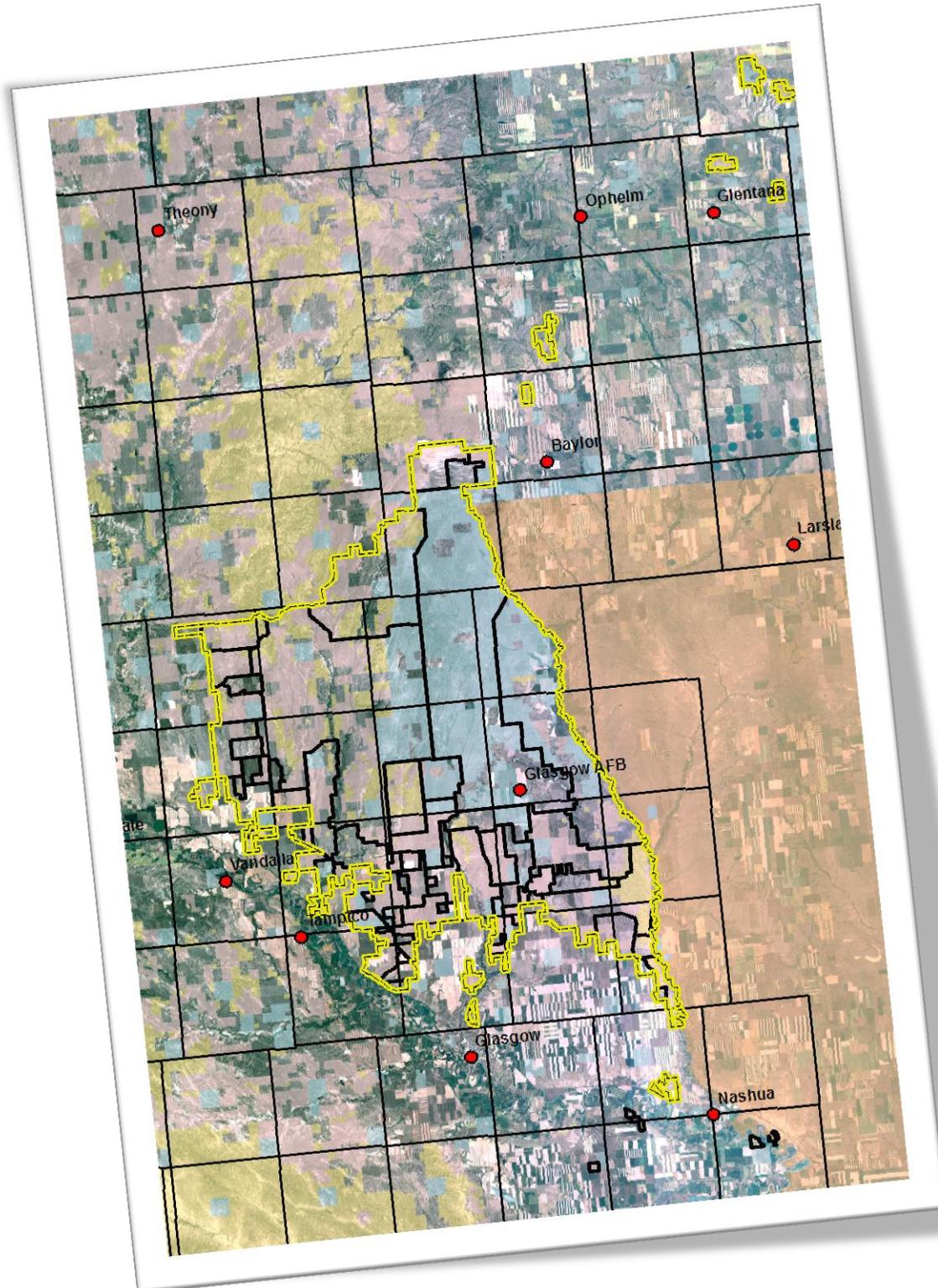


Porcupine - Buggy Watershed Report 2012



Authorized Officer's Determination of Standards

This document is an assessment of the Standards for Rangeland Health in the Porcupine Buggy Watershed (PBW) in north Valley County, Montana. The document also addresses other resource values such as cultural resources, paleontological resources, water resources, wildlife, transportation, recreation, visual resource management (VRM), and weeds.

The Executive Summary Table below depicts whether the allotments in the PBW are meeting the current Standards for Rangeland Health based upon determinations made in 2012.

EXECUTIVE SUMMARY TABLE

Allotment Number and Name	Are Healthy Rangelands Standards Being Met?				Is Livestock grazing a significant factor in allotment not meeting standards?	Narrative Explanation and Recommended Actions
	Upland	Riparian	Water Quality	Wildlife/Biodiversity		
3354 N. Porcupine Creek	Yes	Yes	Yes	Yes	NA	No changes recommended. Previously part of Allotment 4304 Porcupine Creek
4059 Wards Dam	Yes	Yes	Yes	Yes	NA	Maintain current grazing system. No changes recommended
4061 Lower West Porcupine	Yes	Yes	Yes	Yes	NA	No changes recommended
4069 Lower Unger Coulee	Yes	Yes	Yes	Yes	Yes	Meeting Standards #1 and #5 but with concerns due to crested wheatgrass and high utilization levels due to livestock water issues. Address current Allotment Management Plan (AMP) and adjust scheduled season of use.
4078 Upper Lime Creek	Yes	Yes	Yes	Yes	NA	Riparian rehabilitation project was successful. No changes recommended. Maintain leafy spurge control
4079 South Lime Creek	Yes	NA	Yes	Yes	NA	Maintain and/or develop waterfowl habitat. Monitor sage grouse numbers and habitat. Maintain leafy spurge control.
4081	Yes	NA	NA	Yes	NA	No changes recommended
4082 Black Coulee	Yes	Yes	Yes	Yes	NA	Monitor sage grouse numbers and habitat. Maintain grassland habitat for curlews. Maintain leafy spurge control.
4084	Yes	NA	NA	Yes	NA	No changes recommended
4087 Lower Lime Creek	Yes	NA	NA	Yes	NA	No changes recommended
4088 Ellsworth Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4089 Alkali Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4090 Lower Alkali Coulee	Yes	Yes	Yes	Yes	NA	
4091 Lower Bear Creek	Yes	NA	Yes	Yes*	NA	*The areas with crested wheatgrass do not meet biodiversity on a site basis. Prioritize potential restoration areas. Maintain habitat

						for sage grouse.
4092 Upper Unger Coulee	Yes	Yes	Yes	Yes*	Yes*	Maintain current grazing system. *Monitor FAR riparian area*. No grazing management change is recommended at this time.
4095	Yes	NA	NA	Yes	NA	No changes recommended
4096	Yes	NA	NA	Yes	NA	No changes recommended
4098	Yes	Yes	Yes	Yes	NA	No changes recommended
4200 Lower Porcupine Creek	Yes	Yes	Yes	Yes	NA	Monitor for Leafy Spurge and Spotted Knapweed
4201	Yes	NA	NA	Yes	NA	No changes recommended
4202 Lenz Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4301 Upper Buggy Creek	Yes	Yes	Yes	Yes	NA	No changes recommended
4303 Buggy Creek	Yes	Yes	Yes	Yes	NA	AMP revision and riparian pasture are still achieving desired effects. No changes recommended.
4304 Porcupine Creek	Yes	NA	NA	Yes	NA	No changes recommended
4307 Lower Spring Creek	Yes	NA	NA	Yes	NA	No changes recommended
4308 Spring Coulee	Yes	Yes	Yes	Yes	NA	Included in 4303 Grazing System. No changes recommended
4309 West Fork	Yes	Yes	Yes	Yes	NA	No changes recommended
4310 North West Fork	Yes	NA	NA	Yes	NA	No changes recommended
14100	Yes	Yes	Yes	Yes*	NA	* The areas with crested wheatgrass do not meet biodiversity on a site basis. Prioritize potential restoration areas. Maintain habitat for sage grouse.
14101 Antelope Spring	Yes	NA	NA	Yes	NA	No changes recommended
14102 Dry Coulee	Yes	Yes	Yes	Yes	NA	No changes recommended
14103	Yes	NA	NA	Yes*	NA	* The areas with crested wheatgrass do not meet biodiversity on a site basis. Prioritize potential restoration areas. Maintain habitat for sage grouse.
14104	Yes	Yes	Yes	Yes	NA	No changes recommended
14105	Yes	NA	NA	Yes	NA	Consider chisel plow in some areas
14106 Upper Richardson	Yes	Yes	Yes	Yes	NA	Consider water development on public and private lands.
14107	Yes	NA	NA	Yes	NA	No changes recommended
14108 Upper Martin Coulee	Yes	NA	NA	Yes*	NA	* The areas with crested wheatgrass do not meet biodiversity on a site basis. Prioritize potential restoration areas. Maintain habitat for sage grouse.
14109 Cherry Creek	Yes	NA	NA	Yes	NA	Maintain current grazing system.
14110 Upper School Section	Yes	NA	NA	Yes	NA	No changes recommended
14111	Yes	Yes	Yes	Yes	NA	Maintain grassland habitat for various birds

Foss Coulee						species. No changes recommended
14112 Upper Spring Creek	Yes	Yes	Yes	Yes	NA	Range Improvement Project planned to improve livestock utilization. Allotment 14113 used in grazing rotation.
14113 Spring Coulee	Yes	NA	NA	Yes*	NA	* The areas with crested wheatgrass do not meet biodiversity on a site basis. Prioritize potential restoration areas. Maintain habitat for sage grouse. Include allotment into Upper Spring Creek AMP.
14114 Lower Spring Coulee	Yes	NA	NA	Yes	NA	No changes recommended.
14115	Yes	NA	NA	Yes	NA	No changes recommended.
14116 Hawk Coulee	Yes	NA	NA	Yes	NA	No changes recommended.
14117 Chapman Coulee	Yes	NA	NA	Yes	NA	No changes recommended
14118 Mooney Coulee	Yes	NA	NA	Yes	NA	No changes recommended
14119 Lower Mooney Coulee	Yes	NA	NA	Yes	NA	No changes recommended
14121 Lower Cherry Creek	Yes	Yes	Yes	Yes*	NA	Meeting Standard #1 but with concerns. Replace east/west fence and develop more water for better livestock utilization.* The areas with crested wheatgrass do not meet biodiversity on a site basis. Prioritize potential restoration areas. Maintain habitat for sage grouse.
14122 Lower Foss Coulee	Yes	NA	NA	Yes	NA	No changes recommended.
14124 East Cherry Creek	Yes	Yes, for reservoirs	Yes	Yes	NA	No changes recommended.
14125 Lower Porcupine Creek	Yes	Yes	Yes	Yes	NA	No changes recommended.
14127	Yes	NA	NA	Yes	NA	No changes recommended.
14128 Middle Foss Coulee	Yes	NA	NA	Yes*	NA	* The areas with crested wheatgrass do not meet biodiversity on a site basis. Prioritize potential restoration areas. Maintain habitat for sage grouse. Water development is also needed.
14129 Cherry Creek Forks	Yes	NA	NA	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis
14130	Yes	NA	NA	Yes	NA	No changes recommended
4205 Butch Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4206	Yes	NA	NA	Yes	NA	No changes recommended
4207 Lower Milk River	Yes	NA	NA	Yes	NA	No changes recommended
4655 North Poplar River	Yes	NA	NA	Yes	NA	No changes recommended
4656 West Roanwood Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4657 Rock Creek Divide	Yes	NA	NA	Yes	NA	No changes recommended
4660 South Poplar River	Yes	NA	NA	Yes	NA	No changes recommended

4662 Lower Poplar River	Yes	NA	NA	Yes	NA	No changes recommended
4663 Upper Middle Porcupine	Yes	NA	NA	Yes	NA	No changes recommended
4665 Middle Fork Porcupine	Yes	NA	NA	Yes	NA	No changes recommended

* The issue of scale must be kept in mind when evaluating standards. It is recognized that isolated sites within the landscape may not be meeting the standards. The upland standard requires a diversity of native plant species and crested wheatgrass does not meet the criteria however; on a watershed basis crested wheatgrass only makes up about 5% of the Bureau of Land Management (BLM) acres and provides biodiversity at that scale.

Water quality information is available in Montana’s 2012 Integrated Water Quality Report. The Department of Environmental Quality (DEQ) is the lead agency for determining beneficial use support and achievement of water quality standards.

The concept of scale must be kept in mind while evaluating each standard. For example, isolated sites within a landscape may not be meeting the standards; while the vast majority of the larger landscape is in Proper Functioning Condition. No single indicator provides sufficient information to determine rangeland health. The Standards for Rangeland Health must be used in combination to provide information necessary to determine rangeland health.

Before any changes or improvements are made in these allotments, further environmental analysis will be completed. Changes or improvements are contingent upon staffing to complete the analysis and adequate construction funding.

Based on my review of the Assessment Team’s recommendation and other relevant data and information, I have determined that the allotments in the PBW meet the Standards for Rangeland Health and Guidelines for Grazing Management for BLM lands in Montana.

Authorized Officer Determination:

Authorized Officer: _____

Patrick T. Gunderson
Field Manager

Date: _____

Introduction

This document is a land health assessment of the public lands administered by the Bureau of Land Management (BLM) in the Porcupine-Buggy Watershed (PBW).

This is the first in a series of documents: the PBW Ten Year Monitoring and Standards and Guidelines Assessment Report, Executive Summary (Authorized Officer's Determination of Standards) and the appropriate National Environmental Policy Act (NEPA) documentation and subsequent Decision(s) changing management where needed.

The Assessment reports the condition and/or function of public land resources within the PBW to the authorized officer. The authorized officer reviews the findings in this report to determine if the five standards of rangeland health are currently being met. The authorized officer then signs a Determination of Standards documenting where Land Health Standards are met and where they are not.

In addition to the condition/function assessment, the report also contains initial recommendations developed by the interdisciplinary team (IDT) during field assessments. The recommendations in the report focus primarily on livestock grazing, noxious weed control, wildlife habitat, recreation activities, and rangeland management improvement projects. Impacts from all uses and programs were assessed and documented as part of this process.

The assessed condition, function and recommendations in the Assessment Report and Determination of Standards will be used in the NEPA process. An environmental assessment (EA) will be written addressing all resource concerns in the watershed. The EA will include all BLM-administered public lands covered in the assessment.

Alternative management will be analyzed wherever it is determined that:

- specific grazing allotments are not meeting the Standards
- allotments are meeting the Standards but have site specific concerns
- there are other documented resources concerns

Also, if existing grazing management practices or levels of grazing use on public lands are determined to be significant factors in failing to achieve one or more of the five Standards, the BLM is required by regulation (43 CFR 4180.1) to make grazing management adjustments.

Implementation of new plans will begin in 2013, but full implementation of revised grazing plans and/or range improvement projects associated with these plans may take several years.

The new plans will be developed in consultation and coordination with the affected permittees, agencies having lands or managing resources within the area, and other interested parties.

The watershed level management program being used in the Glasgow Field Office is a result of decisions made in the Judith-Valley-Phillips Resource Management Plan (JVP-RMP) dated September 1994. Initial assessments of the riparian and upland areas of the Porcupine-Buggy Complex Watershed were conducted during the grazing seasons of 2000 and 2001. The Porcupine-Buggy Complex Watershed Report that documented those findings was completed in June of 2002. A Porcupine-Buggy Monitoring and Standards and Guidelines Report was completed in 2007 to update the riparian condition assessments and the progress made in those allotments that were not meeting the rangeland standards in 2001. This report is a ten year Monitoring and Standards and Guidelines Assessment Report to document that all allotments are still meeting or have met rangeland health standards, or actions are being taken to meet rangeland health standards.

By working on a watershed basis, a broader landscape is considered and more consistent management can be applied. It is the BLM's intent to implement management cooperatively. Any changes in livestock management will be implemented through grazing decisions that address allotments or groups of allotments with a common permittee. As with similar BLM decisions, affected parties will have an opportunity to protest and/or appeal these decisions.

Background

The PBW consists of 145,762 acres (99,168 acres of BLM – administered public lands and 46,594 acres of private and state lands) in north Valley County, Montana. The Bureau of Land Management (BLM) manages approximately 68% of the surface acres in this watershed. The PBW area includes all of the public lands within the BLM designated Porcupine Creek and Buggy Creek watersheds and follows allotment boundaries, including those that are partially within the watershed (Figure 1, Appendix 2). This report addresses only BLM-administered public lands within the watershed. There are 19,954 (AUMs) animal-unit months of livestock forage allocated on public lands and approximately 32,000 AUMs on other lands. In addition, several isolated scattered tracts in the Opheim area, outside of the watershed boundary, were assessed as part of this effort. These allotments are considered Section 15 permits as they are outside of any established Grazing Districts.

The 2002 Porcupine-Buggy Complex Watershed Report determined that the uplands were meeting the upland standard on a watershed scale and were in “Proper Functioning Condition.” The upland standard is not the same as the objectives given in the JVP RMP (i.e., 80% good or excellent ecological condition). The standards provide a baseline that every allotment is measured against, but the objectives in the RMP are different and may be higher. The watershed was originally mapped for ecological status in 1978 and 1979. During those two years, only 62 % of the watershed was found to be in late seral or potential natural community ecological condition. The mapping was updated in 2000, and showed little change from the previous mapping efforts. No additional ecological status data was gathered during 2006 due to the drought conditions.

Table 1, Appendix 1 shows the initial standard determinations made in the Porcupine Buggy Watershed Plan in 2002. It was determined that four allotments were not meeting the Riparian Standard. In 2002, all allotments assessed met the upland, water, air, and biodiversity standards.

Vegetative Treatments

Clubmoss covers many of the soils in this area and severely limits vegetative productivity and potential to advance in seral status. Fire or mechanical treatment of clubmoss significantly increases productivity and speeds succession. Starting 20 years ago, one chiseling project was done in the watershed, totaling about 450 acres on Upper Unger Coulee Allotment (#4092). The project was successful, with production doubling on the chiseled area. A contour furrowing project took place in 1970 to decrease clubmoss and increase plant productivity in Upper Buggy Creek Allotment (#4301). The results are still apparent today. Chisel plow efforts have also been exerted to rehabilitate crested wheatgrass fields. The Field Office will consider such treatments as funding and opportunity allow.

Sensitive Plant Species

BLM Sensitive Species are defined by the BLM 6840 Manual as those that normally occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. The State Director may designate additional categories of special status species as appropriate and applicable to his or her state's needs. The sensitive species designation, for species other than federally listed, proposed, or candidate species, may include such native species as those that:

- could become endangered in or extirpated from a state, or within a significant portion of its distribution in the foreseeable future,
- are under status review by United States Fish and Wildlife Service (FWS) and/or NMFS,
- are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution,
- are undergoing significant current or predicted downward trends in population or density such that federally listed, proposed, candidate, or State listed status may become necessary,
- have typically small and widely dispersed populations,
- are inhabiting ecological refugia, specialized or unique habitats, or
- are State listed but which may be better conserved through application of BLM sensitive species status. Such species should be managed to the level of protection required by State laws or under the BLM policy for candidate species, whichever would provide better opportunity for its conservation.

Designation Descriptions

Sensitive - Denotes species listed as sensitive on BLM lands.

Special Status - Denotes species that are listed as Threatened or Endangered under the Endangered Species Act (ESA).

History and Prehistory

Livestock grazing replaced buffalo grazing in the Valley County area beginning in 1886. From then until about 1899, the PBW was within the N Bar N Ranch range. The winter of 1906-07 ended the large cow outfits in Northern Montana and ushered in the homesteader and small(er) ranches. Open range continued until 1934 and the passage of the Taylor Grazing Act. Grazing pressure peaked in the 1920's

and 30's with ranchers and homesteaders competing for grass. The areas photographed in the 1890's and early 1900's show excellent grass cover (Glasgow Jubilee Committee, 1962).

The land survey notes from 1891-1897 repeatedly mention "excellent" grass cover on the benches or "Grass is abundant on the benches." For examples, " " (Township 33N Range 38E 8th Standard Parallel North through Township 37E, General Description: along 8th Standard Parallel N through Township 38 E. James and Rodney Page, Surveyors May 7 1891)

However, by the 1930s the range was severely over grazed based on personal accounts of early day residents. The North Valley and Buggy Creek Grazing District files provide little in terms of descriptions of vegetation but do give a few clues. Concerning the period 1934-37, W.A. White wrote "the area was badly overstocked and there was not sufficient grass...(the Board) ...was not able to satisfy the members. " Conditions changed dramatically when it started to rain in the late '30s. The North Valley 1938 annual meeting minutes included the following; "the fine (per ton) for cutting hay (on lands in the District) is \$1.50 for the first offense, \$3.00 second offense, \$6.00 third offense."

Climate

Valley County can be known for its mild to hot summers and long cold winters. The following information was collected by a graduate student from the University of Wyoming who has completed his thesis on the floristic inventory of Phillips and Valley Counties (Figure 2). "Average daily maximum temperatures range from 49.7°F to 60.2°F (9.8°C to 15.7°C), with the north cooler than the south (PRISM 2004). Average daily minimum temperatures range from 26.1°F to 36.1°F (-3.3°C to 2.3°C), again generally lower in the north than in the south (PRISM 2004). Average annual precipitation is relatively low, ranging from 10.5 in to 21.7 in (26.7 cm to 55.1 cm) in the Little Rocky Mountains (PRISM 2004). Areas of locally high elevations tend to receive more precipitation. About half of the annual precipitation falls in the months of May, June, and July (NCDC 2012; WRCC 2012). Severe thunderstorms throughout the summer can bring locally heavy precipitation as well as damaging winds and hail (Bingham et al. 1984).

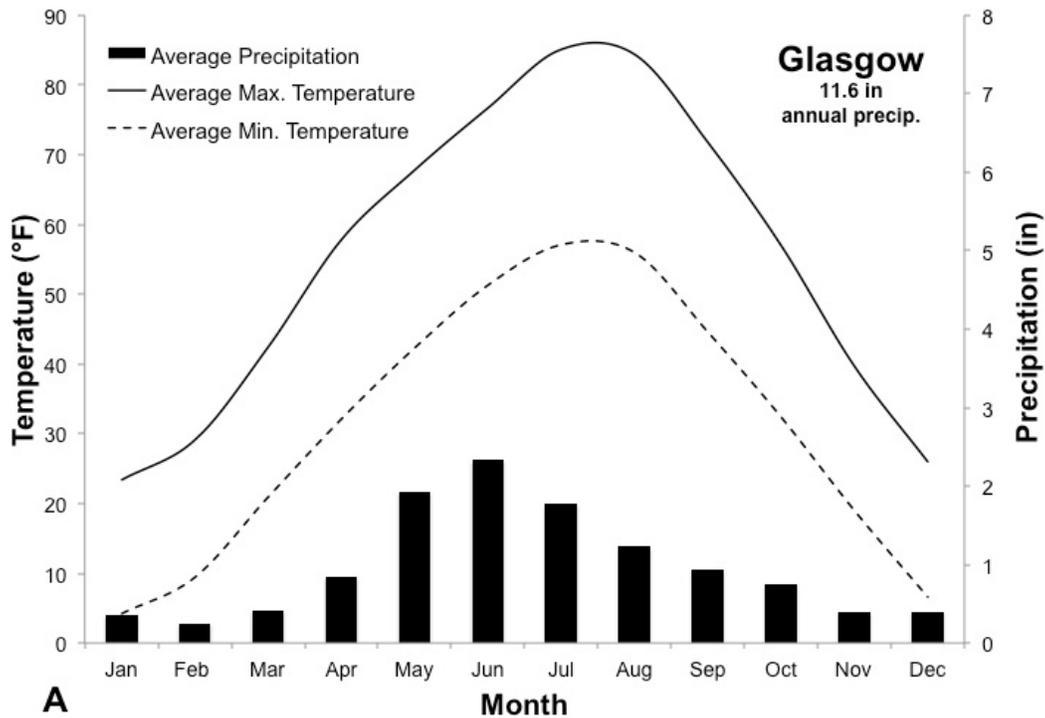


Figure 2. Average precipitation, maximum and minimum temperatures for Glasgow, Montana (NCDC 2012).

Precipitation was well above normal throughout most of the area during the 2010 and 2011 field seasons for this inventory (Figure 3). Annual precipitation in 2010 at Glasgow was 18.1 in (46.0 cm; 156% of average) and in 2011 was 23.0 in (58.4 cm; 198% of average), the highest ever recorded in Glasgow (Fig. 3; NCDC 2012; NWS 2012). In addition, the 108.6 in (275.8 cm) of snow that fell in Glasgow during the winter of 2010 and 2011 were the most ever recorded, more than three times greater than the average of 36 in (91 cm; NWS 2012). (Charboneau, Joseph L.M. 2013).

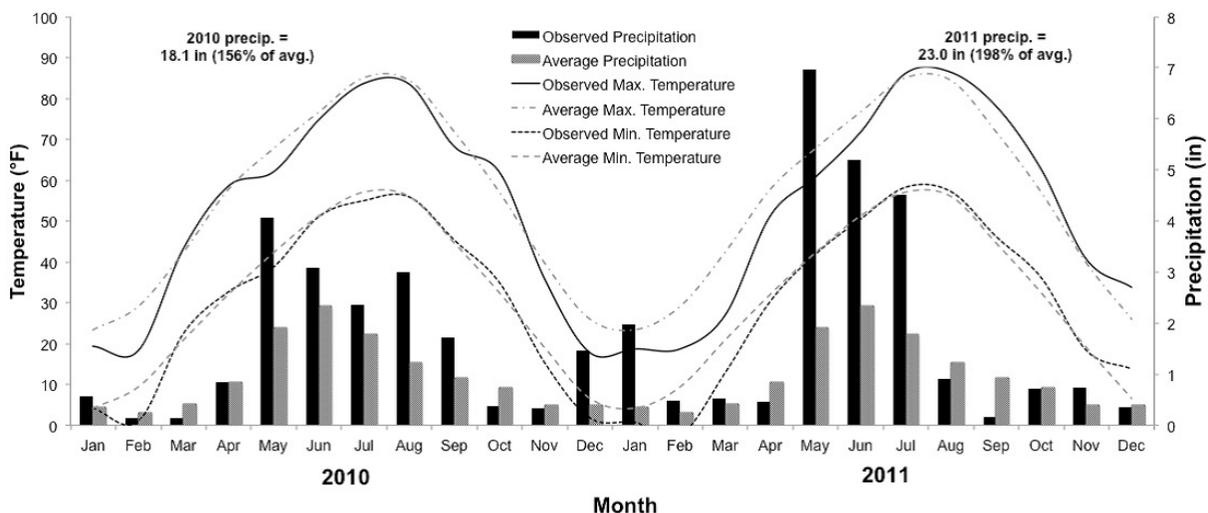


Figure 3. Observed temperatures and precipitation during the study (2010–2011) compared to averages for Glasgow, Montana (NCDC 2012). Precipitation was well above average in both years and was the highest ever recorded in 2011.

Authorized Uses

Recreational Uses

Special Recreation Management Areas (SRMA) are BLM administrative units that are managed to protect and enhance a targeted set of recreation activities, experiences, benefits and desired recreation setting characteristics. These units are given management priority for recreation resources. Extensive Recreation Management Areas (ERMA) are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. Development and enhancement of recreation resources within ERMAs can take place in response to recreation use or demand but recreation may not be the primary management focus for the area. The JVP RMP split the BLM-administered lands managed by the Glasgow Field Office in the Valley ERMA (north of U.S. Hwy 2) and South Valley SRMA (south of U.S. Hwy 2).

Within the PBW, Allotments 4069, 4095, 4098, 14101, 14117, 14118, and 14119 fall within the South Valley Special Recreation Management Area. Allotments 4307, 14100, and 14102 are split between the South Valley SRMA and the Valley ERMA. The remaining allotments fall within the Valley ERMA.

There are no developed recreation sites within the watershed boundary but Faraasen Park Recreation Area is adjacent to Allotment 14117. This is a semi-developed site that provides fishing access to the Milk River. Wards Dam Watchable Wildlife Area is located within Allotment 04059. This site is a destination for bird watchers and waterfowl hunters. Three recreational fishing ponds are also found within the watershed. Big Reservoir (Allotment 14112), Atlas Reservoir (Allotment 04303) and Langen Reservoir (Allotment 04301) are periodically stocked with game fish by Montana Fish, Wildlife and Parks (FWP) and promoted by BLM as recreation sites although there is little or no other development of recreational facilities present. Recreational use throughout the rest of the watershed primarily consists of dispersed hunting activities.

Visual Resources

The majority of the allotments within the watershed fall within a Visual Resource Management (VRM) IV classification. The objective of this class is to provide for management activities which require major modification of the existing character for the landscape. The level of change to the characteristic landscape can be high and these management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements of form, line, color, and texture in the natural characteristic landscape.

Allotments 4069, 4095, 4098, 4307, 14117, 14118, 14119, and 14122 fall within a VRM II classification due to their proximity to the Milk River. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Special Designations and Wilderness Characteristics

There are no special designations within the PBW and the 2011 inventory update identified no areas within the watershed that met the minimum criteria for wilderness characteristics.

Livestock Grazing

There are 60 grazing permits issued to permittee's in the watershed and are associated with 64 allotments. BLM lands provide about 40% of the summer forage base in the watershed. About 55% of the federal land in the watershed is managed under AMPs which require rest-rotation or deferred rotation grazing. Significant portions (12%) of the BLM acres are in custodial allotments where BLM management inputs are minimal. The remaining 33% of the BLM acres are in small allotments that are not identified as proposed AMPs in the land use plan. Table 2, Appendix 1 lists the allotment name, allotment number, federal acres, percent public land, public Animal Unit Months (AUMs), allotment category, and type of grazing system in use for all allotments assessed during the 2012 field season.

The BLM has previously determined what categories the allotments in the PBW are considered, either as Maintain (M), Improve (I), or Custodial (C). Category definitions are as follows:

Category I: Allotments where current livestock grazing management or level of use on public land is, or is expected to be, a significant causal factor in the non-achievement of land health standards; or where a change in mandatory terms and conditions in the grazing authorization is or may be necessary. When identifying Category I allotments, review condition of critical habitat, conflicts with Sage-Grouse, and whether projects have been proposed specifically for implementing the Healthy Lands Initiative.

Category M: Allotments where land health standards are met or where livestock grazing on public land is not a significant causal factor for not meeting the standards and current livestock management is in conformance with guidelines developed by the State Directors in consultation with Resource Advisory Councils. Allotments where an evaluation of land health standards has not been completed, but existing monitoring data indicates that resource conditions are satisfactory.

Category C: Allotments where public lands produce less than 10 percent of the forage in the allotment or are less than 10 percent of the land area. An allotment should generally not be designated Category C if the public land in the allotment contains: 1) critical habitat for a threatened or endangered species, 2) wetlands negatively affected by livestock grazing.

Cultural Resources

Cultural resources in this area are a part of the Great Plains geographical culture, both in terms of prehistoric and historic period peoples. Both historic and prehistoric resources are present here. Historic resources consist of sites associated with European expansion such as homesteads, cabins, railroads, and trails. Prehistoric resources consist of those sites associated with indigenous cultures,

such as stone circles, lithic scatters, bison kills, and those areas used for religious and/or spiritual purposes.

The literature search results show that several sites have been recorded within this area; and several Class III Inventories have been conducted to date. Conscientious grazing practices ensure a finding of “No Historic Properties Affected” (36 CFR §800: No Historic Properties Affected; sites, etc. would not be affected directly or indirectly.) is appropriate.

During previous tribal consultation for this area, no traditional cultural properties were identified.

Paleontological Resources

The PBW area encompasses a large portion of northern Valley County. This area includes both high and low probability areas for paleontological resources.

Process

These assessments were done in accordance with the BLM regulations regarding Rangeland Health Standards (Standards) and other applicable guidance.

- BLM Manual H-4180-1, Rangeland Health Standards Handbook and Guidance for Conducting Watershed-Based Land Health Assessments.
- Code of Federal Regulation 43 CFR, Subpart 4180
- Record of Decision (ROD) - Standards for Rangeland Health and Guidelines for Livestock Grazing Management (S&Gs) for Montana, North Dakota and South Dakota.

Rangeland Health Standards are described in detail in the ROD Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota-Lewistown Montana Standards. The Glasgow Field Office uses the standards established for the Lewistown District in 1997.

The preamble of the Lewistown District Standards states: Standards are statements of physical and biological condition or degree of function required for healthy sustainable lands. Achieving or making significant progress towards these functions and conditions is required of all uses of public lands as stated in 43 CFR 4180.1.

This assessment will report condition and/or function for the following five standards:

- Standard #1 Upland Health
- Standard #2 Riparian /Wetland Health
- Standard #3 Water Quality
- Standard #4 Air Quality
- Standard #5 Biodiversity

Condition/function statements regarding the Standards are made as either meeting (Yes) or not meeting (No). Land Health Standards are met when conditions across an allotment are achieving or making

significant progress towards the appropriate physical and biological conditions or degree of function required for healthy sustainable rangelands. This is dependent on scope and scale and determined by the Authorized Officer.

Available trend monitoring data, existing inventories, historical photographs and standardized methodology are used by an Inter-Disciplinary Team (IDT) of BLM employees to assess condition and function. Trend monitoring data, riparian assessment data and historic photographs used for this assessment are available at the Glasgow Field Office.

Format

The Upland, Riparian, Air Quality, Water Quality, and Biodiversity Standards will follow the following format:

- **Affected Environment** - This section briefly describes the area and resources that were assessed.
- **Findings, Analysis and Recommendations** - This section lists the findings and discloses recommendations developed by the IDT during the field assessments.

Upland

Lewistown District Standard #1: *“Uplands are in Proper Functioning Condition.”*

Procedure to determine conformance with Standard:

The uplands were assessed on an allotment basis according to Interagency Technical Reference 1734-6 “Interpreting Indicators of Rangeland Health.” This qualitative process evaluates 17 “indicators” (e.g., soil compaction, water flow patterns, plant community composition) to assess three interrelated components or “attributes” of rangeland health: soil/site stability, hydrological function, and biotic integrity. The Natural Resource Conservation Service (NRCS) has developed Ecological Site Descriptions based on specific soil types, precipitation zones, and location. They describe various characteristics and attributes including what vegetative species and relative percentage of each are expected to be present on the site. The IDT refers to these site descriptions while completing the upland evaluation matrix.

The IDT reviewed the long term trend study data, conducted extensive field surveys, and used the Indicators of Upland Health assessment process to assess the functionality of the upland habitat in the PBW.

The Porcupine-Buggy Watershed was also evaluated for weed infestations using treatment records and inventories from the Glasgow Field Office, Valley County Weed District, and the IDT’s collective observations during the field assessments.

Affected Environment

1. Soils

Soils within the watershed developed from glacial till (80%), slope and recent alluvium (11%), residuum from sedimentary shale, sandstone, and/or siltstone (9%) of the Bearpaw and Judith River Formations. Soils developed in a climate with long, cold winters; moist springs; and, warm to hot summers. Soil patterns are complex; and, physical and chemical properties and productivity can vary within short distances (less than 25 feet). Soils can be strongly saline and sodic on the alluvial fans and terrace treads adjacent to the drainages. Vegetation composition and production are affected by the high concentrations of these salts and sodium. Detailed soils information can be found on the USDA-NRCS's Web Soil Survey website (<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>).

Soils developed from glacial till are on nearly level to steep (1% to 35%) slopes and are typically very deep (>60 inches). Textures are loamy to clayey. Erosion is slight to moderate due to the relatively gentle rolling topography, short slope lengths, and prominence of dense sod-forming vegetation. When disturbed, water and wind erosion hazards increase. Predominant soils include the Scobey, Telstad, Phillips, Thoeny, Elloam, and Sunburst series. Associated ecological sites include: Silty, Clay pan, Dense clay and Thin hilly, 10 to 14 inch precipitation zone.

Soils that developed from slope alluvium on alluvial fans and stream terraces consist predominantly of the Vaeda, Absher, and Nobe series. These soils can be moderately strong to strongly saline and sodic within 30 inches. Permeability is slow to very slow; therefore, water tends to runoff or puddle and evaporates. These soils have chemical and physical properties which limit seed germination, vegetative composition, and production. Poor soil aeration is also a limitation. Associated ecological sites include: Dense Clay and Saline Uplands, 10 to 14 inch precipitation zone. Attewan, Redvale, Turner, and Farnuf soils also occur on fans and terraces. These soils are not saline and sodic. The associated ecological site for these series is Silty, 10 to 14 inch precipitation zone, glaciated plains, central.

Alluvial soils on nearly level to gently sloping (0% to 8%) slopes along floodplains and stream terraces consist of the Aquic Ustifluvents – saline and Ustic Torrifluvents – gently sloping components. Soil properties are variable and can differ over short distances. These soils range from: sandy to clayey; poorly drained to well-drained; slightly saline/sodic to highly saline/sodic; and, slightly to highly erodible.

Most of the moderately steep to steep (10% to 50%) dissected hillslopes are comprised of sedimentary soils weathered from shale, sandstone, and/or siltstone. These sedimentary soils are considered “fragile” because of extreme physical properties such as high clay content, slow permeability, very high surface runoff, relatively shallow to moderate deep (less than 40 inches) to bedrock, and sparse vegetative ground cover. Active geologic erosion is observed on these landforms. Erosion can be accelerated by surface disturbance, especially on the steep slopes when the protective vegetative cover is removed. Predominant soils include the Lisam, Dilts, Thebo, Reeder, Cambert, Doney, and Tinsley series. Associated ecological sites include: Shallow clay, Coarse clay, Clayey, Silty, and Silty steep, 10 to 14 inch precipitation zone.

There are areas of barren or nearly barren land dissected by many drainage channels. Within these areas, there are exposures of consolidated sedimentary beds of shale. Overall, the dominant ecological site in the PBW is Silty (Table 3).

Table 3. Dominant Ecological Sites within the Porcupine-Buggy Watershed in Valley County, Montana.

Ecological Site (ES)	Approximate Total acres per ES	% of PBW
Silty	77,512	38
Dense Clay	55,970	27
Thin Hilly	36,300	18
Overflow	13,068	6
Shallow Clay	9,138	5
Gravel-silty	6,000	3
Clayey	3,967	2
Saline Lowland	1,838	1

Soils in the uplands provide for the capture, storage and safe release of water. Preponderance of evidence indicates accelerated erosion in the form of rills and/or gullies, soil surface loss or degradation and resistance to erosion, erosional pedestals, bare ground, flow patterns, and compaction layers below the soil surface are minimal and match what are expected for a given Ecological Site. The 2012 Soil/Site Stability Attribute Ratings for Rangeland Health support these findings with the exception of Allotment 14121 – Lower Cherry Creek where ocular observations indicated higher amounts of bare ground than what is expected.

2. Vegetation

The vegetation data shows that 95% of the surveyed area is dominated by native vegetation, (87% grass, 8% shrubs) Dominate native grasses are western wheatgrass, green needlegrass, Sandberg’s bluegrass, prairie junegrass, needle and thread, and blue gramma. Introduced species, especially crested wheatgrass, dominate 5% (approximately 7,771 acres) of the surveyed area. Silver sagebrush, the most common shrub type has an average of 5% coverage. Other shrubs present, but not dominating the uplands includes creeping juniper, silver buffaloberry, western snowberry, prairie rose, and rubber rabbitbrush. Forbs make up some of the vegetative composition, but only a small amount. Plains cottonwood, green ash, box elder, Russian olive, and willow sp. can be found along riparian zones.

Clubmoss can dominate specific areas in allotments and effect the native vegetation. Fire control, overgrazing, and lack of buffalo herd disturbance probably resulted in an increase in clubmoss density following settlement from the 1890's to the 1930s. However, over the past 30 years, BLM trend data shows that the density of clubmoss has not increased in the watershed. Ecological sites dominated by clubmoss are in a stable ecological state unless there is disturbance. The reintroduction of fire or applying mechanical treatments would reduce clubmoss and advance the ecological seral stage. The plant communities on these silty sites are usually very diverse but the nutrient and energy cycles are not

at potential because of the clubmoss which tends to tie up resources that plants use thereby reducing the biomass production on these sites.

3. Noxious Weed Infestations

Leafy spurge infestations are scattered in minor amounts in the following drainages; Lime Creek, Canyon Creek and Buggy Creek. Knapweed infestations, mainly Russian Knapweed, are concentrated in small amounts, mostly on private land south of St. Marie along Porcupine Creek and the Cherry Creek area (Figure 4, Appendix 2). Knapweed is extremely aggressive and the potential exists for this weed to spread onto federal lands that are in close proximity. Since 1984, BLM has been involved in cooperative control efforts with Valley County and the Cooperative State Grazing Districts. Throughout this period the goal has been to eradicate both weed species in the Buggy Creek and Porcupine Creek watersheds using Integrated Pest Management (IPM). This area is in the total control area where all available resources are used to help eradicate the weeds. Herbicide treatments are applied by both air and ground. Biological controls (i.e. flea beetles) are used in sensitive areas, such as riparian areas with abundant woody species. In 1998, approximately 250 acres were sprayed and in 2001, 105 acres were treated in this watershed to cover the same area. This demonstrates that the treatments have reduced acres of spurge. Most of the herbicide application is in the Lime Creek area, and is part of the perimeter spraying of the Rock Creek project. This effort has kept spurge from getting a foothold in the Buggy Creek watershed area. Leafy spurge is an extremely difficult weed to control, however we feel like we are winning the battle.

4. Special Status Plants

No known populations of Special Status Plants occur on BLM lands within the Porcupine Buggy Watershed. There are three BLM sensitive plant species located in Valley County according the Montana Natural Heritage Program’s website (<http://mtnhp.org/SpeciesOfConcern/?AorP=p>). Table 4 lists the common name of BLM sensitive species, the plant family, reason it considered sensitive, counties it has been confirmed to occur and general habitat description.

Table 4. The Name of BLM Plant Species of Concern, the Family, Rank Reasons and Habitat for Valley County, Montana.

Common Name	FAMILY	S_RANK_REASONS	COUNTY	Habitat
Bractless blazingstar	Loasaceae	Rare and peripheral in Montana, where it is known from a few locations in the eastern half of the state. Additional data on population levels and trends are needed.	Custer, Powder River, Roosevelt, Rosebud, Valley	Open areas (sandy or gravelly solis)

Hot Spring Phacelia	Hydrophyllaceae	Hot spring phacelia is known from a very small number of sites in northeastern Montana, where it is disjunct from its primary range (northern California to southwestern Idaho). The species is an annual and may be vulnerable to competition from invasive exotics, particularly sweet clover, which is widespread in the type of habitat where hot spring phacelia has been found.	Fergus, Garfield, Phillips, Valley	Barren clay slopes
Platte Cinquefoil	Rosaceae	Rare in Montana, where it is known from several collections, particularly from Beaverhead County.	Beaverhead, Judith Basin, Valley	Grasslands/Sagebrush (Mesic)

Findings, Analysis, and Recommendations

Members of the IDT visited all of the grazing allotments in the Porcupine Buggy Watershed during the 2012 field season and completed Rangeland Health Indicator Evaluation Matrices on various ecological sites and plant associations. In addition, monitoring was conducted on eight allotments with 14 established 3 × 3 trend sites and one relocated site. Photos were retaken on all allotments in the watershed. The data collected was summarized and compared to baseline and interim data, and provided supporting information for interpreting the upland indicators.

Upland Trend Monitoring

For the 2002 Porcupine-Buggy Watershed Report, the BLM used a limited set of upland monitoring studies to determine whether the watershed was meeting the upland standards. It was decided in 2006, to do a more thorough inventory of existing upland trend studies and reread the studies that had shown some vegetative change or potential to change. Most of the upland studies had not been read and photographed since the early 1990's. In 2006, a sampling of 3 × 3 trend studies were read and photographed on the nine AMP allotments. A majority of these sites were on clubmoss dominated sites which respond very slowly to management.

Collectively, the data and pictures indicated a general upward or static trend from the early 1990's to 2012. Climatic conditions seemed to have the most impact on species composition with grass plants increasing and woody species declining slightly. Most of the 3 × 3 trend studies are on sites that have at least some clubmoss. The clubmoss dominated sites have remained essentially static with plant vigor increasing or decreasing depending on favorable or unfavorable climatic conditions.

Trend studies were conducted on allotments 4059, 4078, 4092, 4301, 4303, 4109, 14112 and 14116 during the 2012 field season. Photos (1-16) in Appendix 3 illustrate trend photos in allotments 4301 and 4078. This set of four trend photos shows the typical sites in the watershed for a silty ecological site

(Allotment 4301) and a loamy ecological site (Allotment 4078) for the watershed. The photos show a diversity of vegetative species (grass & forb).

The vast majority of the uplands in the watershed are functioning properly and meeting the Standard for Upland Health. Specific ecological sites within an allotment or the watershed may not meet the upland standard. However, the ranges of seral stages (ecological conditions) in the watershed are within the range of natural variation for the short grass prairie ecosystem. The studies that were completed showed a stable ecological state for the sites evaluated. The erosion that was present was what was expected for that given ecological site. With 62% of the classified acres in late seral or potential natural community (PNC), the watershed does not meet the JVP objective of 80% good or excellent ecological range condition. Dense clubmoss limits advancement of seral status on most of the benches with silty ecological sites. Land treatments generally move ecological condition upward on certain range sites.

Upland Recommendation 1 - The Lower Cherry Creek Allotment 14121 did pass the Upland Standard, but with concerns due to the presence of crested wheatgrass and the heavy utilization of native plant species in the uplands. There was a lack of species diversity among the grasses and the amount of bare ground was higher than expected with the amount of clubmoss present. In 2002, the permittee broke up and reseeded approximately 150 acres. The reseeded area is dominated by crested wheatgrass and is significantly underutilized. An interior fence has also been removed since the 2002 PBW Assessment. The removal of that fence has affected cattle movements and utilization. The fence should be replaced, and livestock water improvements should be improved or developed to help better distribute cattle and utilize the renovated uplands. The BLM will monitor for expansion or contraction of bare ground using Line-Point Intercept methodology.

Upland Recommendation 2 - The Lower Unger Coulee Allotment 4069 also passed the Upland Standard with concerns. Utilization levels on the native vegetation are a concern. The IDT is discussing a possible change in the season of use to be more accommodating with the amount of crested wheatgrass in the allotment.

All recommendations will be addressed and analyzed in the 5 year monitoring report for PBW in 2017.

Noxious Weeds and Introduced Species

The potential for the expansion of weeds, specifically leafy spurge and knapweed, is a major concern. The majority of the knapweed is Russian knapweed. There are identified areas of infestation on both public and private lands which could spread if we reduced our effort of herbicide control. Gravel mining and oil and gas exploration along with recreationists have the potential to spread knapweed over the watershed. At present we are gaining control of this potential problem through public education and herbicide control on the gravel pits. Leafy Spurge is scattered in very small amounts in isolated spots throughout the watershed. Figure 4, Appendix 2 illustrates the area in North Valley County, Montana where noxious weeds were controlled in 2012.

Knapweed is extremely aggressive and there exists a high potential for this weed to spread onto federal lands that are in close proximity. Knapweed infestations are concentrated in small amounts, on private land in and around St. Marie, the Cherry Creek area and along Porcupine Creek. The county is using

herbicide and biological control agents including a seed head weevils and root borers to control knapweed. BLM has helped fund this project since 2000 as we see this project being very beneficial to protect nearby federal lands from knapweed.

Livestock grazing systems and current levels of use are maintaining healthy rangelands. Some new weed infestations are occurring but are under control via the co-op weed program. If weed expansion should occur, biodiversity would go down, as both spurge and knapweed can totally dominate a site.

Some of the crested wheatgrass “fields” were evaluated for health of stand as it applies to tame pasture. The evaluation showed that most stands needed some improved management to maximize the forage production on these stands. Fencing, changes in season-of-use, prescribed fire and mechanical renovations are possible solutions to improving the stands. Crested wheatgrass was also evaluated against the standards as an allotment, as well as a watershed basis. Some allotments dominated by crested wheatgrass do not meet the standards on an allotment basis. This issue of crested wheatgrass is further discussed under the Biodiversity Standard. Most of the crested wheatgrass fields in this watershed provide early spring livestock grazing. This can provide benefits for native vegetation and nesting birds if livestock are concentrated on the crested wheatgrass.

Upland Recommendation 3- Continue existing AMPs as most trend data shows an upward trend even with the satisfactory conditions we now have on the allotments.

Upland Recommendation 4 - Where it doesn't conflict with habitat needs for sensitive species, mechanical treatment and fire in combination with grazing systems will be considered to help increase the total production, cover and height of grasses on clubmoss dominate sites in native range.

Upland Recommendation 5 - The Glasgow Field Office will continue to work cooperatively with the Valley Weed Control District to enhance the weed control effort on both leafy spurge and knapweed. This should include twice yearly ground checks with herbicides on all known infestations. All new infestations will be aggressively sprayed with herbicides to eradicate the weed. Education efforts on weed identification will continue with the permittees.

Riparian and Wetland Areas

Lewistown District Standard #2: *“Riparian and wetland areas are in Proper Functioning Condition”*

Procedure to determine conformance with Standard:

The Properly Functioning Condition (PFC) method (Technical Reference 1737-15 1998 for Riparian Area Management) was implemented by the BLM in order to evaluate the condition of riparian vegetation and riparian function which indicate causes and sources of current and potential water quality issues. Riparian vegetation responds readily to changes in management and can be modified to produce conditions more favorable to stream stability and water quality. Achieving or maintaining PFC in riparian areas promotes the growth of deep-rooted riparian vegetation that dissipates stream flow energy, stabilizes streambanks from cutting action, and filters sediment. Proper functioning riparian areas have stable stream banks (low sediment input) that are typically well vegetated (low thermal loading). The

functioning condition can indicate whether or not livestock are spending excessive time in or immediately adjacent to the waterway (low bacteria and nutrients). Riparian trends provide valuable information. Improving trends indicate that banks are becoming more stable (lower sediment load), shading is improving (less thermal loading), and livestock are spending less time in or immediately adjacent to the waterway (less bacteria or nutrients). Declining trends would likely denote the opposite.

The PFC assessment provides a consistent approach for assessing the physical functioning of riparian-wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. The PFC assessment synthesizes information that is foundational to determining the overall health of a riparian-wetland area. Prior to 2008, streams on BLM managed lands in Valley County were assessed using the Montana Riparian/Wetland Assessment (MRWA) method to rate functioning condition.

In 2008, the Glasgow Field Office began using the approved BLM PFC Method to assess riparian areas. For the PBW in 2012, the IDT reviewed existing data and re-read established transects at riparian monitoring sites. At these sites, photos were taken at the same locations as previous years to illustrate changes or consistencies in geomorphological and vegetative conditions. A private consultant was also hired through a contract to assess 5.39 miles of Unger Coulee's stream channel in the PBW watershed. All available data from the contractor was evaluated and considered by the IDT prior to a final functioning condition call being made on each reach.

Affected Environment

The PBW contains both lotic (e.g., streams) and lentic (e.g., prairie potholes, reservoirs) hydrologic features. All of the streams within the watershed are considered to be intermittent or ephemeral. This means that they do not have a continuous flow for the entire year. There are large seasonal variations in flows with the largest flows generally occurring during spring or early summer because of snow melt and rainstorms.

Stream Riparian Vegetation and Functional Status

Montana riparian vegetation is classified into habitat types and community types. Habitat Types (HTs) are stable, climax plant communities, representing the potential natural vegetation for the site. The objectives for such sites are to maintain the current habitat type. Community Types (CTs) represent lower seral types that are stable for time frames relevant to land management decisions (Hanson et al 1995). In theory, these communities could advance in succession to a habitat type. Although most of the riparian areas inventoried by the BLM's IDT's are shrub/grass community and habitat types, trees, such as green ash, cottonwood, boxelder and willow, are found along many of the inventoried streams.

Riparian Areas

Within the PBW, the BLM has inventoried approximately 70.5 stream miles for riparian function/health status and trend; 42 of those miles were assessed during the 2012 field season. Of the 70.5 miles of stream, approximately 14 miles have been found to be Functional at Risk (FAR), and approximately 56 miles are in Proper Functioning Condition (Figure 5, Appendix 2). There are an additional 21.7 miles of stream that may or may not exhibit riparian characteristics and have not received a methodological PFC assessment, areas include: Alkali Coulee, Black Coulee, Chapman Coulee, the East Fork of Cherry Creek, Mooney Coulee, Richardson Coulee, School Section Coulee, Spring Creek, and Uhlan Coulee.

Table 5, Appendix 1 identifies the allotment number, reach name, polygon reference number, the site specific objectives, the health determinations for the assessment year(s), miles assessed, and recommended actions for 62.7 miles of stream in the PBW.

Table 5, Appendix 1 also includes the trend of functioning condition obtained through application of the MRWA method or PFC method. Trend calls are required for reaches that are FAR and, when evident, can be made for reaches that are properly functioning. Photos (17-32) for Allotments 4059 and Allotment 4303, in Appendix 3, display a comparison of reaches that were not at PFC during the initial assessment in 2001 but which are currently meeting PFC standards.

Water Resources and Wetlands

The BLM designated Porcupine Buggy Watershed contains parts of four different watershed basins (Rock Creek, West Fork of Poplar River, Porcupine Creek, and Lower Milk River,) identified by the U.S. Geological Survey.

The Porcupine Buggy Watershed contains only about 635 acres of the Rock Creek Watershed Basin, which is 0.24 percent of the PBW's total area. This acreage within the Rock Creek Watershed includes both Federal and non-Federal surface ownership and contains ephemeral (headwater) sections of an Unnamed Tributary to Horse Coulee, an Unnamed Tributary to Spring Coulee, and an Unnamed Tributary to Willow Creek.

Within the PBW's boundaries are roughly 2,564 acres of the West Fork of Poplar River Watershed Basin. This watershed basin contains about 0.96 percent of the PBW and consists of both Federal and non-Federal surface ownership. The flowlines within the BLM allotments in this watershed basin consist of multiple Unnamed Tributaries to the West Fork of Poplar River that are not inventoried for riparian values due to their ephemeral attributes.

The Porcupine Creek Watershed Basin within the BLM designated PBW includes the West Fork of Porcupine Creek, the Middle Fork of Porcupine Creek, Porcupine Creek, Dry Fork Creek, Enright Coulee, Uhlan Coulee, Herman Spring, Ericson Spring, and multiple Unnamed Tributaries and springs. There are 72,935 acres of the Porcupine Watershed Basin within the PBW, which comprises about 27.26 percent of the PBW's total surface area. The BLM identified Uhlan Coulee as non-riparian/ephemeral in 1995, but due to the springs in the area and the above average precipitation over the past few years, this area will be re-assessed in the near future along with sections of the Middle and West Forks of Porcupine Creek. The riparian zone along BLM land is FAR along Porcupine Creek within the Porcupine Creek Watershed Basin.

The PBW contains about 191,406 acres of the Lower Milk River Watershed Basin, which is 71.54 percent of the PBW's total surface area. This acreage within the Lower Milk River Watershed Basin includes Buggy Creek, Bear Creek, Canyon Creek, the West Fork of Canyon Creek, Lime Creek, Brush Fork Bear Creek, Laundry Springs, Engles Spring, Kummerfort Spring, Crooked Creek, Spring Creek, Unger Coulee, Alkali Creek, Hall Coulee, Ellsworth Coulee, Black Coulee, Alkali Spring, Beaten Spring, the West Fork of Cherry Creek, the East Fork of Cherry Creek, Cherry Creek, School Section Coulee, Foss Coulee, Spring Coulee, additional springs, and pieces of Hawk Coulee and Richardson Coulee.

There are approximately 758 water rights on all surface ownership within the PBW. Among these water rights there are 5 varieties of water right owners, and 11 different water right purposes, as displayed in Table 6, Appendix 1.

Wetland maps are continually being updated for Montana. Wetland maps identify wetland type through aerial investigation and some field determination. Currently there have been 1,697 acres of wetland identified in the PBW, 526 acres of those wetlands reside on BLM managed lands, see Table 7, Appendix 1. The BLM does not have an up-to-date inventory of the condition of wetlands and lentic features in the PBW.

Palustrine systems, in the mapping effort conducted by the U.S. Fish and Wildlife Service, include wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens. Palustrine systems also include wetlands lacking such vegetation, but with the following characteristics: (1) wetland surface area is less than 20 acres, (2) active wave-formed or bedrock shoreline features are lacking, and (3) max water depth at low water times is less than 6.56 feet.

Findings, Analysis and Recommendations

Please refer to Table 5, column 8 in Appendix 1, which refers to the recommended actions for addressing Functioning-at-Risk upward and downward trend streams in the PBW. There are reach segments where the riparian areas are not meeting standards. At this time, there have been no management changes recommended. Continual monitoring and inventorying will ensue and BMPs will be incorporated into the management of wetland and riparian areas that are failing to function properly and are failing to achieve upward trends.

Table 8 lists updated scores for reaches that were not meeting standards in previous years.

Table 8. A Status Report on Stream Reaches in the Porcupine/Buggy Watershed that were not Meeting Standards in Previous Years.

Stream	Allot #	Study #	Score/Year	Score/Year	Score/Year	Score/Year	Score/Year	Score/Year	Score/Year
West Fork Porcupine Creek	4059	R-423	PFC/2012	98/2006	98/2004	96/2002	72/1998		
Unger Coulee	4092	R-313	FAR-down/2012	Photo/2006	76/2004	75/2001	80/1999	77/1995	
Buggy Creek	4303	R-582	PFC/2012	81/2006	88/2005	80/2004	77/2001		
West Fork Canyon Creek	4303	R-315	PFC/2012	Photo/2006	Photo/2003	93/2002	81/2001	Photo/1999	81/1995
Buggy Creek	4301	R-450	PFC/2012	69/2006	88/1988				

Water Quality

Lewistown District Standard #3: *“Water quality meets Montana State standards”*

Procedure to determine conformance with Standard

Surface and groundwater on public lands fully support designated beneficial uses described in the Montana Water Quality Standards. Proper Functioning Condition assessments lend insight into the quality of the water that is flowing off of, onto, into, and within the watershed. Water quality measurements are conducted by the State of Montana and include biological data, habitat data, and the following chemistry data: dissolved oxygen concentration, common ions, conductivity, pH, turbidity, temperature, fecal coliform, sediment, color, toxins, ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, and other major nutrients and quantitative physical data.

Affected Environment

The Porcupine Buggy Watershed encompasses a majority of Buggy Creek. The State’s 303(d)/305(b) Integrated Report from 2012 indicated that 46.5 miles of Buggy Creek (from the headwaters to the mouth of the Milk River) has iron concentrations that exceed the numeric water quality standard for the aquatic life beneficial use. However, the only identified source or sources are natural. Thus it’s considered partially impaired. There are approximately 38 miles of Buggy Creek physically associated with the PBW. The BLM land is crossed and has assessments on 10.2 miles of Buggy Creek.

The States 303(d)/ 305(b) list also indicates that 49.29 miles of Porcupine Creek (from the confluence of the West and Middle forks to the mouth of the Milk River) is listed as impaired due to Nitrogen, Phosphorus, and salinity. It is also considered partially impaired. There are approximately 36 miles of Porcupine Creek physically associated with the PBW. The BLM managed land is crossed and has assessments on 2.2 miles of Porcupine Creek.

The types of assessments implemented in order to determine water quality along Buggy Creek and Porcupine Creek include biological, habitat, physical, and chemical. The assessment methods integrated into water quality assessments include benthic macroinvertebrate surveys; fish surveys; information gathering from local residents; non-fixed station physical and chemical monitoring for conventional pollutants only; primary producer surveys for phytoplankton, periphyton, and macrophyton; and visual observations completed by State appointed professionals.

Findings, Analysis and Recommendations

Water within the study area is primarily used for livestock, wildlife/waterfowl, and irrigation. Because the quality of the water in the PBW is suitable for these uses there are no recommendations for management changes with regard to water quality.

Air Quality

Lewistown District Standard #4: *“Air quality meets Montana State standards.”*

Procedure to determine conformance with Standard

The Clean Air Act of 1990 as amended (42 U.S.C. 7401 et seq) requires the BLM to protect air quality, maintain Federal and State designated air quality standards, and abide by the requirements of State Implementation Plans.

Affected Environment

Findings, Analysis and Recommendations

The Environmental Protection Agency has delegated the authority to implement the provisions of the Clean Air Act to the State of Montana. Determination of compliance with air quality standards is the responsibility of the State of Montana. All of northeast Montana is in attainment, meaning that the air resource meets or exceeds all National Ambient Air Quality

Biodiversity

Lewistown District Standard #5: *“Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species.”*

Procedure to determine conformance with standard:

This Standard is an overall assessment of biodiversity and quality of wildlife habitat. The present state of each allotment and habitat type was compared to the natural and historic condition. The indicators described under the definition of Standard #5, as well as condition/function of the other standards, specifically uplands and riparian, were considered to determine whether or not this standard was met.

The IDT considered the range of natural variation within this ecosystem as well as the species composition, and condition of available habitat to determine the condition/function of biodiversity. The wildlife habitat niches expected are: grasslands (short and mid grasses), bare ground, riparian/wetlands, sagebrush steppe, and various mixes of these components. Meeting the biodiversity standard in the PBW can be difficult for some allotments due to the fact introduced grass species, such as crested wheatgrass, can dominant some areas. Providing habitat for special status plant and animal species is key to meeting the biodiversity standard.

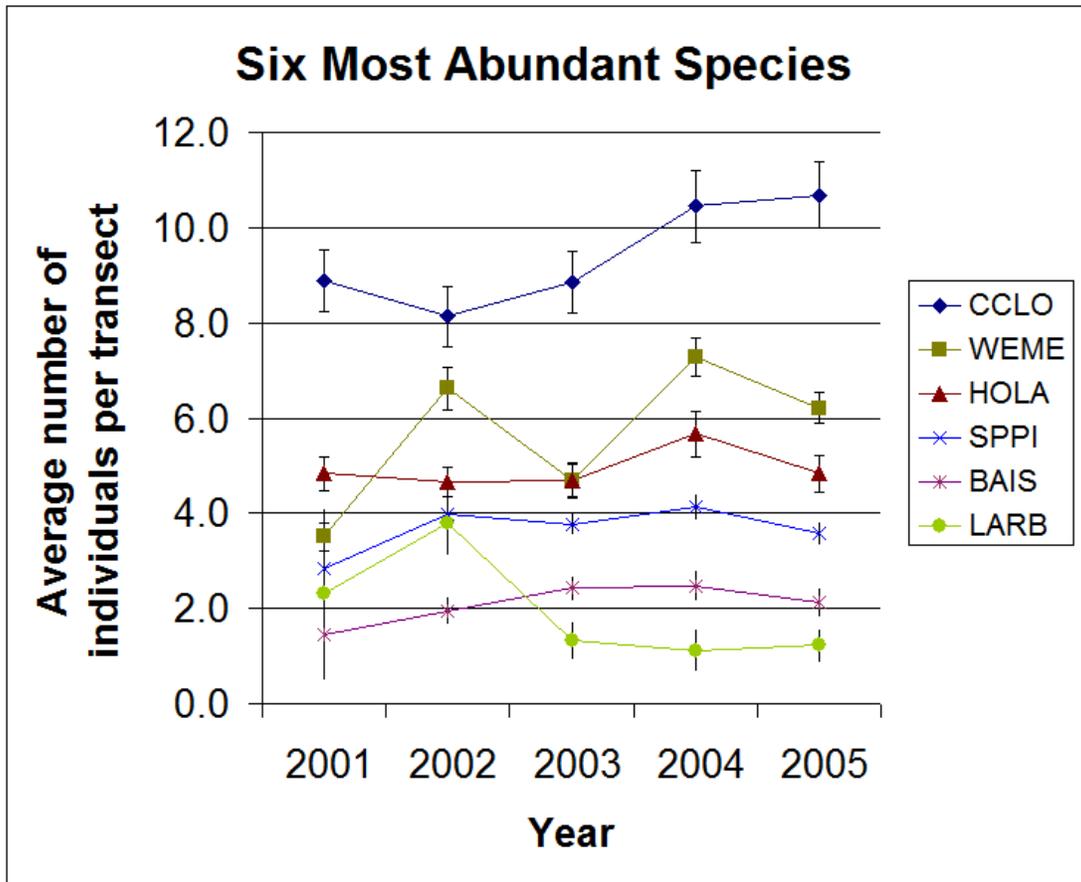
Affected Environment

There were 5 key questions that addressed concerns during the 2002 Porcupine Buggy Creek Watershed Report that are being revisited in the 2012 Report:

5. Grassland birds: How do we find a balance to meet habitat requirements for species (especially special status species) that need a variety of habitats from very short vegetation to dense, tall cover?

The Montana Natural Heritage Program (MNHP) was contracted through the Challenge Cost Share Program to conduct bird surveys on grasslands throughout north Valley County. This work began in 2001, and has been conducted annually since then. A number of the sample points are located in the PBW. Figure 6 details the six most abundant species recorded during the survey: Chestnut-collared Longspur, Western Meadowlark, Horned Lark, Sprague’s Pipit, Baird’s Sparrow and Lark Bunting, respectively. However the Lark Bunting was initially the 5th most abundant species during the first 2

years of the project and dropped to 6th during the next 3 years of the project. One possible explanation for the difference in Lark Bunting abundance may have been due to a severe drought in the southern portion of the species range in Colorado in 2002. Lark Buntings that normally nest in Colorado may have migrated to Montana in search of more suitable breeding habitat. The abundance could reflect a northern shift of the species that year because of poor nesting habitat (2001-2002). The abundance in subsequent years may reflect a return to suitable breeding habitat in the south (2003-2006). Four Species (Western Meadowlark, Chestnut-collared Longspur, Horned Lark and Sprague’s Pipit were distributed across more than 75% of the survey locations over the 5 year inventory (Table 9, Appendix 1). Initial results from the surveys suggest that the status of grassland birds within the watershed is quite good.



CCLO – Chestnut-collared Longspur
LARB – Lark Bunting

BAIS – Baird’s Sparrow
SPPI – Sprague’s Pipit

HOLA – Horned Lark
WEME – Western Meadowlark

Figure 6. Average Number of Individuals Per Transect for the Six Most Abundant Grassland Bird Species: North Valley County, Montana from 2001-2005.

Due to the PBW having many allotments where some have developed grazing management plans and smaller ones being in custodial management, a great deal of variability in the grazing intensity occurs. This heterogeneity of grazing intensities provides a variety of grassland habitat conditions. As a result, the diversity and numbers of grassland bird species, which require a variety of grassland habitat conditions is high. Concern still exists for species that require shorter stature grassland habitats. These species continue to be monitored. In addition, a Monitoring Avian Productivity and Survival (MAPS) study was conducted in 2007 and 2009 in the Canyon Creek Area of the PBW. This effort has resulted in the observation and banding of a diverse number of Neo-tropical migratory birds (Table 10, Appendix

1). In addition, the BLM is currently funding research on the relationship of differing grazing practices on grassland songbirds in Valley and Phillips Counties.

6. Waterfowl: What management techniques and land treatments should be employed to enhance or maintain current habitat? Is nesting cover adequate?

Waterfowl habitat in this watershed includes limited potholes, drainages and constructed reservoirs. The BLM will consider waterfowl enhancements at any impoundment scheduled for improvement and will continue to maintain the current waterfowl production reservoirs. The use of these reservoirs appears to be quite high and grassland conditions provide excellent nesting cover for most waterfowl species in most years.

Ward's Dam is a joint BLM and Ducks Unlimited (DU) project currently managed for waterfowl. The reservoir and 120 acres of surrounding uplands are fenced from the surrounding allotment. This change was implemented in response to the lack of emergent vegetation along the reservoir shoreline after cattle grazing. Management of the reservoir and surrounding uplands was adjusted in 2005, to allow seasonal grazing for a short period only once every five years. BLM believes that the proposed disturbance schedule to the emergent vegetation will keep emergent vegetation from becoming too dense.

In addition, allotments that are not meeting standards due to crested wheatgrass and are within three miles of a waterfowl producing reservoir should be aggressively pursued for restoration to native habitat.

7. Prairie dogs: The black-tailed prairie dog has been added to the candidate list of endangered and threatened wildlife and plants. Does this watershed contain potential prairie dog habitat?

At this time, there are no known black-tailed prairie dogs in the PBW, but potential habitat for prairie dogs appears to be available.

8. Sage grouse: Can sage grouse habitat in the silver sagebrush be increased?

The sagebrush habitat in this watershed is located in narrow stringers of plants along the larger drainages. Silver sagebrush is a plant that will sprout after being burned. During the summer, sage grouse have been found in grasslands that contain scattered silver sagebrush plants. The 2002 Porcupine-Buggy Creek Watershed report stated, "Little is known about where the sage grouse spend the winter." Research, funded in part by BLM, was conducted in 2008 in Canada and northern Valley County discovered that sage-grouse migrate ≥ 21 km (12.6 mi.) from summer ranges in the north to winter ranges in the Brazil, Antelope and Larb Creek areas of southern Valley County. The longest migration recorded was 120 km (72 mi.)(Tack 2011). Subsequent research discovered that during the severe 2011 winter, sage grouse migrated up to 240 km (144 mi.) (Smith 2012). These migrations occur between summer ranges that consist of silver sagebrush/grassland habitat north of the Milk River and winter habitat which consist of big sagebrush habitat in southern Valley County. Migration stopovers occurred within the Buggy Creek watershed.

Greater Sage-Grouse are a BLM Special Status Species as well as a Federal Candidate species. There are 6 known Greater Sage-grouse leks in the Buggy Creek Watershed, three of which are currently

active (Figure 7, Appendix 2.). Leks 20-060, 20-061 and 20-100 are currently inactive leks. Leks 20-060, 20-065 and 20-097 are currently active and on BLM lands. Figure 8 documents the number of observed males during the Spring lek surveys for leks active during the last 12 years and found within the Buggy Creek watershed.

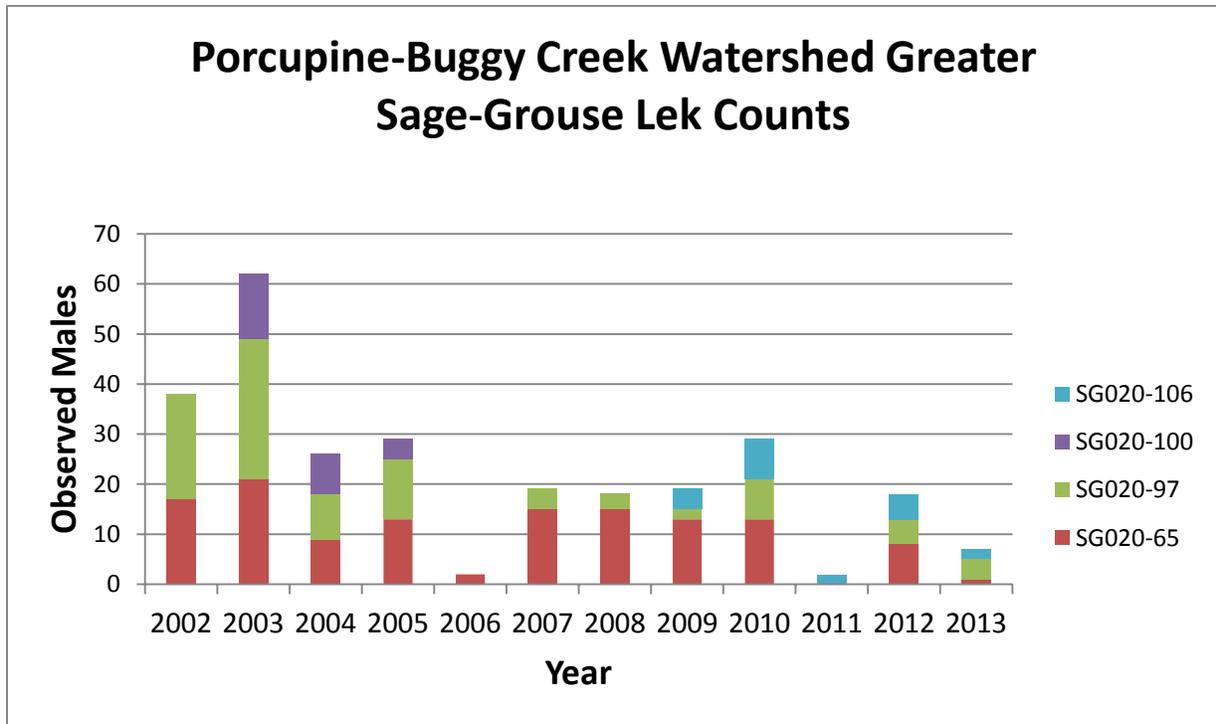


Figure 8. Number of Observed Males during the Spring Lek surveys for Active Leks during the last Twelve Years within the Porcupine/Buggy Creek Watershed.

Habitat:

Greater Sage-Grouse habitat in northern Valley County, specifically the Buggy Creek portion of the PBW, is characterized by narrow bands of silver sagebrush along creek beds. Despite the nature of the habitat in the PBW, approximately 25% of the watershed is contained in the Grassland Bird/Greater Sage Grouse Priority Area (Figure 7, Appendix 2). Greater Sage-Grouse are dependent on sagebrush almost exclusively for food and cover during the breeding and winter seasons (Connelly et al. 2000). In an effort to characterize the Greater Sage-grouse breeding habitat in the watershed, the BLM completed a series of habitat assessments in 2005 and 2006. These studies were set up to assess the available breeding habitat within 2 miles (3 km) of each active Greater Sage-Grouse lek. Overall, results from these studies show the habitat to be unsuitable according to guidelines found in the State of Montana Sage Grouse Management Plan (Plan) (SGWG 2005) for Greater Sage-grouse nesting and brood-rearing habitat (Figure 9). It is important to note that these guidelines were adapted for big sagebrush habitats and are less applicable in silver sagebrush habitats. Despite being considered unsuitable by the Plan standards, recent research in adjacent silver sagebrush-grassland habitat indicated nesting success rates of 90% and 95% in 2007 and 2008, respectively (Tack 2011).

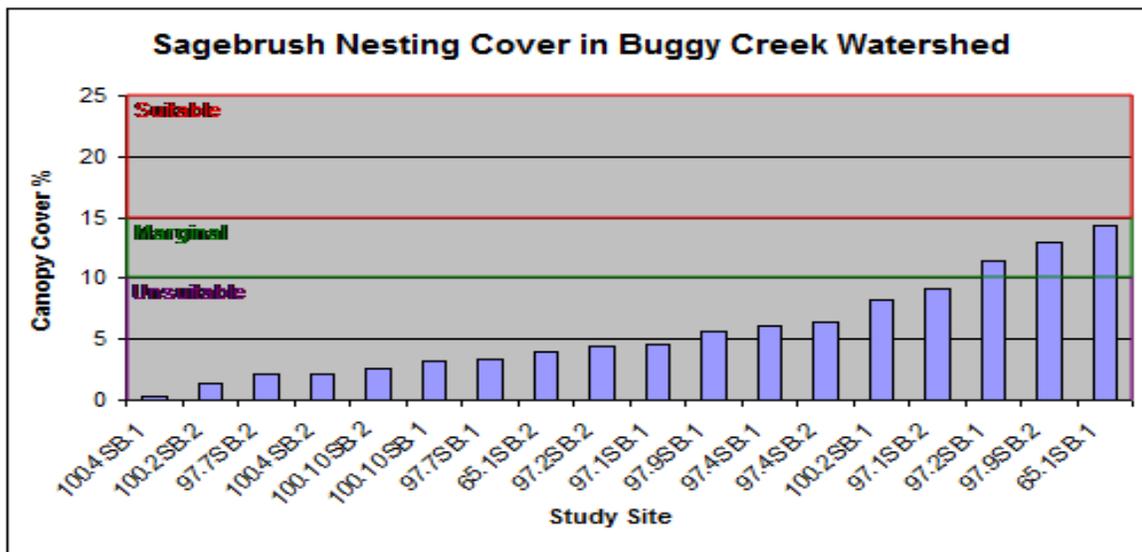


Figure 9. Silver Sagebrush Canopy Coverage found in the Buggy Creek portion of the Porcupine/Buggy Watershed in Relation to Quality Indicators found in the Montana Sage Grouse Management Plan.

9. Fisheries: Can we establish new fisheries? Is management of the existing fishing reservoirs adequate? Are there sensitive fish in the larger drainages?

Current fishing reservoirs located in the watershed are Big Reservoir, Atlas Reservoir and Langen Reservoir. Big Reservoir contains black crappie, Atlas and Langen hold largemouth bass. Management of these reservoirs will continue to be coordinated with FWP through the BLM recreation program in Glasgow. There is a windmill aerator located at Big Reservoir that is maintained by FWP. Big Reservoir may also benefit from altered grazing management that will allow vegetation to grow along the shoreline.

There are reservoirs that appear to have adequate depth to maintain a fisheries and sedimentation is low. Low wintertime oxygen levels are of concern in ponds throughout this area. An aerator is installed in Big Reservoir and is successful when maintenance is adequate. The recently built fence has lessened the livestock impacts around the reservoir. Atlas Reservoir and Langen Reservoir are satisfactory in terms of shoreline vegetation. The enclosure around Atlas needs to be maintained. When livestock are in the Langen Reservoir pasture, cattle loaf on the dam and create an unattractive site for the anglers.

Information on sensitive fish species is very limited, the MNHP website indicates that the PBW has the potential to contain BLM Sensitive species such as pearl dace, Northern redbelly X Finescale dace hybrid, Sturgeon chub, sauger and paddlefish. If present, these species would most likely be found in Buggy, Cherry and Porcupine Creeks within the PBW. Paddlefish would be limited to the lowest reaches near the Milk River.

Terrestrial Wildlife

This watershed contains a variety of wildlife habitats with the predominant habitat being grassland. Big sagebrush is extremely limited at the southern end of the PBW and may be non-existent. This is consistent with watersheds located north of the Milk River where silver sagebrush predominates.

Most of the wildlife species that are found within the PBW are grassland species. Crucial winter habitat for pronghorn antelope and mule deer is located in the Buggy Creek, Canyon Creek and Porcupine Creek areas

(Figures 10 and 11, Appendix 2). Mule deer use is due to the rough topography and diverse shrub component these areas provide for shelter, thermal cover and food during winter months. Elk and moose may travel through the watershed occasionally. There are no known black-tailed prairie dog colonies in this watershed. Swift fox pioneered into this area after successful reintroduction occurred in southern Saskatchewan during the 1980's and 1990's. Swift fox populations are robust in the PBW based on surveys conducted by MFWP in the mid-2000's.

With respect to native upland game birds, there are 27 known sharp-tailed grouse leks, as well as six Greater Sage-Grouse leks. Only three of the sage grouse leks are currently active and activity was not determined for the majority of the sharp-tailed grouse leks. Hungarian partridge and pheasants, two introduced species are present in the PBW.

According to MNHP, amphibians and reptiles that are present in this watershed may include chorus frogs, Northern leopard frogs, tiger salamanders, garter snakes, bull snakes, and western rattlesnakes. Raptor species that have been observed in the area include golden eagle, prairie falcon, northern harrier, Swainson's, ferruginous, red-tailed, and rough-legged hawks. Numerous waterfowl species are found in the prairie potholes, reservoirs and streams in the PBW. A variety of grassland birds as well as neotropical migratory birds may be found within the watershed. Table 11, Appendix 1 is a list provided by the MNHP of animal species present in PBW. ((BLM 2013) (MNHP 2013b) (FWS 2013)) Species are not limited to this list.

Special Status Species

According to the FWS Ecological Services, Montana Field Office, endangered species that may be found within Valley County include: Pallid Sturgeon, Black-footed Ferret, Interior Least Tern, and Whooping Crane. The only threatened species that may be in Valley County is Piping Plover. There are no known threatened or endangered species in the watershed, although it is likely that the avian species migrate through the PBW. Candidate species include Greater Sage-Grouse and Sprague's Pipit. As discussed earlier, the PBW supports both Candidate species and is vital at a species-level for Sprague's Pipit populations.

Findings, Analysis and Recommendations

The PBW has large blocks of native grassland habitat that are well connected to form a large grassland ecosystem. The vegetation is characterized by a variety of age classes and plant communities are found in a variety of successional stages. The gently sloped grasslands that contain club moss provide habitat for wildlife species that prefer short-grass prairie, such as Baird's sparrow, Sprague's pipit, McCown's longspur and the Long-billed curlew. For species that prefer taller vegetative cover, club moss areas provide less preferred nesting areas.

The majority of the wildlife habitat/biodiversity standard is being met overall in this watershed. This conclusion is based upon representative vegetation plots, bird counts, visual observation, riparian and upland studies. This watershed contains three active Greater Sage-grouse leks that are currently at very low levels. The major issues with sage grouse habitat in the PBW are both quantity and quality. Therefore, allotments that are not meeting standards due to crested wheatgrass and are within three miles of an active or inactive lek, should be aggressively pursued for restoration to native habitat.

Analysis

The wildlife habitat/biodiversity standard is being met overall in this watershed. The standard is not being met on the areas where leafy spurge, a noxious weed, is the predominant plant as well as where crested wheatgrass fields are present. Livestock grazing does not appear to be the cause of this standard not being attained. There were 5 key questions that were presented in the 2002 Buggy Creek-Porcupine Watershed Report and were reported on earlier in this report. Table 12, Appendix 1 outlines each allotment and its' final recommendation regarding the Biodiversity Standard.

Recommendations

Biodiversity Recommendation 1 - Continue an aggressive noxious weed control program to maintain native plant communities. Leafy spurge and spotted knapweed infestations will have an effect on biodiversity, if there was a decrease in the present weed control program

Biodiversity Recommendation 2 – Crested wheatgrass stands were identified as a major concern for Allotments 4069, 4091, 14100, 14103, 14108, 14113, 14121, 14128 and 14129. Staff will identify at least one field for restoration to native cover in each allotment. Priorities will be for fields within 3 miles of a sage grouse lek or within 2 miles of a waterfowl producing wetland. Staff will also look for opportunities for adjustments to the grazing on crested wheatgrass fields that would focus grazing on them early in the grazing season.

Biodiversity Recommendation 3 - Though trial land treatments, including fire, encourage the establishment and production of silver sagebrush on all sites with potential sage grouse habitat. Maintain a low succession forb community on sites that occur around brood rearing areas for sage grouse. Because of the critical nature of the silver sagebrush stands to sage grouse, these stands should be priority areas for future monitoring.

Biodiversity Recommendation 4 – Increasing waterfowl production should occur through a focus on grassland nesting habitat. Continuation of managed grazing systems are recommended along with opportunities to develop additional managed systems. Restoration of nesting cover will be considered when due to clubmoss or crested wheatgrass. Priorities will be to restore these sites within 2 miles of wetlands supporting waterfowl.

Biodiversity Recommendation 5 – Attempt to continue to vary grazing pressure by interspersing areas of heavy, light, and non-grazing of livestock to provide habitat for a variety of grassland bird species. This will assist in habitat conditions for a wide variety of grassland bird species.

Biodiversity Recommendation 6 - Maintain enclosure fences around Big Reservoir, Atlas Reservoir and Ward's Dam. Monitor the impacts of grazing around Langen Reservoir and within the Ward's Dam enclosure in the year it is to be utilized. Continue working with FWP to continue the current management, while looking at other potential improvements.

List of Preparers - Interdisciplinary Team Members

Name	Title	Resource Responsibility	Reviewed
Raymond Neumiller	Rangeland Management Specialist	Range, Vegetation	8/7/2013 RNN
Jody Mason	Rangeland Management Specialist	Initiator, Range, Vegetation, Noxious weeds	7/24/13 JLF
Abel Guevara	Wildlife Biologist	Wildlife, Threatened & Endangered Species	8/2/2013 AG
Josh Sorlie	Soil Scientist	Soils	7/25/2013 JS
Kathy Tribby	Outdoor Recreation Planner	Recreation, Visual Resource Management	7/08/2013 kmt
Thomas Probert	Hydrologist	Wetlands, Riparian Areas, Surface Water	8/7/2013 TGP
Josh Chase	Archaeologist	Cultural Resources, Native American Concerns, Paleontology	8/8/2013 JJC

Literature Cited

BINGHAM, L., L.A. DANIELS, J.H. SMITH, AND M.J. KOEHLER. 1984. Soil survey of Valley County, Montana. USDA, Soil Conservation Serv., in coop. with Montana Agric. Exp. Sta.

BUREAU OF LAND MANAGEMENT (BLM). 2009. 2009 Montana/Dakotas Special Status Species List. Instruction Memorandum No. MT-2009-039 (April 24, 2009).

CHARBONEAU, JOSEPH L.M., A floristic inventory of Phillips and Valley counties, Montana, U.S.A., M.S., Department of Botany, May, 2013. Pg.5-7.

CONNELLY, J.W., ET AL. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28: 967-985.

MONTANA NATURAL HERITAGE PROGRAM (MTNHP). 2013a. Plant species of concern report. URL: <http://mtnhp.org/SpeciesOfConcern/?AorP=p> (23 Apr 2013).

MONTANA NATURAL HERITAGE PROGRAM. 2013b. Natural Heritage Tracker Database. <Http://mtnhp.org/Tracker/NHTMap.aspx> Accessed 7/5/13

NATIONAL CLIMATIC DATA CENTER (NCDC). 2012. Climate data online for Glasgow Intl. Airport (station:GHCND:USW00094008). URL: <http://www.ncdc.noaa.gov/cdoweb/#t=secondTabLink> (3 APR 2012).

NATIONAL HYDROGRAPHY DATASET (NHD). <http://nhd.usgs.gov/> accessed 7/2013.

NATIONAL WEATHER SERVICE (NWS). 2012. Annual climate summary for Glasgow, Montana. URL: http://www.nws.noaa.gov/climate/local_data.php?wfo=ggw (3 Apr 2012).

PRISM CLIMATE GROUP (PRISM). 2004. Average annual precipitation, average daily maximum temperature and average daily minimum temperature data (1971–2000). Oregon State Univ. URL: <http://prism.oregonstate.edu> (26 Nov 2011).

SMITH, R.E. 2012. Conserving Montana's Sagebrush Highway: Long distance migration in sage-grouse. Master's Thesis, University of Montana, Missoula, USA.

TACK, J.D., D.E. NAUGLE, J.C. CARLSON, AND P.J. FARGEY. 2011. Greater sage-grouse *Centrocercus urophasianus* migration links the USA and Canada: a biological basis for international prairie conservation. *Oryx* 46:64-68.

U.S. FISH AND WILDLIFE SERVICE (USFWS) 2010. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, DC. FWS/OBS-79/31. <http://www.fws.gov/wetlands/> USGS 2013.

U.S. FISH AND WILDLIFE SERVICE (FWS). 2013. Endangered, Threatened, Proposed and Candidate Species Montana Counties. Ecological Services Montana Field Office (July 2013). http://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species.html Accessed 7/5/13.

WESTERN REGIONAL CLIMATE CENTER (WRCC). 2012. 1981–2010 monthly climate summary for Zortman, Montana (NOAA coop. station 249900). URL: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?mt9900> (3 April 2012).

APPENDIX 1 - TABLES

Table 1. The Final Results of the 2002 Standard and Guidelines Assessment for the Porcupine/Buggy Watershed in Valley County, Montana.

Allotment Name & Number	2001 S&G Assessment Standards met- Y/N?				Is Livestock grazing a significant factor in allotment not meeting standards?	Narrative Explanation and Recommended Actions
	Upland	Riparian	water quality	Wildlife/ biodiversity		
4059-Wards Dam	Yes	No	Yes	Yes	NA	Maintain current grazing system. No changes recommended
4061-Lower West Porcupine	Yes	Yes	Yes	Yes	NA	No changes recommended
4069-Lower Unger Coulee	No	Yes	Yes	No	Yes	Not meeting Standards #1 and #5 due to crested wheatgrass and high utilization levels due to livestock water issues. Address current AMP and adjust scheduled season of use.
4078-Upper Lime Creek	Yes	No	Yes	Yes	NA	Riparian rehabilitation project was successful. No changes recommended. Maintain leafy spurge control
4079-South Lime Creek	Yes	NA	Yes	Yes	NA	Maintain and/or develop waterfowl habitat. Monitor sage grouse numbers and habitat. Maintain leafy spurge control.
4081	Yes	NA	NA	Yes	NA	No changes recommended
4082-Black Coulee	Yes	Yes	Yes	Yes	NA	Maintain grassland habitat for curlews. Maintain leafy spurge control.
4084	Yes	NA	NA	Yes	NA	No changes recommended
4087-Lower Lime Creek	Yes	NA	NA	Yes	NA	No changes recommended
4088-Ellsworth Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4089-Alkali Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4090-Lower Alkali Coulee	Yes	Yes	Yes	Yes	NA	Maintain and or develop sage grouse habitat
4091-Lower Bear Creek	Yes	NA	Yes	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Maintain habitat for sage grouse
4092-Upper Unger Coulee	Yes	No	Yes	Yes*	Yes*	Maintain current grazing system. Monitor riparian area.* Segments were rated at Functioning at Risk by a contractor. This stream's segments have low potential for improvement. Therefore, no grazing management change is recommended now.
4095	Yes	NA	NA	Yes	NA	No changes recommended

4096	Yes	NA	NA	Yes	NA	No changes recommended
4098	Yes	Yes	Yes	Yes	NA	No changes recommended
4200- Lower Porcupine Creek	Yes	Yes	Yes	Yes	NA	Monitor for Leafy Spurge and Spotted Knapweed
4201	Yes	NA	NA	Yes	NA	No changes recommended
4202- Lenz Coulee	Yes	NA	NA	Yes	NA	No changes recommended.
4301- Upper Buggy Creek	Yes	Yes	Yes	Yes	NA	No changes recommended
4303- Buggy Creek	Yes	No	Yes	Yes	NA	AMP revision and riparian pasture are still achieving desired effects. No changes recommended.
4304- Porcupine Creek	Yes	NA	NA	Yes	NA	No changes recommended
4307 - Lower Spring Creek	Yes	NA	NA	Yes	NA	No changes recommended
4308- Spring Coulee	Yes	Yes	Yes	Yes	NA	Included in 4303 Grazing No changes recommended
4309- West fork	Yes	Yes	Yes	Yes	NA	No changes recommended
4310- North West fork	Yes	NA	NA	Yes	NA	No changes recommended
14100	Yes	Yes	Yes	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Maintain habitat for sage grouse
14101- Antelope Spring	Yes	NA	NA	Yes	NA	No changes recommended
14102- Dry Coulee	Yes	Yes	Yes	Yes	NA	No changes recommended
14103	Yes	NA	NA	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Maintain habitat for sage grouse
14104	Yes	Yes	Yes	Yes	NA	No changes recommended
14105	Yes	NA	NA	Yes	NA	Consider chisel plow in some areas
14106- Upper Richardson	Yes	Yes	Yes	Yes	NA	Consider water development
14107	Yes	NA	NA	Yes	NA	No changes recommended
14108- Upper Martin Coulee	Yes	NA	NA	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Maintain habitat for sage grouse
14109- Cherry Creek	Yes	NA	NA	Yes	NA	Maintain current grazing system. Develop a chisel plow management plan that is beneficial to wildlife and native grasses.
14110- Upper School Section	Yes	NA	NA	Yes	NA	No changes recommended
14111- Ross Coulee	Yes	Yes	Yes	Yes	NA	Maintain grassland habitat for various birds species. No changes recommended

14112- Upper Spring Creek	Yes	Yes	Yes	Yes	NA	Amend AMP to include Allotment 14113. Improve utilization on crested wheatgrass.
14113- Spring Coulee	Yes	NA	NA	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Include allotment into Upper Spring Creek AMP.
14114- Lower Spring Coulee	Yes	NA	NA	Yes	NA	No changes recommended.
14115	Yes	NA	NA	Yes	NA	No changes recommended.
14116- Hawk Coulee	Yes	NA	NA	Yes	NA	Monitor sage grouse lek.
14117- Chapman Coulee	Yes	NA	NA	Yes	NA	No changes recommended
14118- Mooney Coulee	Yes	NA	NA	Yes	NA	No changes recommended
14119- Lower Mooney Coulee	Yes	NA	NA	Yes	NA	No changes recommended
14121- Lower Cherry Creek	Yes	Yes	Yes	Yes*	NA	Replace east/west fence and develop more water for better livestock utilization.*Areas where crested wheatgrass grows do not meet biodiversity on a site basis.
14122- Lower Foss Coulee	Yes	NA	NA	Yes	NA	No changes recommended.
14124- East Cherry Creek	Yes	Yes, for reservoirs	Yes	Yes	NA	No changes recommended.
14125- Lower Porcupine Creek	Yes	Yes	Yes	Yes	NA	No changes recommended.
14127	Yes	NA	NA	Yes	NA	No changes recommended.
14128- Middle Foss Coulee	Yes	NA	NA	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Need to manage crested and/or incorporate a native seeding project. Water development is also needed.
14129- Cherry Creek Forks	Yes	NA	NA	Yes*	NA	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis
4205 Butch Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4206	Yes	NA	NA	Yes	NA	No changes recommended
4207 - Lower Milk River	Yes	NA	NA	Yes	NA	No changes recommended
4655 - North Poplar River	Yes	NA	NA	Yes	NA	No changes recommended

4656 - West Roanwood Coulee	Yes	NA	NA	Yes	NA	No changes recommended
4657- Rock Creek Divide	Yes	NA	NA	Yes	NA	No changes recommended
4660- South Poplar River	Yes	NA	NA	Yes	NA	No changes recommended
4662- Lower Poplar River	Yes	NA	NA	Yes	NA	No changes recommended
4663- Upper Middle Porcupine	Yes	NA	NA	Yes	NA	No changes recommended
4665- Middlefork Porcupine	Yes	NA	NA	Yes	NA	No changes recommended

Table 2. Individual Allotments of the Porcupine - Buggy Watershed by Allotment Number, Name, Federal Acres, AUMs, Allotment Category (M=, C=, I= and Grazing System. (Type of grazing system: RR = Rest Rotation, DR = Deferred Rotation, S = Season Long Grazing)

Allotment Number	Allotment Name	Federal Acres	Federal Aums	Allotment Category	Type of Grazing System
03354	N. Porcupine Creek	760	139	M	S
04059	Ward's Dam	2,286	535	M	DR
04061	Lower West Porcupine	635	202	M	S
04069	Lower Unger Coulee	890	198	M	DR
04078	Upper Lime Creek	3,163	504	M	RR
04079	South Lime Creek	2,446	456	M	S
04081	MT04081	95	16	C	S
04082	Black Coulee	1,754	343	M	S
04084	MT04084	162	26	C	S
04087	Lower Lime Creek	200	33	C	S
04088	Ellsworth Coulee	1,281	234	M	S
04089	Alkali Creek	920	179	M	S

04090	Lower Alkali Creek	320	55	M	S
04091	Lower Bear Creek	800	168	M	S
04092	Upper Unger Coulee	2,090	522	I	DR
04095	Lower Lime Creek	157	12	M	S
04096	MT04096	318	55	M	S
04098	MT04098	160	37	M	S
04200	Lower Porcupine Creek	672	87	M	S
04201	MT04201	40	6	C	S
04202	Lenz Coulee	200	15	C	S
04301	Upper Buggy Creek	9,864	1958	I	RR
04303	Buggy Creek	28,422	5658	I	RR
04304	Porcupine Creek	2,207	458	M	S
04307	Lower Spring Creek	240	63	M	S
04308	Spring Creek	4,914	1044	M	S
04309	Westfork	2,424	568	M	S
04310	North Westfork	397	116	C	S
14100	MT14100	310	72	M	S
14101	Antelope Spring	875	163	M	S
14102	Dry Coulee	1,829	355	M	S
14103	MT14103	413	110	M	S
14104	MT14104	420	96	M	S
14105	MT14105	817	192	M	S
14106	Upper Richardson Coulee	3,031	573	M	S
14107	MT14107	80	20	C	S
14108	Upper Martin Coulee	480	103	M	S
14109	Cherry Creek	3,872	668	M	DR
14110	Upper School Section	305	48	C	S
14111	Foss Coulee	2,773	553	M	S

14112	Upper Spring Creek	4,177	906	M	DR
14113	Spring Coulee	1,321	273	M	S
14114	Lower Spring Coulee	93	18	M	S
14115	MT14115	640	119	M	S
14116	Hawk Coulee	5,358	739	M	DR
14117	Chapman Coulee	786	124	M	S
14118	Mooney Coulee	346	58	M	S
14119	Lower Mooney Coulee	40	6	C	S
14121	Lower Cherry Creek	640	166	M	S
14122	Lower Foss Coulee	40	7	C	S
14124	East Cherry Creek	734	108	M	S
14125	Lower Porcupine Creek	290	30	M	S
14127	MT14127	80	16	C	S
14128	Middle Foss Coulee	860	588	M	S
14129	Cherry Creek Forks	160	31	M	S
14130	MT14130	40	6	C	S
04205	Butch Coulee	160	39	C	S
04206	MT04206	80	16	C	S
04207	Lower Milk River	107	28	C	S
04655	North Poplar River	320	54	M	S
04656	West Roanwood Coulee	136	19	M	S
04657	Rock Creek Divide	473	107	M	S
04660	South Poplar River	560	100	M	S
04662	Lower Poplar River	360	60	M	S
04663	Upper Middle Porcupine	320	54	M	S
04665	Middlefork Porcupine	400	62	M	S

Table 5. Riparian Reach Data for the Porcupine-Buggy Watershed, Valley County, Montana.

Allot #	Name	Polygon #	Site Specific Objectives	Functions - Health/Trend	Year Assessed	Stream Miles	Recommended Actions
4059	West Fork Porcupine Creek	R-423	Rose CT	PFC	2012	1.5	None - installation of riparian fence is achieving desired effect of reaching PFC
4069	Unger Coulee	R-15	Green ash (HT)	PFC - woody photo pts.	2001	0.9	None
4078	Lime Creek	R-461	Snowberry (CT) western wheat (HT)	FAR- upward	2012	2	None- riparian rehabilitation project completed in 2005 is functioning as planned with upward trend apparent. Continue to monitor
4090	Alkali Creek	R-265	Alkali grass (HT)	PFC **	2001	0.8	None
4092	Unger Coulee	R-313	Rose/snowberry (CT) Western wheat (HT)	313-A :FAR-downward 313-B: PFC upward 313 C: FAR downward	2012	5.16	Livestock grazing is not the determining factor for trend.
4098	Buggy Creek	R-585	Green ash (HT)	PFC	2001	0.7	None
14109	Cherry Creek	R-302	Green ash (HT)	PFC	2006	0.8	2006 establish as photo pt.
4200	Porcupine Creek	PHOTO PT.	Green ash (HT) Cotton wood (CT) Stream bank willow (CT)	PFC	2001	0.5	None
4301	Buggy Creek	R-450	woods rose (CT)	FAR- upward	2006	2.5	None- continue to monitor

4301	Canyon Creek	R-584	Rose/snowberry (CT) Western wheat (HT)	PFC	2006	9.4	None
4303	East Fork Bear	R-263	Cottonwood /snowberry (CT)	PFC	2012	8.1	None
4303	Buggy Creek	R-450	Spikesedge (CT) hairgrass/sedge (HT) Western wheat (HT)	FAR- upward	2006	4.3	None- continue to monitor
4303	Buggy Creek	R-582	Snowberry (CT) western wheat (HT)	PFC	2012	2.4	None
4303	Buggy Creek	R-119	Snowberry (CT) western wheat (HT)	* PFC-upward	2012	3.61	None
4303	Unger Coulee	R-115	Snowberry (CT) western wheat (HT)	PFC	2012	3.6	None
4303	Canyon Creek	R-583	Rose/snowberry (CT) Western wheat (HT)	PFC	2012	2.7	None
4303	Brush Fork Bear Creek	R-114A	Western wheat (HT)	PFC	2012	4.8	None
4303	Crooked Creek	R-290	Spikesedge (CT)	PFC	2012	3.4	None
4303	West Fork Canyon Creek	R-315	Rose/snowberry (CT) Western wheat (HT)	PFC	2012	4.8	None
4303	Bear Creek	R-118	Rose/snowberry (CT) Western wheat (HT)	PFC	2010	0.7	None

The following streams were classified as ephemeral and were not assessed for functional status: Wolf Creek, Spring Creek, Alkali Coulee, Uhlan Coulee, East Fork Cherry Creek, School Section Coulee, Chapman Coulee, Mooney Coulee, Richardson Coulee. Photo points were established on these streams for monitoring purposes.

Table 6. Water Right Owners and Purposes in the Porcupine – Buggy Watershed, Valley County, Montana.

Water Right Owners

DOI – BLM (339 Water Rights)	Private / Commercial (263 Water Rights)
Valley County (3 Water Rights)	State of Montana (148 Water Rights)
USDA (1 Water Right)	

Water Right Purposes

Agricultural Spraying (3 Water Rights)	Irrigation (33 Water Rights)
Commercial (1 Water Right)	Municipal (1 Water Right)
Industrial (3 Water Rights)	Domestic (20 Water Rights)
Multiple Domestic (1 Water Right)	Stock (579 Water Rights)
Fish and Wildlife (4 Water Rights)	Wildlife (102 Water Rights)
Wildlife/Waterfowl (7 Water Rights)	

Table 7. BLM Wetlands Identified in the Porcupine – Buggy Watershed, Valley County, Montana.

<u>System</u>	<u>Class</u>	<u>Regime</u>	<u>Modifier</u>	<u>Attribute & Acres</u>
Palustrine, Unconsolidated Shore,		Seasonally Flooded,	Excavated	(PUSC: 0.055 acres)
Palustrine, Unconsolidated Bottom,		Semipermanently Flooded,	Excavated	(PUBF: 6.258 acres)
Palustrine, Scrub-Shrub,		Temporarily Flooded		(PSSA: 0.835 acres)
Palustrine, Forested,		Temporarily Flooded,	Diked/Impounded	(PFOA: 2.251 acres)
Palustrine, Emergent,		Semipermanently Flooded,	Diked/Impounded	(PEMF: 7.602 acres)
Palustrine, Emergent,		Seasonally Flooded,	Diked/Impounded	(PEMCh: 22.620 acres)
Palustrine, Emergent,		Seasonally Flooded		(PEMC: 13.283 acres)
Palustrine, Emergent,		Saturated		(PEMB: 8.092 acres)
Palustrine, Emergent,		Temporarily Flooded,	Diked/Impounded	(PEMAh: 71.586 acres)
Palustrine, Emergent,		Temporarily Flooded		(PEMA: 245.490 acres)
Palustrine, Aquatic Bed,		Semipermanently Flooded,	Diked/Impounded	(PABFh: 118.492 acres)
Palustrine, Aquatic Bed,		Semipermanently Flooded		(PABF: 9.368 acres)

Table 9. Relative Abundance (number and percent of points) of Detection for Nine Grassland Bird Species: North Valley County 2001-2005 (n = number of points sampled/year were the same for the first two years, and varied thereafter).

Species Common Name	2001 n=207 (%)	2002 n=207 (%)	2003 n=189 (%)	2004 n=195 (%)	2005 n=195 (%)	TOTAL n=996	Overall %	X(SD)
Western Meadowlark	155 (74.9)	194 (93.7)	165 (87.3)	186 (95.4)	190 (96.0)	890	89.4%	178.0/ 17.04
<u>Chestnut-collared Longspur</u>	170 (82.1)	168 (81.2)	162 (85.7)	167(85.6)	172 (86.9)	839	84.2%	167.8/ 3.77
Horned Lark	162 (78.3)	168 (81.2)	146 (77.2)	159 (81.5)	152 (76.8)	787	79.0%	157.4/ 8.59
<u>Sprague's Pipit</u>	126 (60.9)	157 (75.8)	153 (81.0)	160 (82.1)	158 (79.8)	754	75.7%	150.8/ 14.09
<u>Baird's Sparrow</u>	67 (32.4)	79 (38.2)	102 (54.0)	93 (47.7)	85 (42.9)	426	42.8%	85.2/1 3.35
Vesper Sparrow	46 (22.2)	60 (29.0)	56 (29.6)	53 (27.2)	37 (18.7)	252	25.3%	50.4/9. 07
<u>Lark Bunting</u>	18 (8.7)	83 (40.1)	34 (18.0)	17 (8.7)	37 (18.7)	189	19.0%	37.8/2 6.85
<u>McCown's Longspur</u>	29 (14.0)	34 (16.4)	35 (18.5)	34 (17.4)	50 (25.3)	182	18.3%	36.4/7. 96
<u>Long-billed Curlew</u>	34 (16.4)	46 (22.2)	32 (16.9)	27 (13.8)	40 (20.2)	179	18.0%	35.8/7. 36
Marbled Godwit	22 (10.6)	40 (19.3)	25 (13.2)	40 (20.5)	50 (25.3)	177	17.8%	35.4/1 1.65

Species underlined are state Species of Concern. Marbled Godwit is a BLM Sensitive Species.

Table 10. Bird Species that were Banded and Observed during the Monitoring Avian Productivity and Survivorship Study in 2007 and 2009 in Valley County, Montana.

MAPS species list					
Species	Code	Banded 2007	Banded 2009	Observed 2007	Observed 2009
American Kestrel	MAKE			x	x
American Goldfinch	AMGO	x	x	x	x
American Robin	AMRO	x	x	x	x
Baltimore Oriole	BAOR			x	x
Black and White Warbler	BAWW	x		x	
Black Capped Chickadee	BCCH	x		x	x
Brown-headed Cowbird	BHCO	x	x	x	x

Black-billed Cuckoo	BBCU				x
Brown Thrasher	BRTH	x	x	x	x
Cedar Waxwing	CEDW	x		x	x
Chipping Sparrow	CHSP	x	x	x	x
Common Nighthawk	CONI			x	x
Clay-colored Sparrow	CLSP		x	x	x
Downy Woodpecker	DOWO	x		x	x
Eastern Kingbird	EAKI		x	x	x
Field Sparrow	FISP	x	x	x	x
House Wren	HOWR	x		x	x
Killdeer	KILL			x	x
Lark Sparrow	LASP		x	x	x
Least Flycatcher	LEFL	x	x	x	x
Mourning Dove	MODO			x	x
Northern Flicker	NOFL	x		x	x
Song Sparrow	SOSP		x		x
Sharp-tailed Grouse	STGR			x	x
Spotted Towhee	SPTO	x	x	x	x
Warbling Vireo	WAVI			x	x
Western Kingbird	WEKI	x		x	x
Western Meadowlark	WEME		x	x	x
Yellow Breasted Chat	YBCH	x		x	
Yellow Warbler	YWAR	x	x	x	x

Table 11. Animal Species List^{†*} for the Porcupine-Bugby Watershed, Valley County, Montana (MNHP).

Mammals	
Common Name	Scientific Name
American Mink	Mustela vison
Badger	Taxidea taxus
Beaver	Castor canadensis
Big Brown Bat	Eptesicus fuscus
Black-tailed Prairie Dog	Cynomys ludovicianus
Bobcat	Lynx rufus
Coyote	Canis latrans
Deer Mouse	Peromyscus maniculatus
Eastern Red Bat	Lasiurus borealis
Elk	Cervus canadensis
Gray Wolf	Canis lupus
Hoary Bat	Lasiurus cinereus
Least Weasel	Mustela nivalis
Little Brown Myotis	Myotis lucifugus

Long-legged Myotis	Myotis volans
Long-tailed Weasel	Mustela frenata
Masked Shrew	Sorex cinereus
Meadow Vole	Microtus pennsylvanicus
Mule Deer	Odocoileus hemionus
Prairie Vole	Microtus ochrogaster
Pronghorn	Antilocapra americana
Raccoon	Procyon lotor
Red Fox	Vulpes vulpes
Richardson's Ground Squirrel	Urocyon richardsonii
Silver-haired Bat	Lasiurus noctivagus
Striped Skunk	Mephitis mephitis
Swift Fox	Vulpes velox
Western Small-footed Myotis	Myotis ciliolabrum
White-footed Mouse	Peromyscus leucopus
White-tailed Deer	Odocoileus virginianus
White-tailed Jack Rabbit	Lepus townsendii

Birds	
American Avocet	Recurvirostra americana
American Bittern	Botaurus lentiginosus
American Coot	Fulica americana
American Crow	Corvus brachyrhynchos
American Goldfinch	Spinus tristis
American Kestrel	Falco sparverius
American Redstart	Setophaga ruticilla
American Robin	Turdus migratorius
American White Pelican	Pelecanus erythrorhynchos
American Wigeon	Anas americana
Baird's Sparrow	Ammodramus bairdii
Bald Eagle	Haliaeetus leucocephalus
Baltimore Oriole	Icterus galbula
Bank Swallow	Riparia riparia
Barn Swallow	Hirundo rustica
Belted Kingfisher	Megasceryle alcyon
Black Tern	Chlidonias niger
Black-billed Cuckoo	Coccyzus erythrophthalmus
Black-billed Magpie	Pica hudsonia
Black-capped Chickadee	Poecile atricapillus
Black-headed Grosbeak	Pheucticus melanocephalus
Black-throated Green Warbler	Setophaga virens
Blue-winged Teal	Anas discors
Bobolink	Dolichonyx oryzivorus
Bohemian Waxwing	Bombycilla garrulus

Brewer's Blackbird	Euphagus cyanocephalus
Brewer's Sparrow	Spizella breweri
Brown Thrasher	Toxostoma rufum
Brown-headed Cowbird	Molothrus ater
Buff-breasted Sandpiper	Tryngites subruficollis
Bufflehead	Bucephala albeola
Bullock's Oriole	Icterus bullockii
Burrowing Owl	Athene cunicularia
California Gull	Larus californicus
Canada Goose	Branta canadensis
Canvasback	Aythya valisineria
Cedar Waxwing	Bombycilla cedrorum
Chestnut-collared Longspur	Calcarius ornatus
Chipping Sparrow	Spizella passerina
Clay-colored Sparrow	Spizella pallida
Cliff Swallow	Petrochelidon pyrrhonota
Common Grackle	Quiscalus quiscula
Common Merganser	Mergus merganser
Common Nighthawk	Chordeiles minor
Common Redpoll	Acanthis flammea
Common Tern	Sterna hirundo
Common Yellowthroat	Geothlypis trichas
Cooper's Hawk	Accipiter cooperii
Double-crested Cormorant	Phalacrocorax auritus
Downy Woodpecker	Picoides pubescens
Eared Grebe	Podiceps nigricollis
Eastern Bluebird	Sialia sialis
Eastern Kingbird	Tyrannus tyrannus
European Starling	Sturnus vulgaris
Ferruginous Hawk	Buteo regalis
Field Sparrow	Spizella pusilla
Franklin's Gull	Leucophaeus pipixcan
Gadwall	Anas strepera
Golden Eagle	Aquila chrysaetos
Golden-crowned Kinglet	Regulus satrapa
Grasshopper Sparrow	Ammodramus savannarum
Gray Catbird	Dumetella carolinensis
Gray Partridge	Perdix perdix
Great Blue Heron	Ardea herodias
Great Horned Owl	Bubo virginianus
<i>Greater Sage-Grouse</i>	<i>Centrocercus urophasianus</i>
Greater Scaup	Aythya marila
Green-winged Teal	Anas crecca
Hairy Woodpecker	Picoides villosus

Hooded Merganser	<i>Lophodytes cucullatus</i>
Horned Grebe	<i>Podiceps auritus</i>
Horned Lark	<i>Eremophila alpestris</i>
House Finch	<i>Haemorhous mexicanus</i>
House Sparrow	<i>Passer domesticus</i>
House Wren	<i>Troglodytes aedon</i>
Killdeer	<i>Charadrius vociferus</i>
Lark Bunting	<i>Calamospiza melanocorys</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Least Flycatcher	<i>Empidonax minimus</i>
Lesser Goldfinch	<i>Spinus psaltria</i>
Lesser Scaup	<i>Aythya affinis</i>
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Long-billed Curlew	<i>Numenius americanus</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Mallard	<i>Anas platyrhynchos</i>
Marbled Godwit	<i>Limosa fedoa</i>
Marsh Wren	<i>Cistothorus palustris</i>
McCown's Longspur	<i>Rhynchophanes mccownii</i>
Merlin	<i>Falco columbarius</i>
Mountain Bluebird	<i>Sialia currucoides</i>
Mourning Dove	<i>Zenaida macroura</i>
Nelson's Sparrow	<i>Ammodramus nelsoni</i>
Northern Flicker	<i>Colaptes auratus</i>
Northern Flicker (Yellow-shafted)	<i>Colaptes auratus auratus</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Northern Harrier	<i>Circus cyaneus</i>
Northern Pintail	<i>Anas acuta</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Northern Shoveler	<i>Anas clypeata</i>
Northern Waterthrush	<i>Parkesia noveboracensis</i>
Orchard Oriole	<i>Icterus spurius</i>
Osprey	<i>Pandion haliaetus</i>
Ovenbird	<i>Seiurus aurocapilla</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Pine Grosbeak	<i>Pinicola enucleator</i>
Prairie Falcon	<i>Falco mexicanus</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
Red-eyed Vireo	<i>Vireo olivaceus</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
Red-necked Phalarope	<i>Phalaropus lobatus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>

Redhead	Aythya americana
Ring-billed Gull	Larus delawarensis
Ring-necked Duck	Aythya collaris
Ring-necked Pheasant	Phasianus colchicus
Rock Pigeon	Columba livia
Rock Wren	Salpinctes obsoletus
Ruddy Duck	Oxyura jamaicensis
Sandhill Crane	Grus canadensis
Savannah Sparrow	Passerculus sandwichensis
Say's Phoebe	Sayornis saya
Scarlet Tanager	Piranga olivacea
Sharp-shinned Hawk	Accipiter striatus
Sharp-tailed Grouse	Tympanuchus phasianellus
Short-eared Owl	Asio flammeus
Snow Bunting	Plectrophenax nivalis
Snow Goose	Chen caerulescens
Snowy Owl	Bubo scandiacus
Song Sparrow	Melospiza melodia
Sora	Porzana carolina
Spotted Sandpiper	Actitis macularius
Spotted Towhee	Pipilo maculatus
<i>Sprague's Pipit</i>	<i>Anthus spragueii</i>
Swainson's Hawk	Buteo swainsoni
Swainson's Thrush	Catharus ustulatus
Swamp Sparrow	Melospiza georgiana
Tree Swallow	Tachycineta bicolor
Turkey Vulture	Cathartes aura
Upland Sandpiper	Bartramia longicauda
Vesper Sparrow	Poocetes gramineus
Warbling Vireo	Vireo gilvus
Western Grebe	Aechmophorus occidentalis
Western Kingbird	Tyrannus verticalis
Western Meadowlark	Sturnella neglecta
Western Tanager	Piranga ludoviciana
Western Wood-Pewee	Contopus sordidulus
White-breasted Nuthatch	Sitta carolinensis
White-crowned Sparrow	Zonotrichia leucophrys
White-throated Sparrow	Zonotrichia albicollis
Wild Turkey	Meleagris gallopavo
Willet	Tringa semipalmata
Willow Flycatcher	Empidonax traillii
Wilson's Phalarope	Phalaropus tricolor
Wilson's Snipe	Gallinago delicata
Wilson's Warbler	Cardellina pusilla

Wood Duck	Aix sponsa
Yellow Warbler	Setophaga petechia
Yellow-breasted Chat	Icteria virens
Yellow-headed Blackbird	Xanthocephalus xanthocephalus
Yellow-rumped Warbler	Setophaga coronata

Reptiles	
Eastern Racer	Coluber constrictor
Gophersnake	Pituophis catenifer
Greater Short-horned Lizard	Phrynosoma hernandesi
Painted Turtle	Chrysemys picta
Plains Gartersnake	Thamnophis radix
Prairie Rattlesnake	Crotalus viridis

Amphibians	
Barred Tiger Salamander	Ambystoma mavortium
Boreal Chorus Frog	Pseudacris maculata
Great Plains Toad	Anaxyrus cognatus
Northern Leopard Frog	Lithobates pipiens
Plains Spadefoot	Spea bombifrons

Fish	
Bigmouth Buffalo	Ictiobus cyprinellus
Black Bullhead	Ameiurus melas
Black Crappie	Pomoxis nigromaculatus
Blue Sucker	Cycleptus elongatus
Bluegill	Lepomis macrochirus
Burbot	Lota lota
Channel Catfish	Ictalurus punctatus
Common Carp	Cyprinus carpio
Creek Chub	Semotilus atromaculatus
Emerald Shiner	Notropis atherinoides
Fathead Minnow	Pimephales promelas
Flathead Chub	Platygobio gracilis
Freshwater Drum	Aplodinotus grunniens
Goldeye	Hiodon alosoides
Iowa Darter	Etheostoma exile
Lake Chub	Couesius plumbeus
Lake Whitefish	Coregonus clupeaformis
Largemouth Bass	Micropterus salmoides
Longnose Dace	Rhinichthys cataractae
Longnose Sucker	Catostomus catostomus
Northern Pike	Esox lucius
Paddlefish	Polyodon spathula

Plains Minnow	<i>Hybognathus placitus</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
River Carpsucker	<i>Carpoides carpio</i>
Sauger	<i>Sander canadensis</i>
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>
Shovelnose Sturgeon	<i>Scaphirhynchus platyrhynchus</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
Smallmouth Buffalo	<i>Ictiobus bubalus</i>
Spottail Shiner	<i>Notropis hudsonius</i>
Stonecat	<i>Noturus flavus</i>
Walleye	<i>Sander vitreus</i>
White Crappie	<i>Pomoxis annularis</i>
White Sucker	<i>Catostomus commersoni</i>
Yellow Perch	<i>Perca flavescens</i>

Invertebrates	
Aphrodite Fritillary	<i>Speyeria aphrodite</i>
Boreal Bluet	<i>Enallagma boreale</i>
Cabbage White	<i>Pieris rapae</i>
Cherry-faced Meadowhawk	<i>Sympetrum internum</i>
Clouded Sulphur	<i>Colias philodice</i>
Common Branded Skipper	<i>Hesperia comma</i>
Common Checkered-Skipper	<i>Pyrgus communis</i>
Common Green Darner	<i>Anax junius</i>
Common Ringlet	<i>Coenonympha tullia</i>
Eastern Forktail	<i>Ischnura verticalis</i>
Fatmucket	<i>Lampsilis siliquoidea</i>
Giant Floater	<i>Pyganodon grandis</i>
Hagen's Bluet	<i>Enallagma hageni</i>
Lance-tipped Darner	<i>Aeshna constricta</i>
Lyre-tipped Spreadwing	<i>Lestes unguiculatus</i>
Marsh Bluet	<i>Enallagma ebrium</i>
Melissa Blue	<i>Plebejus melissa</i>
Milbert's Tortoiseshell	<i>Aglais milberti</i>
Northern Bluet	<i>Enallagma annexum</i>
Northern Spreadwing	<i>Lestes disjunctus</i>
Paddle-tailed Darner	<i>Aeshna palmata</i>
Pale Snaketail	<i>Ophiogomphus severus</i>
Pearl Crescent	<i>Phyciodes tharos</i>
Prairie Bluet	<i>Coenagrion angulatum</i>
Queen Alexandra's Sulphur	<i>Colias alexandra</i>
Red-veined Meadowhawk	<i>Sympetrum madidum</i>
Saffron-winged Meadowhawk	<i>Sympetrum costiferum</i>
Spotted Spreadwing	<i>Lestes congener</i>

Striped Meadowhawk	<i>Sympetrum pallipes</i>
Tule Bluet	<i>Enallagma carunculatum</i>
Twelve-spotted Skimmer	<i>Libellula pulchella</i>
Variable Darner	<i>Aeshna interrupta</i>
Variegated Fritillary	<i>Euptoieta claudia</i>
Variegated Meadowhawk	<i>Sympetrum corruptum</i>
Virile Crayfish	<i>Orconectes virilis</i>
White-faced Meadowhawk	<i>Sympetrum obtrusum</i>

[†]BLM Sensitive Species in bold red

*Candidate Species in italicized red

Table 12. Allotment Number, Name and Findings/Recommendations for the Wildlife Habitat/Biodiversity Standard.

Allotment Number and Name	Finding/Recommendations
03354 N. Porcupine Creek	Meeting the wildlife habitat/biodiversity standard
4059 Wards Dam	Meeting the wildlife habitat/biodiversity standard;
4061 Lower West Porcupine	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4069 Lower Unger Coulee	Not meeting the wildlife habitat/biodiversity standard due to crested wheatgrass; consider grassland birds during project planning
4078 Upper Lime Creek	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4079 South Lime Creek	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4081	Meeting the wildlife habitat/biodiversity standard
4082 Black Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4084	Meeting the wildlife habitat/biodiversity standard;
4087 Lower Lime Creek	Meeting the wildlife habitat/biodiversity standard;
4088 Ellsworth Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4089 Alkali Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4090 Lower Alkali Creek	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4091 Lower Bear Creek	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4092 Upper Unger Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4095	Meeting the wildlife habitat/biodiversity standard;
4096	Meeting the wildlife habitat/biodiversity standard;

4098	Meeting the wildlife habitat/biodiversity standard;
4200 Lower Porcupine Creek	Meeting the wildlife habitat/biodiversity standard;
4201	Meeting the wildlife habitat/biodiversity standard;
4202 Lenz Coulee	Meeting the wildlife habitat/biodiversity standard;
4300 Dry Fork	Meeting the wildlife habitat/biodiversity standard;
4301 Upper Buggy Creek	Meeting the wildlife habitat/biodiversity standard but may be at risk within pasture 1; consider grassland birds during project planning
4303 Buggy Creek	Meeting the wildlife habitat/biodiversity standard; maintain or develop habitat for waterfowl; consider grassland birds during project planning
4304 Porcupine Creek	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4307 Lower Spring Creek	Meeting the wildlife habitat/biodiversity standard;
4308 Spring Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
4309 Westfork	Meeting the wildlife habitat/biodiversity standard; maintain or develop habitat for sage grouse
4310 North Westfork	Meeting the wildlife habitat/biodiversity standard;
14100	Meeting the wildlife habitat/biodiversity standard;
14101 Antelope Spring	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
14102 Dry Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
14103	Meeting the wildlife habitat/biodiversity standard;
14104	Meeting the wildlife habitat/biodiversity standard;
1405	Meeting the wildlife habitat/biodiversity standard;
14106 Upper Richardson	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
14107	Meeting the wildlife habitat/biodiversity standard;
14108 Upper Martin Coulee	Meeting the wildlife habitat/biodiversity standard;
14109 Cherry Creek	Meeting the wildlife habitat/biodiversity standard; maintain or develop habitat for sage grouse
14110 Upper School Section	Meeting the wildlife habitat/biodiversity standard;
14111 Foss Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
14112 Upper Spring Creek	Meeting the wildlife habitat/biodiversity standard but may be at risk due to crested wheatgrass within pasture 1; consider grassland birds during project planning
14113 Spring Creek	Meeting the wildlife habitat/biodiversity standard;
14114 Lower Spring Coulee	Meeting the wildlife habitat/biodiversity standard;
14115	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
14116 Hawk Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning

14117 Chapman Coulee	Meeting the wildlife habitat/biodiversity standard;
14118 Mooney Coulee	Meeting the wildlife habitat/biodiversity standard;
14119 Lowe Mooney Coulee	Meeting the wildlife habitat/biodiversity standard;
14121 Lower Cherry Creek	Meeting the wildlife habitat/biodiversity standard;
14122 Lower Foss Creek	Meeting the wildlife habitat/biodiversity standard;
14124 East Cherry Creek	Meeting the wildlife habitat/biodiversity standard;
14125 Lower Porcupine Creek	Meeting the wildlife habitat/biodiversity standard;
14127	Meeting the wildlife habitat/biodiversity standard;
14128 Middle Foss Coulee	Meeting the wildlife habitat/biodiversity standard; consider grassland birds during project planning
14129 Cherry Creek Forks	Meeting the wildlife habitat/biodiversity standard;

- The Section 15 Allotments, #'s 04205, 04206, 04207, 04655, 04656, 04657, 04660, 04662, 04663, 04665, were all assessed and deemed to be meeting the wildlife habitat/biodiversity standard.

APPENDIX 2- FIGURES

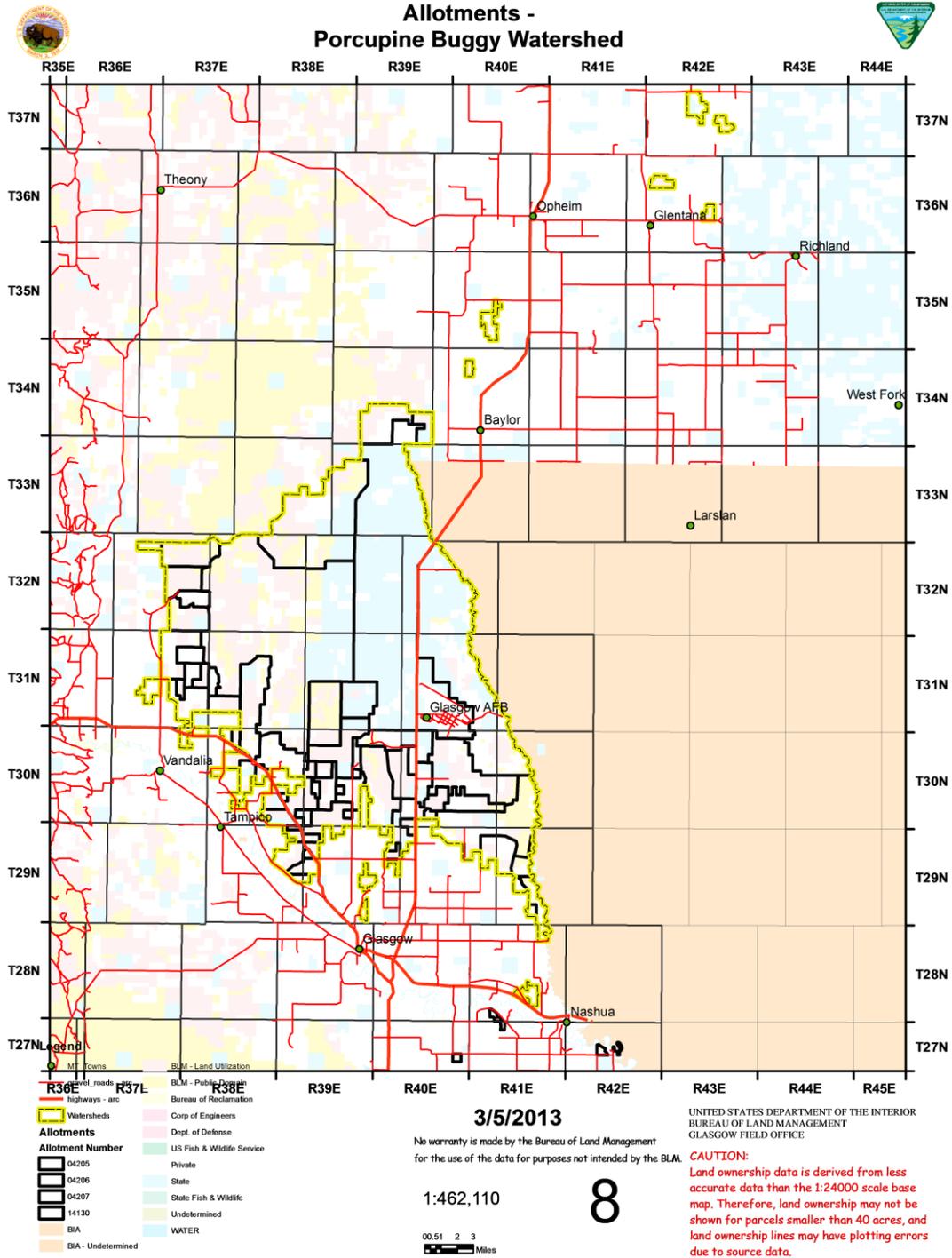


Figure 1. Boundaries of Watershed and Allotments within the Porcupine-Buggy Watershed in Valley County, Montana.

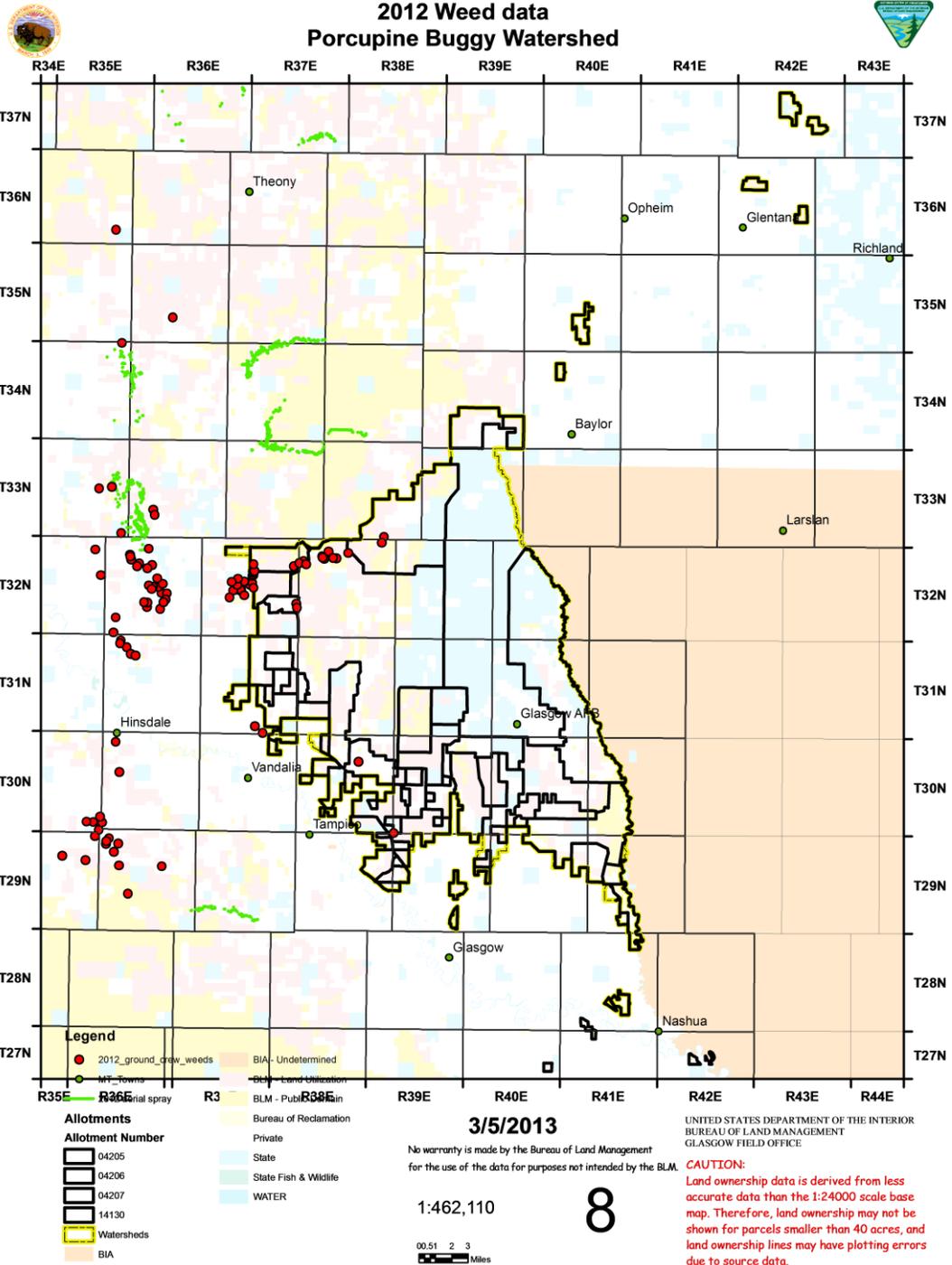


Figure 4. Location of Noxious Weed Infestations that were Treated Chemically in northern Valley County, Montana in 2012.



2012 Riparian Data Porcupine Buggy Watershed

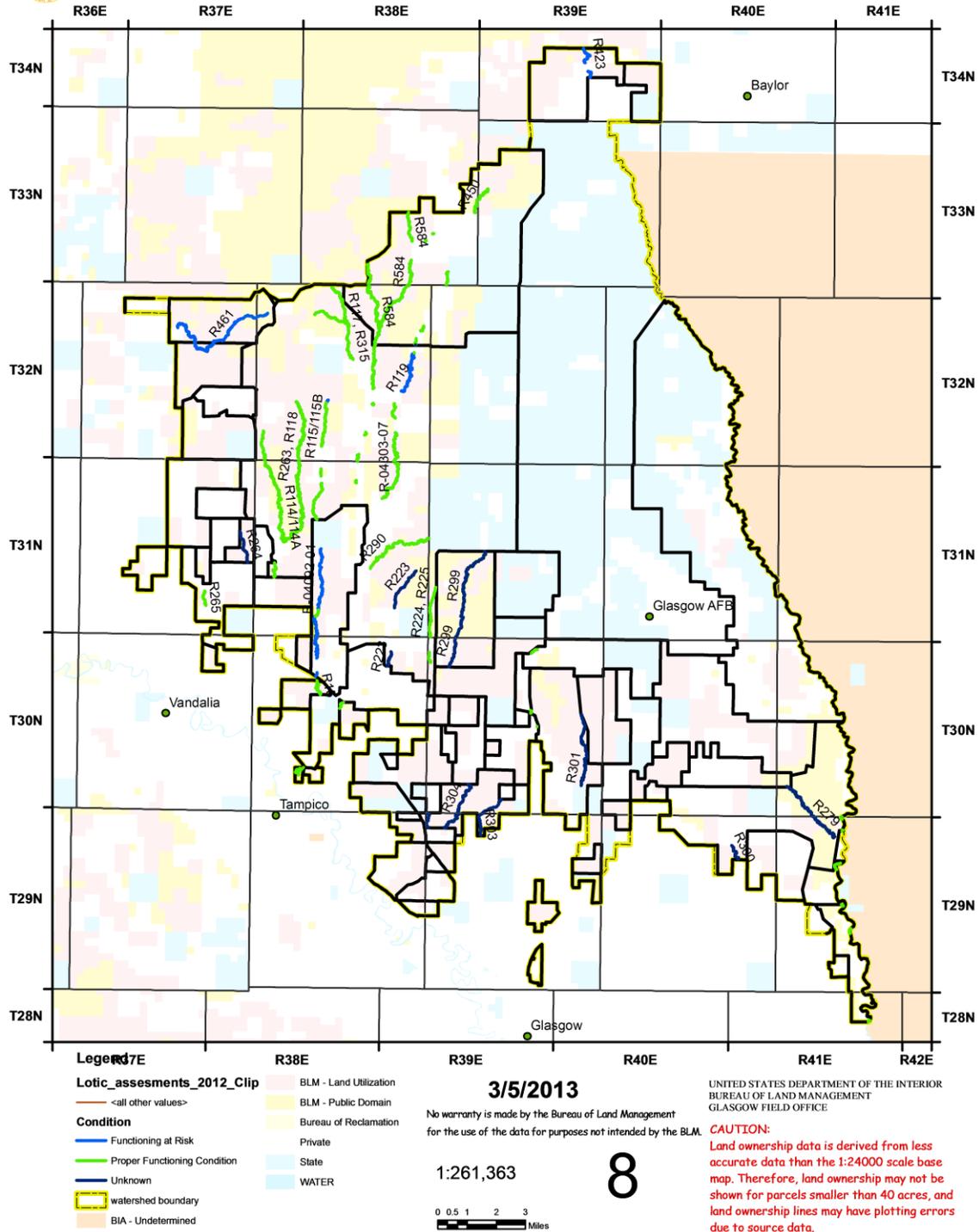
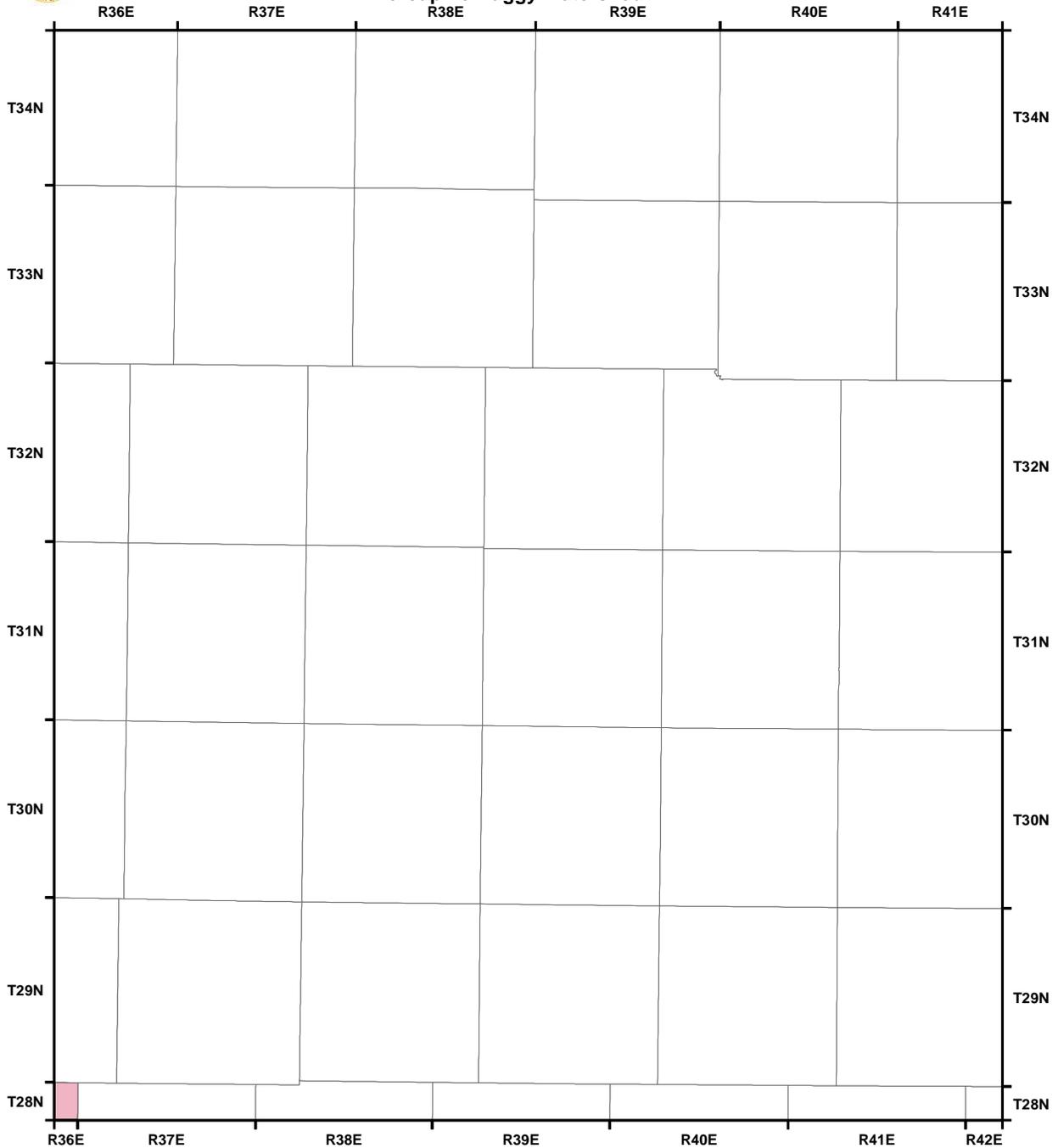


Figure 5. Determination of 2012 Riparian Trend Data for Stream Reaches in the Porcupine-Buggy Watershed in Valley County, Montana.



Sage Grouse Lek locations
and Core Area
Porcupine Buggy Watershed



Legend

- 2011 Sage Grouse Leks**
 - <all other values>
 - confirmed active
 - unknown
- Status**
 - BLM - Land Utilization
 - BLM - Public Domain
 - Bureau of Reclamation
 - STL
- Allotment Number**
 - 14130
 - Sage grouse core area
 - BIA - Undetermined

7/23/2013

No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

1:276,989



8

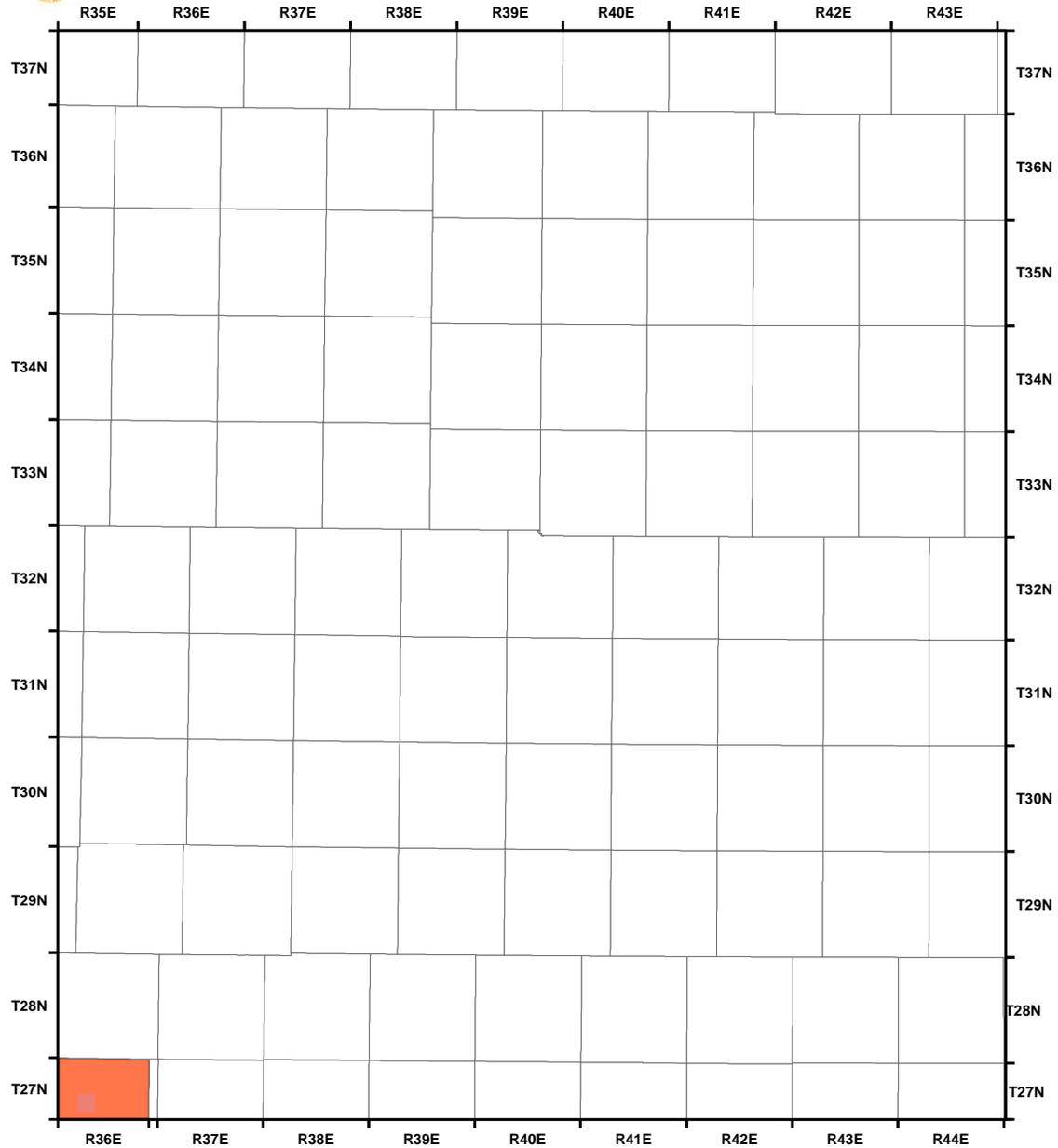
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
GLASGOW FIELD OFFICE

CAUTION:
Land ownership data is derived from less accurate data than the 1:24000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have plotting errors due to source data.

Figure 7. Status of Sage Grouse Leks in PBW and Identified Core Area



Pronghorn Antelope Winter Range
Porcupine Buggy Watershed



Legend

- | | |
|-------------------------|------------------------|
| Allotment Number | BLM - Land Utilization |
| 04205 | BLM - Public Domain |
| 04206 | Bureau of Reclamation |
| 04207 | STL |
| 14130 | Antelope_WR |
| BIA - Undetermined | |

7/23/2013

No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

1:464,865

00.51 2 3 Miles

8

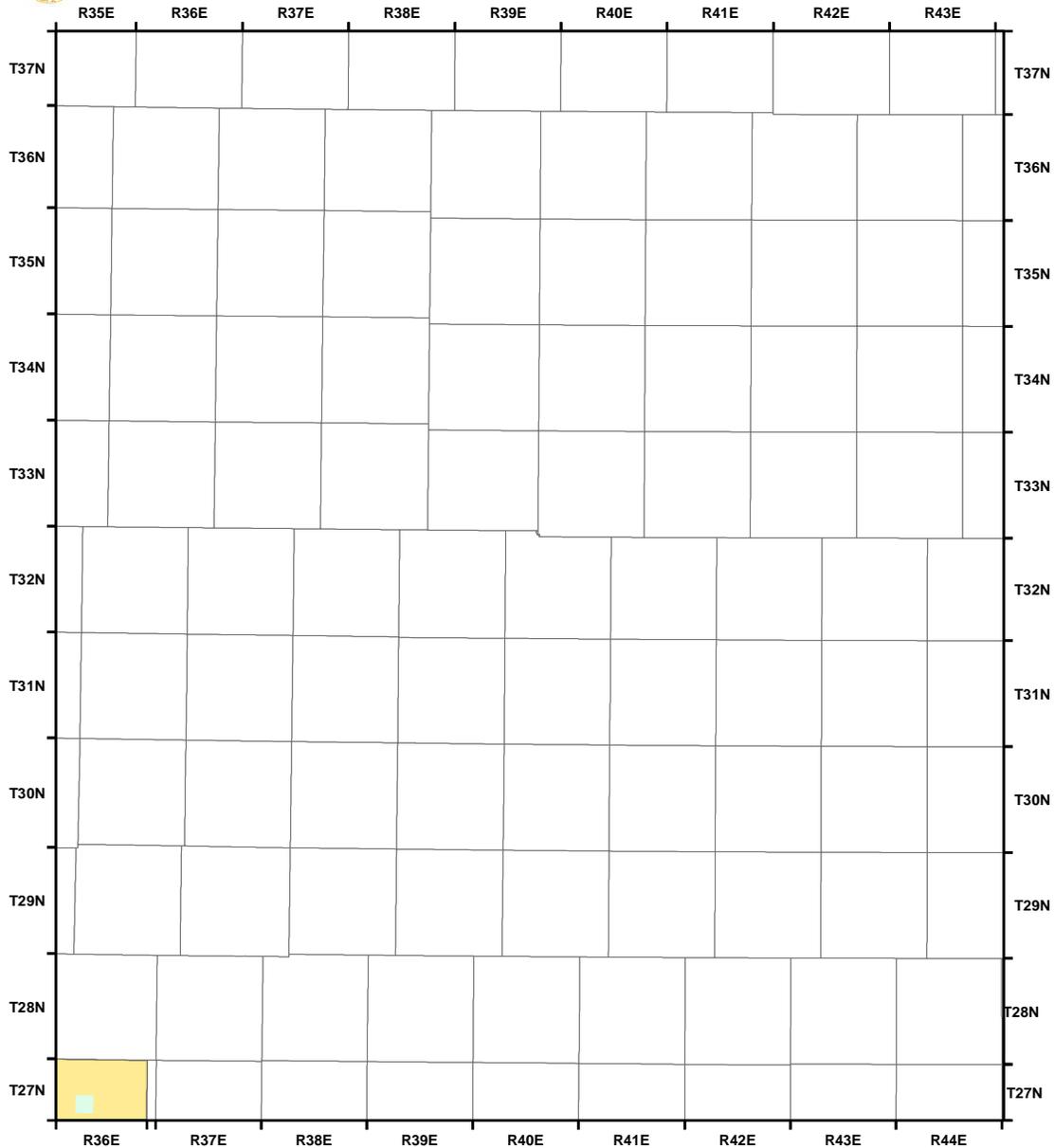
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
GLASGOW FIELD OFFICE

CAUTION:
Land ownership data is derived from less accurate data than the 1:24000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have plotting errors due to source data.

Figure 10. Winter Range for Pronghorn Antelope within the Porcupine-Buggy Watershed in Valley County, Montana.



Mule Deer Winter Range Porcupine Buggy Watershed



Legend

	04205		BLM - Land Utilization
	04206		BLM - Public Domain
	04207		Bureau of Reclamation
	14130		STL
	BIA - Undetermined		MuleDeer_WR

7/23/2013

No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

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GLASGOW FIELD OFFICE

1:464,865

8

00.51 2 3 Miles

CAUTION:
Land ownership data is derived from less accurate data than the 1:24000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have plotting errors due to source data.

Figure 11. Mule Deer Winter Range within the Porcupine-Buggy Watershed in Valley County, Montana.

APPENDIX 4. UPLAND TREND PHOTOS (1-16)



1970- Allotment 4078 -CS-2 3x3



1980- Allotment 4078 -CS-2 3x3



1989- Allotment 4078 -CS-2 3x3



2012- Allotment 4078 -CS-2 3x3



1970- Allotment 4078 CS-2



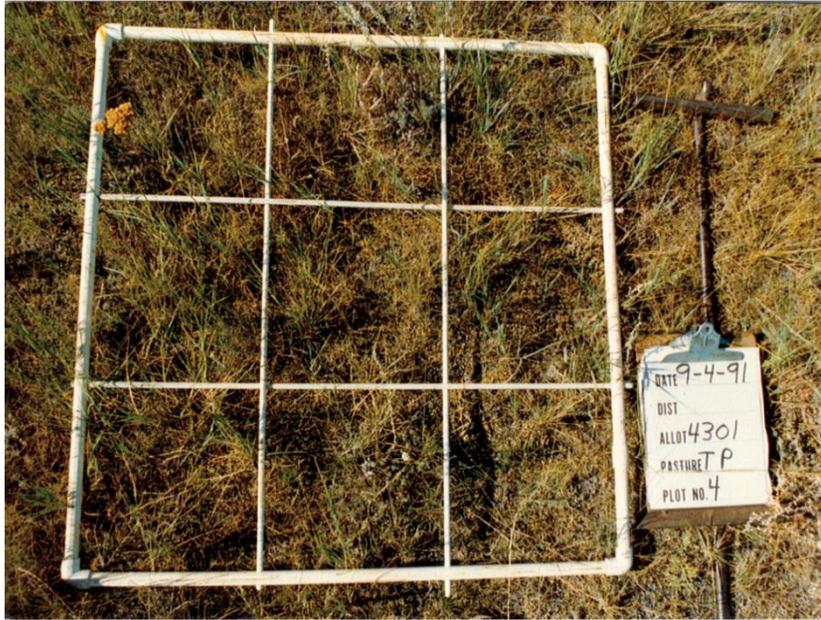
1980- Allotment 4078 CS-2



1989- Allotment 4078 CS-2



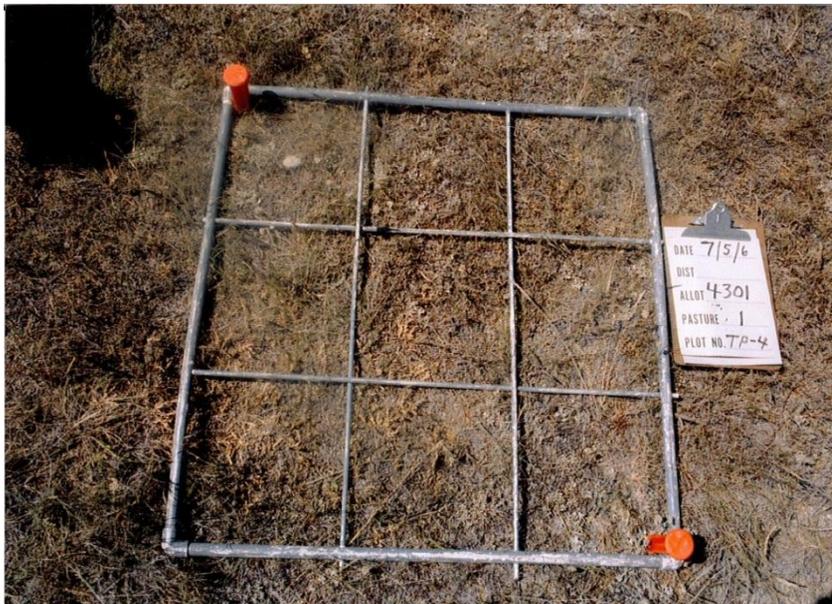
2012- Allotment 4078 CS-2



1991- Allotment 4301 TP-4, 3x3



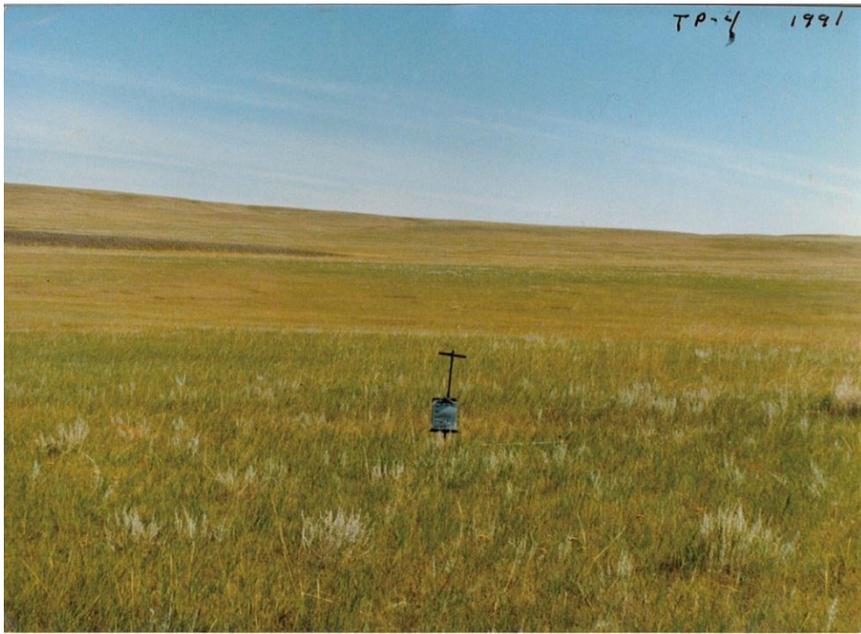
2000- Allotment 4301 TP-4, 3x3



2006- Allotment 4301 TP-4, 3x3



2012- Allotment 4301 TP-4, 3x3



1991- Allotment 4301 TP-4



2000- Allotment 4301 TP-4 . 3x3

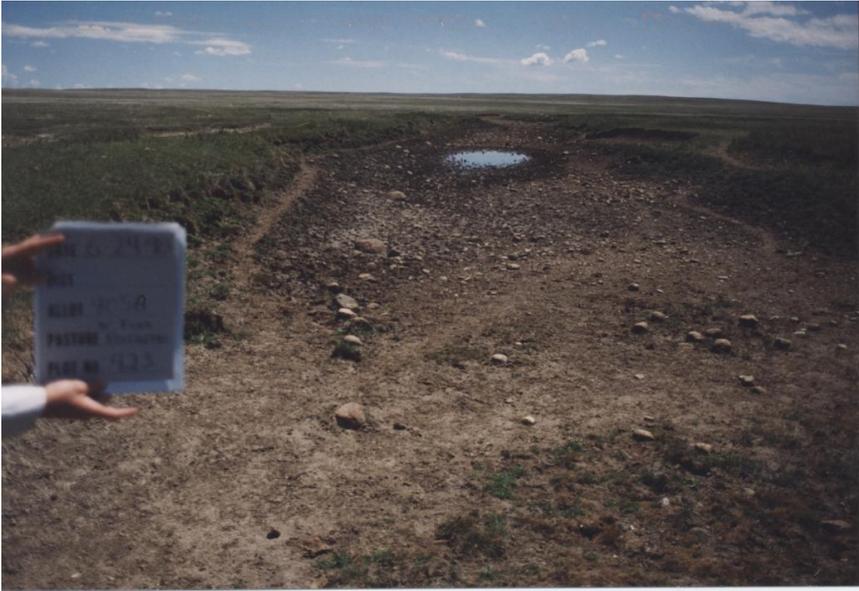


2006- Allotment 4301 TP-4 , 3x3



2012- Allotment 4301 TP-4 , 3x3

APPENDIX 5: RIPARIAN PHOTOS 17-32



1998- Allotment 4059 / R-423



2002- Allotment 4059 / R-423



2006- Allotment 4059 / R-423



2012- Allotment 4059 / R-423



1998- Allotment 4059 / R-423



2002- Allotment 4059 / R-423



2006- Allotment 4059 / R-423



2012- Allotment 4059 / R-423



1995- Allotment 4303 / R-315



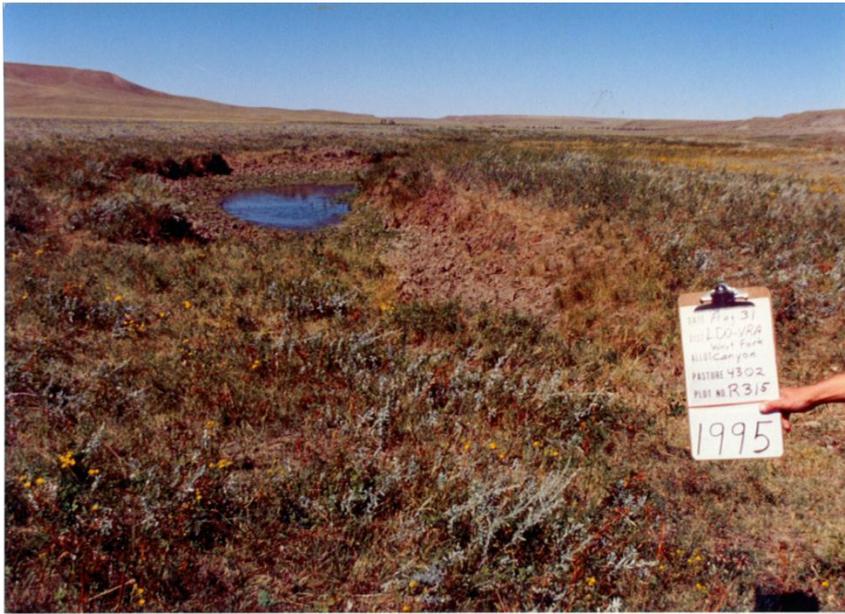
2002- Allotment 4303 / R-315



2006- Allotment 4303 / R-315



2012- Allotment 4303 / R-315



1995- Allotment 4303 / R-315



2002- Allotment 4303 / R-315



2006 - Allotment 4303 / R-315



2012- Allotment 4303 / R-315