	-	-	-	-	-	-	-	-		LX	1	1		1	
Four Mile Canyon	Not found	M/D			T13S	R1E	1959			LX	50				
Hardware Ranch	Functioning	M/D	SE	S11	T10S	R3W	1946	Mtn. big sage		DX	1	1	1	2	2
Kanab Creek	Not found	M/D		S3	T42S	R6W	1961			DX	2				
	-	-	-	-	-	-	-	-		LX	1				
Pole Canyon	Not found	Ex-M/D		S9	T20S	R2E	1961	Gambel oak	Seeded	DX	1				
	-	-	-	-	-	-	-	-	-	LX	1				
Yankee Reservoir	Not found	M/D		S20	T35S	R8W	1961			DX	0.5				

UT DWR Great Basin Research Center	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Antimony ARTRT Spp. Plot	Functioning	Ex	SW	S1	T34S	R2W	1982	Basin big sage	Plowed, seeded	LX	0.92				
Antimony ARTRTV Spp. Plot	Functioning	Ex	NW	S13	T34S	R2W	1982	Mtn. big sage	Plowed, seeded	LX	0.92				
Antimony ARTRW Spp. Plot	Functioning	Ex	NE	S11	T34S	R2W	1982	Wy. big sage	Plowed, seeded	LX	0.92				
Beaver Bench Spp. Plot	Functioning	Ex			T29S	R7W	1957	P-J wood	Planted, seeded	LX					
Black Mountain Spp. Plot	Functioning	Ex			T22S	R1E	1955	P-J wood	Chained, plowed, planted, seeded	LRX					
	-	-	-	-	-	-	-	-	Plowed, seeded	LX					
Brigham Burn Spp. Plot	Functioning	Ex			T9N	R1E	1956	Mtn. big sage	Burned, plowed, seeded	LX					
East Manti Spp. Plot	Functioning	Ex			T18S	R3E	1970	P-J wood	Chained, plowed, planted	LX					

UT DWR Great Basin Research Center	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
East Mayfield	Functioning	Ex-M/D		T20S	R3E	1963	P-J wood	Chained, seeded	DRX	1	13	12	3	3	
	-	-	-	-	-	-	-	-	DX	1	13		3		
	-	-	-	-	-	-	-	-	LRX	1	13		3		
	-	-	-	-	-	-	-	-	LX	1	13		3		
Fillmore Dump Spp. Plot	Functioning	Ex		T21S	R4W	1955	Wy. big sage	Plowed, planted	LX						
Fountain Green	Functioning	Ex-M/D	S27	T13S	R3E	1963	Mtn. big sage	Chained, seeded	DRX	1			4	4	
	-	-	-	-	-	-	-	-	DX	1			4		
	-	-	-	-	-	-	-	-	LRX	1			3		
	-	-	-	-	-	-	-	-	LX	1			3		
Gunnison Spp. Plot	Functioning	Ex		T19S	R1E	1967	S. desert shrub	Plowed, planted, seeded	LX						
Hobble Creek Spp. Plot	Functioning	Ex	S1	T8S	R3E	1962	Gambel oak	Chained, plowed, planted, seeded	LX						
Huntington Canyon	Not found	Ex-M/D	S36	T16S	R7E	1963	Mtn. big sage	Chained seeded	DRX	1			1		
	-	-	-	-	-	-	-	-	DX	1					
	-	-	-	-	-	-	-	-	LRX	1					
	-	-	-	-	-	-	-	-	LX	1					
Indian Peaks	Not found	Ex-M/D	S36	T16S	R7E	1960	P-J wood	Chained, seeded	DRX	1			4	2	
	-	-	-	-	-	-	-	-	DX	1			4		
	-	-	-	-	-	-	-	-	LRX	1			2		
	-	-	-	-	-	-	-	-	LX	1			1		
Indian Peaks Spp. Plot	Functioning	Ex	SW	S24	T16S	R7E	1962	P-J wood	Chained, plowed, planted, seeded	LX					

UT DWR Great Basin Research Center	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Jackson Springs Species Plot	Functioning	Ex		S29	T40S	R18W	1956	Blackbrush	Plowed, planted, seeded	LX					
John August Lake Species Plot	Functioning	Ex	SW	S35	T17S	R4E	1964		Plowed, planted, seeded	LX					
Kamas Species Plot	Functioning	Ex			T2S	R6E	1959		Burned, seeded	LX					
Manti Dump Species Plot	Functioning	Ex		S25	T18S	R2E	1962	P-J wood	Burned, plowed, planted, seeded	LX					
Manti Face	Functioning	Ex-M/D			T18S	R3E	1963	P-J wood	Chained, seeded	DRX	1			3	3
	-	-	-	-	-	-	-	-	-	DX	1			3	
	-	-	-	-	-	-	-	-	-	LRX	1			3	
	-	-	-	-	-	-	-	-	-	LX	1			3	
Mayfield Face	Functioning	Ex-M/D			T20S	R3E	1963	P-J wood	Chained, seeded	DRX	1			3	3
	-	-	-	-	-	-	-	-	-	DX	1			3	
	-	-	-	-	-	-	-	-	-	LRX	1			3	
	-	-	-	-	-	-	-	-	-	LX	1			3	
Millville Face Spp. Plot	Functioning	Ex		S35	T11N	R1E	1973	Mtn. big sage	Planted, seeded	LX					
Pinto Species Plot	Functioning	Ex			T37S	R15W	1956	P-J wood	Chained, planted, seeded, forbs	LX					
Rasmusson's Field Spp. Plot	Functioning	Ex		S10	T17S	R3E	1956	P-J wood	Chained, plowed, planted, seeded	DX					
Rulon Mortenson's Spp. Plot	Functioning	Ex			T16S	R2E	1968	Salt-greasewd	Planted, seeded	LX					
Santa Clara Spp. Plot	Functioning	Ex			T42S	R16W	1969	Blackbrush	Planted, seeded	LX					

UT DWR Great Basin Research Center	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
South Hollow	Functioning	Ex-M/D			T20S	R2E	1963	P-J wood	Chained, seeded	DRX	1	12	11	3	3
	-	-	-	-	-	-	-	-	-	DX	1	12		3	
	-	-	-	-	-	-	-	-	-	LRX	1	11		3	
	-	-	-	-	-	-	-	-	-	LX	1	11		3	
Triangle Spp. Plot	Functioning	Ex			T22S	R2E	1962	P-J wood	Chained, plowed, planted, seeded	LX					

UT SITLA	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
La Sal Mountains Aspen Regeneration Pine Peak	Functioning	Pr-S/R	NWNW	S23	T27S	R25E	2003	Aspen	Trees harvested	LX	40	1		1	
	Functioning	M/D		S26	T28S	R1W	1974	Mtn. big sage		DRX	1.23				1
	-	-	-	-	-	-	-	-		DX	1.23	1	1	1	
	-	-	-	-	-	-	-	-		LRX	1.23				
	-	-	-	-	-	-	-	-		LX	1.23	4		5	
Tabby Mountain	Functioning	M/D	NWNW	S33	T1S	R8W	2002	Tall forb		LX	0.25	1	1	1	1
	-	-	-	-	-	-	-	-		RR	0.25				

Private	Condition	Purpose	Location				Date	Range Type	Treatments	Part	Area (acres)	Vegetation Studies		Photo Studies	
												In	Out	In	Out
Chicken Ridge III	Functioning	Ex-M/D	NW	S33	T6S	R4W		S. desert shrub		LX	2.57	1	1	1	1
Church Hills	Not found	M/D	SE	S2	T43S	R1E				LX	20				
Green Canyon	Historic	Ex-M/D	SWSE	S24	T12N	R1E		Mtn. big sage		LX	40		2		2
Morris	Not found	Ex-M/D		S16	T13N	R11W		S. desert shrub		LX	0.92				
Munford Pasture	Functioning	M/D					1920	Tall forb		LX	60			1	1
South Kelton	Functioning	Ex-M/D	SENW	S29	T12S	R11W	1965	S. desert shrub		LX				3	

APPENDIX IV
SUMMARY TABLES

Table IV.1. Distribution of exclosures across administrative boundaries and by condition class. Condition classes are defined in Appendix II.

Land ownership / management agency	Condition Class				All
	Functioning	Needs Repair	Historic	Not Found	
BLM Cedar City DO	48	8	11	10	77
BLM Fillmore DO	9			3	12
BLM Grand Staircase-Escalante NM	12		6	2	20
BLM Henry Mountains Field Station	12				12
BLM Kanab DO	24		4		28
BLM Moab DO	21	1	3	15	40
BLM Monticello DO	37	1	4	3	45
BLM Price DO	9	2		2	13
BLM Richfield DO	3				3
BLM Salt Lake DO	59	5		12	76
BLM St. George DO	9				9
BLM Vernal DO	43	7	3	3	56
BLM subtotal	286	24	31	50	391
Ashley NF Duchesne/Roosevelt RD	17	1	16	3	37
Ashley NF Flaming Gorge RD/NRA	5	1	5		11
Ashley NF Vernal RD	24	6	21	1	52
Dixie NF Cedar City RD	15	5	1	6	27
Dixie NF Escalante RD	3			2	5
Dixie NF Pine Valley RD	8	1	2	9	20
Dixie NF Powell RD	12	2	2	1	17
Dixie NF Teasdale RD	27	2	7	2	38
Fishlake NF Beaver RD	8		2	5	15
Fishlake NF Fillmore RD	3		2	6	11
Fishlake NF Loa RD	4		11		15
Fishlake NF Richfield RD	24		8	11	43
Manti-La Sal NF Ferron/Price RD	7	5	4	8	24

Table IV.1 continued. Distribution of exclosures across administrative boundaries and by condition class. Condition classes are defined in Appendix II.

Land ownership / management agency	Condition Class				All
	Functioning	Needs Repair	Historic	Not Found	
Manti-La Sal NF Moab RD	4				4
Manti-La Sal NF Monticello RD	8	1	1		10
Manti-La Sal NF Sanpete RD	41	1	26		68
RMRS Desert Experimental Range	31				31
Uinta NF Heber RD	15	1	18	3	37
Uinta NF Pleasant Grove RD	3		1		4
Uinta NF Spanish Fork RD	23	12	13	11	59
Wasatch-Cache NF Kamas RD			4		4
Wasatch-Cache NF Logan RD	8		5	3	16
Wasatch-Cache NF Mountain View RD	8		2		10
Wasatch-Cache NF Ogden RD				1	1
Wasatch-Cache NF Salt Lake RD	1			3	4
USFS subtotal	299	38	151	75	563
Bryce Canyon NP			1		1
Capitol Reef NP	9				9
Dinosaur NM				1	1
Glen Canyon NRA	2		2		4
NPS subtotal	11	0	3	1	15
UT DWR	1			5	6
UT DWR Great Basin Research Center	26			2	28
UT SITLA	3				3
UT subtotal	30	0	0	7	37
US DOE				1	1
Private	3		1	2	6
Statewide Total	629	62	186	136	1013

Table IV.2. Distribution of exclosures across administrative boundaries and by exclosure type. Exclosure types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Land ownership / management agency	Exclosure Type ¹								Not Found	Total
	Ex	Ex-M/D	M/D	Pr-R	Pr-S	Pr-S/R	Pr-T&ES	Pr-C		
BLM Cedar City DO	2	17	14	26	18					77
BLM Fillmore DO		3	3		4			2		12
BLM Grand Staircase-Escalante NM		3	14	1				2		20
BLM Henry Mountains Field Station	1	2	7		2					12
BLM Kanab DO	8	2	7	6	3			2		28
BLM Moab DO	2	6	24	1	1			1	5	40
BLM Monticello DO	3	9	12	19					2	45
BLM Price DO	1	6	5		1					13
BLM Richfield DO		1	1						1	3
BLM Salt Lake DO	1	33	8	29	5					76
BLM St. George DO		4	3	1			1			9
BLM Vernal DO		16	18	3	12	4			3	56
BLM subtotal	18	102	116	86	46	4	1	7	11	391
Ashley NF Duchesne/Roosevelt RD		10	20	6	1					37
Ashley NF Flaming Gorge RD/NRA		1	10							11
Ashley NF Vernal RD		22	28	1				1		52
Dixie NF Cedar City RD		8	15	3			1			27
Dixie NF Escalante RD		4	1							5
Dixie NF Pine Valley RD		5	14	1						20
Dixie NF Powell RD		8	6	2			1			17
Dixie NF Teasdale RD		2	28	6	1		1			38
Fishlake NF Beaver RD		7	3	5						15
Fishlake NF Fillmore RD		3	7	1						11
Fishlake NF Loa RD		7	6	2						15
Fishlake NF Richfield RD		11	10			22				43
Manti-La Sal NF Ferron/Price RD		17	7							24
Manti-La Sal NF Moab RD		1	3							4
Manti-La Sal NF Monticello RD		4	4						2	10
Manti-La Sal NF Sanpete RD	4	49	13					1	1	68

Table IV.2, continued. Distribution of exclosures across administrative boundaries and by exclosure type. Exclosure types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Land ownership / management agency	Exclosure Type ¹									Total
	Ex	Ex-M/D	M/D	Pr-R	Pr-S	Pr-S/R	Pr-T&ES	Pr-C	Not Found	
RMRS Desert Experimental Range		31								31
Uinta NF Heber RD		15	16	4	2					37
Uinta NF Pleasant Grove RD	3		1							4
Uinta NF Spanish Fork RD		33	13	5	3	3			2	59
Wasatch-Cache NF Kamas RD		3	1							4
Wasatch-Cache NF Logan RD		4	6	6						16
Wasatch-Cache NF Mountain View RD			10							10
Wasatch-Cache NF Ogden RD		1								1
Wasatch-Cache NF Salt Lake RD		1	3							4
USFS subtotal	7	247	225	42	7	25	3	2	5	563
Bryce Canyon NP			1							1
Capitol Reef NP			8				1			9
Dinosaur NM			1							1
Glen Canyon NRA			4							4
NPS subtotal	0	0	14	0	0	0	1	0	0	15
UT DWR		1	5							6
UT DWR Great Basin Research Center	21	7								28
UT SITLA			2			1				3
UT subtotal	21	8	7	0	0	1	0	0	0	37
Private	0	4	2	0	0	0	0	0	0	6
US DOE	0	0	0	0	0	0	0	0	1	1
Statewide total	46	361	364	128	53	30	5	9	17	1013

¹ Ex = Experimental, Ex-M/D = Experimental (Monitoring / Demonstration), M/D = Monitoring / Demonstration, Pr-R = Protection (Riparian), Pr-S = Protection (Springs), Pr-S/R = Protection (Seeding or regeneration), Pr-T&ES = Protection (T&ES), Pr-C = Protection (Cultural)

Table IV.3. Distribution of exclosures across range types and by condition class. Range types and condition classes are defined in Appendix II.

Range Type	Condition Class				Total
	Functioning	Needs repair	Historic	Not found	
109 Ponderosa pine shrubland	2	2		1	5
110 Ponderosa pine grassland	3	1	1	1	6
211 Creosote bush scrub	2				2
212 Blackbrush	10		2	1	13
216 Montane meadows	10		3		13
217 Wetlands	6				6
401 Basin big sagebrush	10	1			11
402 Mountain big sagebrush	61	14	44	30	149
403 Wyoming big sagebrush	53	16	13	15	97
405 Black sagebrush	6	2		3	11
408 Other sagebrush types			3	1	4
409 Tall forb	27	3	34	10	74
410 Alpine rangeland	5		6	1	12
411 Aspen woodland	60	3	20	12	95
412 Pinyon-juniper woodland	39	4	5	12	60
413 Gambel oak	18	2	9	6	35
414 Salt desert shrub	90	7	4	20	121
415 Curlleaf mountain-mahogany				1	1
416 True mountain-mahogany	10	2	1	1	14
418 Bigtooth maple	1			1	2
421 Chokecherry-serviceberry-rose			2	1	3
422 Riparian	155	4	7	2	168
501 Saltbush-greasewood	5			1	6
502 Grama-Galleta	5		3		8
Montane grasses	15	1	22	1	39
Not found	36		7	15	58
Total	629	62	186	136	1013

Table IV.4. Distribution of exclosures across range types and by exclosure type. Exclosure types and range types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Exclosure Type ¹								Not Found	Total
	Ex	Ex-M/D	M/D	Pr-R	Pr-S	Pr-S/R	Pr-T&ES	Pr-C		
109 Ponderosa pine shrubland		2	3							5
110 Ponderosa pine grassland		1	5							6
211 Creosote bush scrub			1				1			2
212 Blackbrush	2	3	8							13
216 Montane meadows		3	6	2	1			1		13
217 Wetlands				5	1					6
401 Basin big sagebrush	1	1	6	1	2					11
402 Mountain big sagebrush	6	73	66	3		1				149
403 Wyoming big sagebrush	6	56	31	1	1				2	97
405 Black sagebrush		9	2							11
408 Other sagebrush types		2	2							4
409 Tall forb		46	28							74
410 Alpine rangeland		1	11							12
411 Aspen woodland		31	36			27		1		95
412 Pinyon-juniper woodland	11	23	23	2	1					60
413 Gambel oak	5	13	14	1	2					35
414 Salt desert shrub	3	70	48							121
415 Curlleaf mountain-mahogany			1							1
416 True mountain-mahogany		1	13							14
418 Bigtooth maple		1	1							2
421 Chokecherry-serviceberry-rose			3							3
422 Riparian		1	9	113	43		2			168
501 Saltbush-greasewood	1	5								6
502 Grama-Galleta			7				1			8
Montane grasses		15	23				1			39
Not found	11	4	17		2	2		7	15	58
Total	46	361	364	128	53	30	5	9	17	1013

¹ Ex = Experimental, Ex-M/D = Experimental (Monitoring / Demonstration), M/D = Monitoring / Demonstration, Pr-R = Protection (Riparian), Pr-S = Protection (Springs), Pr-S/R = Protection (Seeding or regeneration), Pr-T&ES = Protection (T&ES), Pr-C = Protection (Cultural)

Table IV.5. Distribution of exclosure partitions (individual enclosed areas) across range types and by part type. Part types and range types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Part Type (Animals Excluded) ¹								Total
	AX	DRX	DX	LGX	LMX	LRX	LX	RR	
109 Ponderosa pine shrubland			5				3		8
110 Ponderosa pine grassland			1				5		6
211 Creosote bush scrub							2		2
212 Blackbrush			2			2	9		13
216 Montane meadows							13		13
217 Wetlands							6		6
401 Basin big sagebrush		3	5		1	4	11		24
402 Mountain big sagebrush		6	43			6	137	1	193
403 Wyoming big sagebrush	1	5	27			26	91		150
405 Black sagebrush		1	3			2	9		15
408 Other sagebrush types							4		4
409 Tall forb				1			72	3	76
410 Alpine rangeland			1				12		13
411 Aspen woodland			41				73	5	119
412 Pinyon-juniper woodland		15	31			15	58		119
413 Gambel oak		2	14				29	1	46
414 Salt desert shrub						31	93		124
415 Curlleaf mountain-mahogany		1	1				1		3
416 True mountain-mahogany			12				6	1	19
418 Bigtooth maple			1				1		2
421 Chokecherry-serviceberry-rose							3		3
422 Riparian			4				163	5	172
501 Saltbush-greasewood						1	6		7
502 Grama-Galleta					1	1	8	1	11
Montane grasses			1				39		40
Not found		1	4			1	56		62
Total	1	34	196	1	2	89	910	17	1250

¹ AX = antelope, deer, elk, and livestock excluded; DRX = deer, elk, livestock, and rabbits excluded; DX = deer, elk, and livestock excluded; LGX = livestock and gophers excluded; LMX = livestock and rodents excluded; LRX = livestock and rabbits excluded; LX = livestock excluded, RR = livestock excluded let-down fence

Table IV.6. Distribution of exclosure partitions (individual enclosed areas) across range types and by size. Range types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Partition size (acres)										Not found	Total
	0-0.1	0.1-0.25	0.25-0.5	0.5-1.0	1.0-2.0	2.0-5.0	5.0-10.0	10.0-25.0	25.0-100.0	> 100		
109 Ponderosa pine shrubland		2		2	2		1			1		8
110 Ponderosa pine grassland					4		2					6
211 Creosote bush scrub					1					1		2
212 Blackbrush	3			1	2	3					4	13
216 Montane meadows	3		1		3			2			4	13
217 Wetlands	1						1				4	6
401 Basin big sagebrush	3			11	4	2	1				3	24
402 Mountain big sagebrush	40	5	8	28	66	26	2	3	3	1	11	193
403 Wyoming big sagebrush	22		10	22	32	41	5	4	4	2	8	150
405 Black sagebrush					12	2	1					15
408 Other sagebrush types					2		2					4
409 Tall forb	13	14	17	4	16	3	2	1	3		3	76
410 Alpine rangeland	5				2	5	1					13
411 Aspen woodland	12	13	10	11	23	11	6	15	6	3	9	119
412 Pinyon-juniper woodland	2	2	2	26	55	7	8		2	2	13	119
413 Gambel oak	3	3	3	3	20	1	1	4	2		6	46
414 Salt desert shrub	2	3	6	30	20	26	1	7	3		26	124
415 Curlleaf mountain-mahogany	1			2								3
416 True mountain-mahogany	1	5	2	3	5	3						19
418 Bigtooth maple				1							1	2
421 Chokecherry-serviceberry-rose	2							1				3
422 Riparian	9	12	4	10	23	20	13	5	5		71	172
501 Saltbush-greasewood					1	3					3	7
502 Grama-Galleta	4		1	1	1	1					3	11
Montane grasses	13	1	4	1	13	1	3	1			3	40
Not found	4	1		3	10	4	6	1	3		30	62
Total	143	61	68	159	317	159	56	44	31	10	202	1250

Table IV.7. Distribution of vegetation treatments across range types. Range types and treatments are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Number of exclosures with treatment ¹								Total # of treatments in type	Total # of treated exclosures in type ²
	Burned	Chained	Plowed	Sprayed	Fertilized	Harvested	Planted	Seeded		
110 Ponderosa pine grassland								1	1	1
212 Blackbrush	3		1				2	4	10	5
216 Montane meadows					1			1	2	1
401 Basin big sagebrush			1					2	3	2
402 Mountain big sagebrush	5	2	56	20			5	73	161	81
403 Wyoming big sagebrush	2	4	38	7			30	22	103	50
405 Black sagebrush	1		4					4	9	6
408 Other sagebrush types				1				2	3	2
409 Tall forb			1					8	9	8
410 Alpine rangeland			1					1	2	1
411 Aspen woodland	30			2		5		12	49	45
412 Pinyon-juniper woodland	6	29	11				11	35	92	38
413 Gambel oak	3	3	7				6	10	29	13
414 Salt desert shrub	5		5				4	10	24	15
415 Curlleaf mountain-mahogany			1						1	1
418 Bigtooth maple								1	1	1
422 Riparian	6		1	1			4	7	19	16
501 Saltbush-greasewood	1	1	1	1			2	3	9	4
502 Grama-Galleta	1								1	1
Montane grasses			2				2	16	20	17
Not found	1		2				1	5	9	5
Total	64	39	132	32	1	5	67	217	557	313

¹ This portion of the table indicates the number of treated exclosures in the range type for each kind of treatment.

² This portion of the table indicates the number of treated exclosures in the range type.

Table IV.8. Distribution of exclosure partitions (individual enclosed areas) across part type and by condition class. Part types and condition classes are defined in Appendix II.

Part Type (Animals Excluded)	Condition Class				Total
	Functioning	Needs repair	Historic	Not found	
Antelope, deer, elk, and livestock excluded (AX)	1				1
Deer, elk, livestock, and rabbits exclude (DRX)	22	5	1	6	34
Deer, elk, and livestock excluded (DX)	128	25	14	29	196
Livestock and gophers excluded (LGX)	1				1
Livestock and rodents excluded (LMX)	2				2
Livestock and rabbits excluded (LRX)	54	8	10	17	89
Livestock excluded (LX)	553	58	180	119	910
Livestock excluded, let-down fence (RR)	10	1	4	2	17
Total	771	97	209	173	1250

Table IV.9. Distribution of exclosure partitions (enclosed areas) across part type and by partition size. Part types and range types are defined in Appendix II.

Range Type	Partition size (acres)										Not found	Total
	0-0.1	0.1-0.25	0.25-0.5	0.5-1.0	1.0-2.0	2.0-5.0	5.0-10.0	10.0-25.0	25.0-100.0	> 100		
Antelope, deer, elk, and livestock excluded (AX)			1									1
Deer, elk, livestock, and rabbits exclude (DRX)	2		2	13	14	1				1	1	34
Deer, elk, and livestock excluded (DX)	6	13	11	33	76	31	6	8		1	11	196
Livestock and gophers excluded (LGX)						1						1
Livestock and rodents excluded (LMX)	2											2
Livestock and rabbits excluded (LRX)	13		7	35	16	13	1		1		3	89
Livestock excluded (LX)	120	48	46	77	206	110	49	34	30	7	183	910
Livestock excluded, let-down fence (RR)			1	1	5	3		2		1	4	17
Total	143	61	68	159	317	159	56	44	31	10	202	1250

Table IV.10. Distribution of exclosures across condition class and by the total number of partitions. Condition classes are defined in Appendix II.

Number of Parts	Condition Class				Total
	Functioning	Needs repair	Historic	Not found	
1	523	35	166	107	831
2	84	22	18	24	148
3	8	2	1	2	13
4	14	3	1	3	21
Total	629	62	186	136	1013

Table IV.11. Distribution of pairwise, within-exclosure partition comparisons. All condition classes, including historic exclosures, are included. Part types are defined in Appendix II.

Part Type (Animals Excluded)	Paired Part Type (Animals Excluded)						
	Alone	AX	DRX	DX	LGX	LMX	LRX
Antelope, deer, elk, and livestock excluded (AX)	0						
Deer, elk, livestock, and rabbits exclude (DRX)	1	0					
Deer, elk, and livestock excluded (DX)	50	0	29				
Livestock and gophers excluded (LGX)	0	0	0	0			
Livestock and rodents excluded (LMX)	0	0	0	0	0		
Livestock and rabbits excluded (LRX)	36	0	24	15	0	2	
Livestock excluded (LX)	733	1	31	143	1	2	51
Livestock excluded, let-down fence (RR)	11	0	0	4	0	0	0

Table IV.12. Distribution of exclosure partitions (individual enclosed areas) across condition classes and by partition size. Condition classes are defined in Appendix II.

Condition Class	Partition size (acres)										Not found	Total
	0-0.1	0.1-0.25	0.25-0.5	0.5-1.0	1.0-2.0	2.0-5.0	5.0-10.0	10.0-25.0	25.0-100.0	> 100		
Functioning	51	30	42	97	196	100	37	32	17	7	162	771
Needs repair	15	3	2	14	29	25	3	1		1	4	97
Historic	72	26	7	22	46	11	2	1	8		14	209
Not found	5	2	17	26	46	23	14	10	6	2	22	173
Total	143	61	68	159	317	159	56	44	31	10	202	1250

Table IV.13. Distribution of all exclosures across condition classes and by decade. Condition classes are defined in Appendix II.

Condition Class	Exclosure Establishment Date											Not found	Total
	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000+		
Functioning		14	24	49	22	81	73	39	91	123	42	71	629
Needs repair			3	5	7	20	18		4			5	62
Historic		2	50	17	21	58	20	8	5	1		4	186
Not found	1	3	7	10	15	23	48	2	6	1		20	136
Total	1	19	84	81	65	182	159	49	106	125	42	100	1013

Table IV.14. Distribution of BLM exclosures across condition classes and by decade. Condition classes are defined in Appendix II.

	Exclosure Establishment Date											Not found	Total
	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000+		
Functioning				5	4	22	36	26	60	67	24	42	286
Needs repair				3	4	2	10		3			2	24
Historic				3	7	3	7	6	4	1			31
Not found				2	2	3	23	2	5	1		12	50
Total	0	0	0	13	17	30	76	34	72	69	24	56	391

Table IV.15. Distribution of USFS exclosures across condition classes and by decade. Condition classes are defined in Appendix II.

	Exclosure Establishment Date											Not found	Total
	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000+		
Functioning		14	23	44	17	51	23	8	20	55	16	28	299
Needs repair			3	2	3	18	8		1			3	38
Historic		2	50	14	14	54	13		1			3	151
Not found	1	3	7	8	12	19	19		1			5	75
Total	1	19	83	68	46	142	63	8	23	55	16	39	563

Table IV.16. Distribution of exclosures across exclosure type and by decade. Exclosure types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Exclosure Type	Exclosure Establishment Date											Not found	Total
	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000+		
Experimental			1	3	1	11	11	6	4	4		5	46
Experimental (Monitoring/Demonstration)		17	20	50	36	95	68	9	19	10	1	36	361
Monitoring/Demonstration	1	1	63	28	27	71	77	26	23	21	7	19	364
Protection (Riparian)					1		2	5	46	45	24	5	128
Protection (Springs)						2		1	12	29	4	5	53
Protection (Seeding or regeneration)						3				13	6	8	30
Protection (T&ES)								1		2		2	5
Protection (Cultural)		1								1		7	9
Not found							1	1	2			13	17
Total	1	19	84	81	65	182	159	49	106	125	42	100	1013

Table IV.17. Distribution of individual vegetation and photo studies across administrative boundaries. Vegetation and photo study types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Land ownership / management agency	Vegetation Studies			Photo Studies			Total
	Quantitative	Qualitative	Total	General view photos	Close-up photos	Fence-line contrast	
BLM Cedar City DO	40	13	53	130	71	4	205
BLM Grand Staircase-Escalante NM	26	14	40	19	2		21
BLM Henry Mountains Field Station	4		4	4		1	5
BLM Kanab DO	40	7	47	40	133		173
BLM Moab DO	50	4	54	89	72	5	166
BLM Monticello DO	145	20	165	233	172	12	417
BLM Price DO	3		3	15	1	7	23
BLM Salt Lake DO	63	11	74	57	1	28	86
BLM St. George DO	6	2	8	15	13	2	30
BLM Vernal DO	85		85	63	39	1	103
BLM subtotal	462	71	533	665	504	60	1229

Table IV.17, continued. Distribution of individual vegetation and photo studies across administrative boundaries. Vegetation and photo study types are defined in Appendix II. All condition classes, including historic enclosures, are included.

Land ownership / management agency	Vegetation Studies			Photo Studies			Total
	Quantitative	Qualitative	Total	General view photos	Close-up photos	Fence-line contrast	
Ashley NF Duchesne/Roosevelt RD	80	113	193	132	36	37	205
Ashley NF Flaming Gorge RD/NRA	56	52	108	99	51	36	186
Ashley NF Vernal RD	67	53	120	149	50	34	233
Dixie NF Cedar City RD	42	13	55	75	37	16	128
Dixie NF Pine Valley RD	60	8	68	55	45	5	105
Dixie NF Powell RD	55		55	36	7	6	49
Dixie NF Teasdale RD	54	164	218	114	52	4	170
Fishlake NF Beaver RD	104	6	110	59	43	12	114
Fishlake NF Fillmore RD	56	3	59	50	16	4	70
Fishlake NF Loa RD	5	12	17	21	2	2	25
Fishlake NF Richfield RD	51	11	62	52	35	5	92
Manti-La Sal NF Ferron/Price RD	77		77	46	34	4	84
Manti-La Sal NF Moab RD	20		20	4	2		6
Manti-La Sal NF Monticello RD	43		43	23	15		38
Manti-La Sal NF Sanpete RD	14		14	4		2	6
RMRS Desert Experimental Range			0				0
Uinta NF Heber RD	111	13	124	128	100	13	241
Uinta NF Pleasant Grove RD	12		12	12	9		21
Uinta NF Spanish Fork RD	40	27	67	120	31	20	171
Wasatch-Cache NF Logan RD	16	6	22	6	3	6	15
Wasatch-Cache NF Mountain View RD	53		53	57	44	11	112
Wasatch-Cache NF Ogden RD			0	2			2
Wasatch-Cache NF Salt Lake RD	6		6	7		4	11
USFS subtotal	1022	481	1503	1251	612	221	2084
Capitol Reef NP	34		34	7		1	8
Glen Canyon NRA	5	3	8	4			4
NPS subtotal	39	3	42	11	0	1	12

Table IV.17, continued. Distribution of individual vegetation and photo studies across administrative boundaries. Vegetation and photo study types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Land ownership / management agency	Vegetation Studies			Photo Studies			Total
	Quantitative	Qualitative	Total	General view photos	Close-up photos	Fence-line contrast	
UT DWR	5		5	7		4	11
UT DWR Great Basin Research Center	120		120	92	72	5	169
UT SITLA	9		9	10	10		20
UT subtotal	134	0	134	109	82	9	200
Private	4		4	7		4	11
Statewide total	1661	555	2216	2043	1198	295	3536

Table IV.18. Distribution of study summaries across administrative boundaries. All condition classes, including historic exclosures, are included.

Land ownership / management agency	Individual Study Summarized	Inside vs. Outside Comparison	Trend Summarized
BLM Cedar City DO	1		
BLM Grand Staircase-Escalante NM	2	1	2
BLM Henry Mountains Field Station	4	2	4
BLM Kanab DO	17	8	13
BLM Moab DO	2	1	2
BLM Monticello DO	56	2	
BLM Price DO	3		3
BLM Salt Lake DO	20	6	8
BLM St. George DO	6	3	
BLM Vernal DO	34	10	18
BLM subtotal	145	33	50
Ashley NF Duchesne/Roosevelt RD	32	4	20
Ashley NF Flaming Gorge RD/NRA	61	12	33
Ashley NF Vernal RD	56	8	17
Dixie NF Cedar City RD	26	3	7
Dixie NF Pine Valley RD	30	10	5

Table IV.18, continued. Distribution of study summaries across administrative boundaries. All condition classes, including historic exclosures, are included.

Land ownership / management agency	Individual Study Summarized	Inside vs. Outside Comparison	Trend Summarized
Dixie NF Powell RD	32	6	27
Dixie NF Teasdale RD	15	6	13
Fishlake NF Beaver RD	52	15	17
Fishlake NF Fillmore RD	32	10	9
Fishlake NF Loa RD	3	2	3
Fishlake NF Richfield RD	36	4	6
Manti-La Sal NF Ferron/Price RD	60	3	32
Manti-La Sal NF Moab RD	15		4
Manti-La Sal NF Monticello RD	21	2	11
Manti-La Sal NF Sanpete RD	12	2	5
RMRS Desert Experimental Range			
Uinta NF Heber RD	99	9	48
Uinta NF Pleasant Grove RD			
Uinta NF Spanish Fork RD	35	11	11
Wasatch-Cache NF Logan RD	6	2	2
Wasatch-Cache NF Mountain View RD	29	3	7
Wasatch-Cache NF Ogden RD			
Wasatch-Cache NF Salt Lake RD	6	4	6
USFS subtotal	658	116	283
Capitol Reef NP	12		
Glen Canyon NRA			
NPS subtotal	12	0	0
UT DWR	5	3	5
UT DWR Great Basin Research Center			
UT SITLA	3	2	5
UT subtotal	8	5	10
Private	2		2
Statewide total	825	154	345

Table IV.19. Distribution of vegetation and photo studies across exclosure types. Exclosure types, vegetation study types, and photo study types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Exclosure Purpose / Type	Vegetation Studies			Photo Studies			Total
	Quantitative	Qualitative	Total	General view photos	Close-up photos	Fence-line contrast	
Experimental	23		23	28	24		52
Experimental (Monitoring/Demonstration)	617	54	671	679	401	85	1165
Monitoring/Demonstration	983	483	1466	1126	758	160	2044
Protection (Riparian)	27	16	43	159	13	44	216
Protection (Springs)	4	2	6	32	1	2	35
Protection (Seeding or regeneration)	5		5	6	1		7
Protection (T&ES)	2		2	5		1	6
Protection (Cultural)				6		3	9
Not found				2			2
Total	1661	555	2216	2035	1198	292	3525

Table IV.20. Distribution of study summaries across exclosure types. Exclosure types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Exclosure Purpose / Type	Individual Study Summarized	Inside vs. Outside Comparison	Trend Summarized
Experimental	2	1	2
Experimental (Monitoring/Demonstration)	246	36	91
Monitoring/Demonstration	565	114	251
Protection (Riparian)	10	2	1
Protection (Springs)			
Protection (Seeding or regeneration)			
Protection (T&ES)	2	1	
Protection (Cultural)			
Not found			
Total	825	154	345

Table IV.21. Distribution of quantitative and qualitative vegetation studies across range types and by study year. Range types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Vegetation Study Date									Total
	1920- 1929	1930- 1939	1940- 1949	1950- 1959	1960- 1969	1970- 1979	1980- 1989	1990- 1999	2000+	
109 Ponderosa pine shrubland	1	3		10	2	2	1	2		21
110 Ponderosa pine grassland	7	8		2	3					20
211 Creosote bush scrub								4		4
212 Blackbrush				1		8		7		16
216 Montane meadows	2	9	2	3		3	4	13	2	38
401 Basin big sagebrush						6	10	22	7	45
402 Mountain big sagebrush	26	62	17	69	96	37	27	79	23	436
403 Wyoming big sagebrush		1		11	18	38	48	36	9	161
405 Black sagebrush				11	10	5	3	16	7	52
408 Other sagebrush types					2	1		1		4
409 Tall forb	22	10	4	20	11	5	7	13	7	99
410 Alpine rangeland	17	32	2	9	10	4	6	4	5	89
411 Aspen woodland	16	67	21	40	61	6	5	19	5	240
412 Pinyon-juniper woodland		3	8	35	59	100	75	38	23	341
413 Gambel oak	5	1	1	17	31	9	12	6	4	86
414 Salt desert shrub				1	5	3	65	62	4	140
415 Curlleaf mountain-mahogany					3					3
416 True mountain-mahogany		9	5	16	8	3	7	26	4	78
418 Bigtooth maple				3	1					4
421 Chokecherry-serviceberry-rose	5	11								16
422 Riparian						2	11	23	3	39
502 Grama-Galleta						25	8	22	5	60
Montane grasses	19	82	4	11	6	5	3	25	3	158
Not found						1		1		2
Total	120	298	64	259	326	263	292	419	111	2152

Table IV.22. Distribution of photo studies across range types and by study year. Range types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Photo Study Date										Total
	Not found	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000+	
109 Ponderosa pine shrubland					7	2			2	2	13
110 Ponderosa pine grassland					2	1	2		2	1	8
211 Creosote bush scrub					4	2	1		3		10
212 Blackbrush					2	2	1		9		14
216 Montane meadows		2			2	2	4	3	37	4	54
217 Wetlands									1	3	4
401 Basin big sagebrush						32		36	25	8	101
402 Mountain big sagebrush		3		7	87	106	65	37	168	55	528
403 Wyoming big sagebrush			2		15	52	47	53	47	33	249
405 Black sagebrush					7	4	4	2	13	3	33
408 Other sagebrush types					2	4	2		2		10
409 Tall forb		5		5	27	22	8	10	18	16	111
410 Alpine rangeland				2	9	9	4	9	10	11	54
411 Aspen woodland		2	3	13	41	39	12	9	40	18	177
412 Pinyon-juniper woodland			5	8	29	104	81	78	62	17	384
413 Gambel oak					20	19	5	3	13	8	68
414 Salt desert shrub						6	14	27	58	16	121
415 Curlleaf mountain-mahogany						3					3
416 True mountain-mahogany				2	19	7	3	8	16	10	65
418 Bigtooth maple					4				1		5
422 Riparian	1				3	3	5	51	82	39	184
501 Saltbush-greasewood										2	2
502 Grama-Galleta							5	8	18	4	35
Montane grasses		1	1	2	19	7	8	4	19	12	73
Not found							1		1		2
Total	1	13	11	39	299	426	272	338	647	262	2308

Table IV.23. Distribution of vegetation studies across range types and by part type. Part types and range types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Part Type (Animals Excluded) ¹									Total
	AX	DRX	DX	LMX	LRX	LX	RR	OP	NB	
109 Ponderosa pine shrubland			9			8		4		21
110 Ponderosa pine grassland						18		2		20
211 Creosote bush scrub						2		2		4
212 Blackbrush					1	14		1		16
216 Montane meadows						26		10	2	38
401 Basin big sagebrush		3	4	3	4	12		19		45
402 Mountain big sagebrush		1	74		1	223		132	5	436
403 Wyoming big sagebrush	3	1	18		5	50		58	26	161
405 Black sagebrush		5	7		14	9		17		52
408 Other sagebrush types						3		1		4
409 Tall forb						57	3	39		99
410 Alpine rangeland			1			72		16		89
411 Aspen woodland			44			126	1	69		240
412 Pinyon-juniper woodland		30	81		28	98		104		341
413 Gambel oak		2	24			37		23		86
414 Salt desert shrub						75		65		140
415 Curlleaf mountain-mahogany			1			1		1		3
416 True mountain-mahogany			18			13	2	45		78
418 Bigtooth maple			1			2		1		4
421 Chokecherry-serviceberry-rose						16				16
422 Riparian			1			24	3	9	2	39
502 Grama-Galleta				4	4	25	6	11	10	60
Montane grasses						110		45	3	158
Not found						2				2
Total	3	42	283	7	57	1023	15	674	48	2152

¹ AX = antelope, deer, elk, and livestock excluded; DRX = deer, elk, livestock, and rabbits excluded; DX = deer, elk, and livestock excluded; LGX = livestock and gophers excluded; LMX = livestock and rodents excluded; LRX = livestock and rabbits excluded; LX = livestock excluded, RR = livestock excluded let-down fence, OP = matched outside plot, NB = nearby unmatched outside plot

Table IV.24. Distribution of photo studies across range types and by part type. Part types and range types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Range Type	Part Type (Animals Excluded) ¹									Total
	AX	DRX	DX	LMX	LRX	LX	RR	OP	NB	
109 Ponderosa pine shrubland			6			5		2		13
110 Ponderosa pine grassland						6		2		8
211 Creosote bush scrub						6		4		10
212 Blackbrush					2	9		3		14
216 Montane meadows						32		22		54
217 Wetlands						4				4
401 Basin big sagebrush		14	15	1	14	25		31	1	101
402 Mountain big sagebrush		7	117		5	236		151	12	528
403 Wyoming big sagebrush	7	1	33		8	104		67	29	249
405 Black sagebrush		3	5		7	7		11		33
408 Other sagebrush types						6		4		10
409 Tall forb						59	4	48		111
410 Alpine rangeland						31		23		54
411 Aspen woodland			50			70	6	51		177
412 Pinyon-juniper woodland		36	88		34	113		112	1	384
413 Gambel oak			16			32	1	19		68
414 Salt desert shrub					3	86		32		121
415 Curlleaf mountain-mahogany			1			1		1		3
416 True mountain-mahogany			24			12	2	27		65
418 Bigtooth maple			2			2		1		5
422 Riparian			3			126	6	43	6	184
501 Saltbush-greasewood						2				2
502 Grama-Galleta				1	1	14	6	10	3	35
Montane grasses						45		26	2	73
Not found						2				2
Total	7	61	360	2	74	1035	25	690	54	2308

¹ AX = antelope, deer, elk, and livestock excluded; DRX = deer, elk, livestock, and rabbits excluded; DX = deer, elk, and livestock excluded; LGX = livestock and gophers excluded; LMX = livestock and rodents excluded; LRX = livestock and rabbits excluded; LX = livestock excluded, RR = livestock excluded let-down fence, OP = matched outside plot, NB = nearby unmatched outside plot

Table IV.25. Distribution of pairwise, within-exclosure partition comparisons available for vegetation studies. Part types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Part Studied	Paired Part Studied								
	Alone	AX	DRX	DX	LMX	LRX	LX	RR	OP
Antelope, deer, elk, and livestock excluded (AX)	0								
Deer, elk, livestock, and rabbits exclude (DRX)	0	0							
Deer, elk, and livestock excluded (DX)	27	0	39						
Livestock and rodents excluded (LMX)	0	0	0	0					
Livestock and rabbits excluded (LRX)	14	0	30	30	7				
Livestock excluded (LX)	516	3	39	237	7	39			
Livestock excluded, let-down fence (RR)	2	0	0	1	0	0	6		
Outside (matched) plot (OP)	209	0	35	201	0	28	439	13	
Nearby (not matched) plot (NB)	37	0	0	1	0	0	11	6	9

Table IV.26. Distribution of pairwise, within-exclosure partition comparisons available for photo studies. Part types are defined in Appendix II. All condition classes, including historic exclosures, are included.

Part Studied	Paired Part Studied								
	Alone	AX	DRX	DX	LMX	LRX	LX	RR	OP
Antelope, deer, elk, and livestock excluded (AX)	3								
Deer, elk, livestock, and rabbits exclude (DRX)	2	0							
Deer, elk, and livestock excluded (DX)	71	0	56						
Livestock and rodents excluded (LMX)	0	0	0	0					
Livestock and rabbits excluded (LRX)	12	0	48	50	2				
Livestock excluded (LX)	465	4	54	254	2	58			
Livestock excluded, let-down fence (RR)	8	0	0	2	0	0	6		
Outside (matched) plot (OP)	154	0	57	222	0	51	493	15	
Nearby (not matched) plot (NB)	33	0	0	10	0	0	19	2	13