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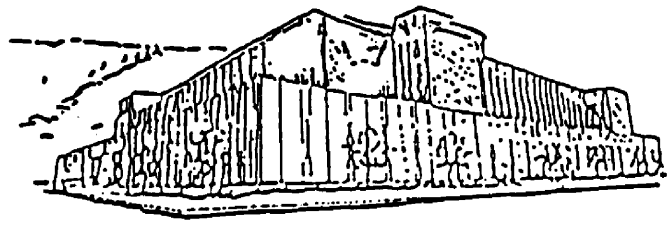
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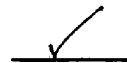
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**Evaluation of Wetland Health of Prairie Potholes at the
Bandy Ranch
Ovando, Montana**

Alice M. Santos

B.A. Bucknell University, 1988

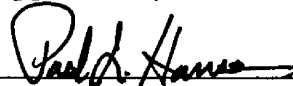
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Degree of Master of Science

University of Montana

1999

Approved by



Chairperson



Dean of the Graduate School

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Evaluation of Wetland Health of Prairie Potholes at the Bandy Ranch, Ovando, Montana
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ABSTRACT

Prior to the mid-1970s, the draining and destruction of wetlands was historically accepted, and encouraged in the United States. Recent recognition of wetland values and benefits provided has prompted nationwide concern regarding wetland preservation, restoration, and management. Livestock grazing has impacted the health of wetlands in many western regions of the country, including Montana.

Many health assessment studies have been conducted on riparian areas throughout the state of Montana. However, very little information is available on the health of the state's prairie potholes, or on their reaction to disturbances like cattle grazing. Prairie potholes are shallow, still water (lentic) wetlands that occur in glaciated regions of the North American Plains.

Two study areas were selected to conduct health inventories and assessments on prairie potholes: a pasture and a forested area at University of Montana's Bandy Ranch near Ovando, Montana. The Riparian Wetland Research Program (RWRP) developed the health inventory and assessment processes used in this study. This health assessment focuses on the degree to which wetlands perform certain wetland functions, such as sediment trapping, bank maintenance, water storage, aquifer recharge, wave energy dissipation, and primary biotic production. The RWRP lentic inventory and health assessment processes are based on the criteria associated with wetlands (hydrophytic vegetation, hydric soils, and wetland hydrology).

The inventory and health assessment process consists of collecting certain vegetation, soils, and hydrology data, identifying precipitation and grazing conditions, and calculating and analyzing health scores. Results of the health assessment of 44 prairie potholes at the ranch are shown in terms of indicators of health.

The results of this study indicate that seventy-one percent of the potholes inventoried at the Bandy Ranch are healthy. Thirty-three percent of the potholes inventoried were determined to be healthy with some problems performing some of their wetland functions. The causes of some of the problems are likely related to cattle grazing, wildlife use, and logging. This document discusses the inventories and health assessments of prairie potholes on the Bandy Ranch, the health assessment process as it can be applied to other pothole studies in the ecoregion, and an evaluation of the inventory and health assessment process.

ACKNOWLEDGEMENTS

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1.0 INTRODUCTION

Wetlands are a major, yet often overlooked, feature of the landscape. They provide some of the richest, most diverse ecosystems throughout the world. Prior to the mid-1970s, the draining and destruction of wetlands was historically accepted, and encouraged in the United States. Commercial and residential development, ranching, and agriculture have contributed to the nationwide abuse and an increasing loss of wetlands (Dahl 1990). Only recently have the values and benefits provided by wetlands been recognized. Wetland preservation, restoration, and management have become large concerns in the United States. Livestock grazing has impacted the health of wetlands in many western regions of the country, including Montana.

Numerous studies (Armour and others 1995; Ehrhart and Hansen 1997 and 1998¹; and Marlow and others 1991) have been conducted evaluating grazing impacts along riparian areas. However, there is currently little information regarding grazing effects on still water (lentic) wetlands, such as prairie potholes. Prairie potholes are depressional lentic wetlands that primarily occur in glaciated areas. Potholes are shallow, marsh-like ponds that are typically less than 20 acres in size (Hansen and others 1995). They are most commonly found in the North American plains.

Although prairie potholes are small in size, the benefits that come from a functioning system are numerous. Important functions of prairie wetlands include sediment trapping,

bank maintenance, water storage, aquifer recharge, wave energy dissipation, primary biotic production, as well as being valuable to wildlife habitat, particularly waterfowl (Hansen and others 1995; USFW 1999). Pothole preservation and restoration is particularly important because the presence of numerous small wetlands can often provide greater function than large wetlands totaling the same acreage (USFW 1999). Ongoing threats (such as development, grazing, and agriculture) to the functions and benefits of these systems, have prompted nationwide concern and attention. As a response, numerous wetland assessment procedures have been developed and are being used throughout the country for a variety of different purposes including land management, regulatory, planning, and education.

Many potholes can be found on the University of Montana's Experimental Bandy Ranch near Ovando, Montana. Because the University of Montana controls the management of this ranch, it provides an excellent site to study how grazing affects the health and composition of prairie potholes in this region. The study conducted at the Bandy Ranch included the use of the Riparian Wetland Research Program (RWRP) Lentic Inventory and Health Evaluation processes. It is hopeful that the information provided in this study can be applied to other studies of prairie potholes.

¹ These two publications reference many of the studies conducted on grazing effects and management techniques in riparian zones.

1.1 PURPOSE

The purpose of this study is to answer the following questions:

- What was the health/condition of the prairie potholes in the southern pasture and forested area of the Bandy Ranch in 1997?
- How did weather and grazing strategies affect the conditions of health in that year?
- How can the assessment of pothole health in 1997 be helpful to current and future grazing strategies and ranch management decisions?
- How can the assessment of pothole health in 1997 be useful to other studies on the Bandy Ranch and in this ecoregion?

Obviously, water is important to the operation of the ranch. According to ranch managers, some years water is abundant and present in most of the potholes on the ranch, while other years water can only be found in a few of the potholes and in perennial creeks. Precipitation and grazing can play a role in water retention at the ranch. Ranch managers can evaluate climate data, grazing strategies, and health scores on an individual, inventory item, basis. From there a manager can determine if natural cyclical climate variations or human-caused factors have influenced the health score of a pothole and make appropriate management decisions to best maintain a balanced wetland system to promote the retention of water.

Grazing strategies may change at the ranch (because of research studies, water availability, number of cattle, etc.). Therefore, it is important to understand how grazing can affect the health of wetlands on the ranch. Pothole health is not affected by precipitation amounts;

however, precipitation will influence the vegetative composition of a site. Therefore precipitation data is valuable for inventory comparison purposes and monitoring.

The field research conducted at the ranch in 1997 will provide a baseline study of the vegetative composition and health of the potholes for ranch managers at the Bandy Ranch as well as others interested in conducting research on the pothole regions on the ranch. The Bandy Ranch potholes are expected to be used as reference systems for other land and water quality managers in this ecoregion. In addition, the inventory data is available on the internet in the RWRP website database² and may be used for more large-scale regional studies.

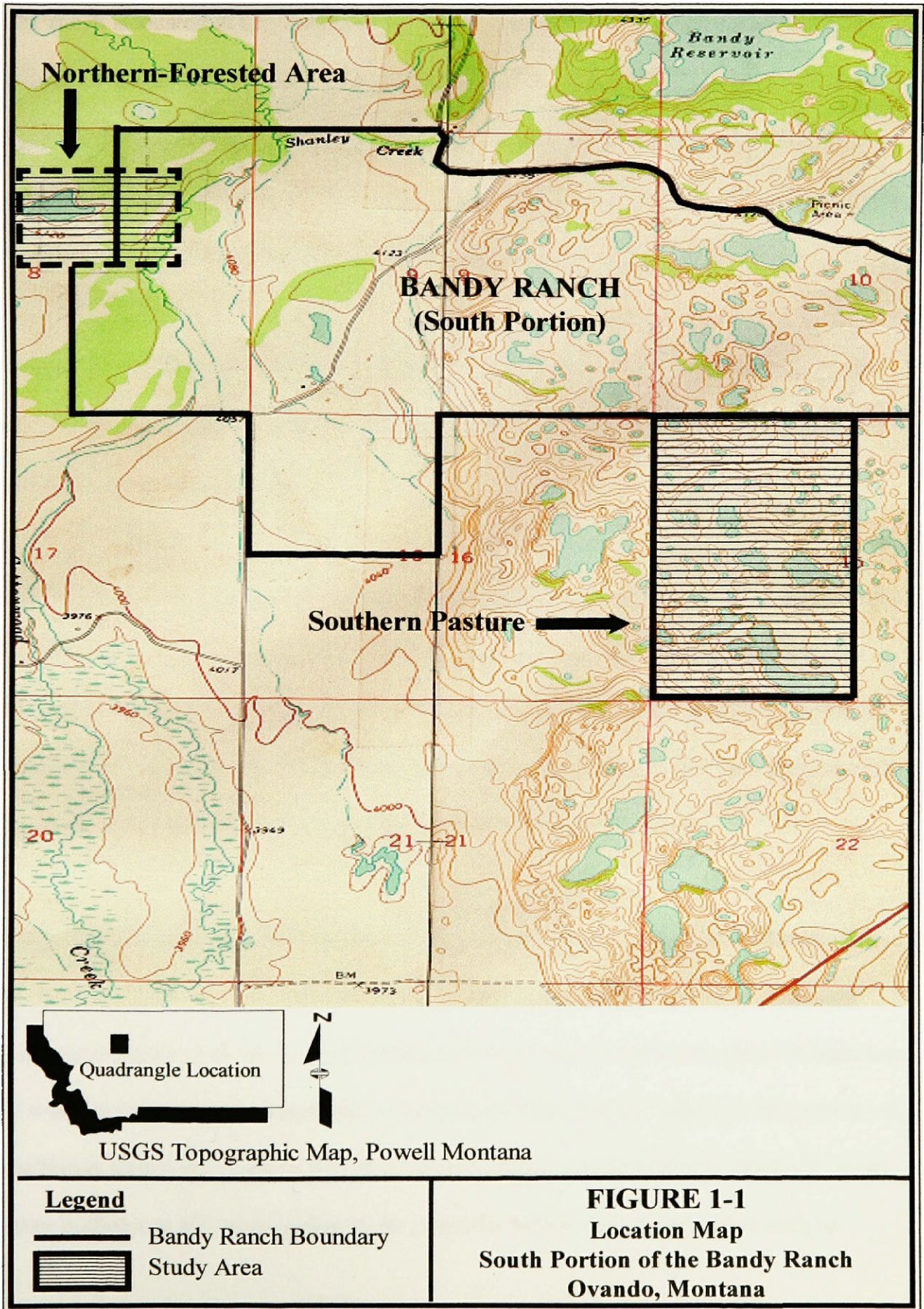
1.2 BACKGROUND ON THE BANDY RANCH

The Bandy Ranch is located in Powell County, north of Highway 200. The ranch is comprised of four separate parcels located to the north and south of Upsata Lake³. The southernmost portion of the ranch is located just south of the Bandy Reservoir in Township 15 North, Range 13 West, Sections 8, 9, 10, 15, and 16. The lentic inventories were conducted on prairie potholes in a pasture (western portion of Section 15) and a forested area (northwest portion of Section 8) of the ranch. Figure 1-1 shows the location of the Bandy Ranch and the two study areas.

² The RWRP database consists of a repository of data for lentic and lotic wetlands and can be accessed through their web site at <http://www.rwrp.umt.edu>.

³ Upsata Lake appears as "Opsata Lake" on the USGS topographic map presented in Figure 1-1.

The Bandy Ranch is currently an operating cattle ranch consisting of approximately 3,438 acres of land located in the northeast corner of Powell County. After his death in October 1989, Edward Bandy Jr. willed the Bandy Ranch to the University of Montana Forest Conservation Experiment Station. Shortly after, the Experiment Station took over management. The Bandy Ranch was officially probated to the University of Montana on July 18, 1991. The ranch was donated to the University of Montana with the sole intent of "conducting and supporting agricultural research and management, rangeland research and management, and timberland research and management" (Nimlos 1992). The ranch is operated cooperatively between the University of Montana and Montana State University.



The ranch is located in the Blackfoot River drainage. It is bordered to the west by the Blackfoot-Clearwater Wildlife Management Area, to the north by land owned by Plum Creek Timber, and to the east and south by private ranches. The property consists of approximately 1,827 acres of forested area, 284 acres of irrigated hay land, and 1,226 acres of native pasture and water (including a 50-acre reservoir – Bandy Reservoir).

There are two creeks and over 140 potholes located on the ranch. Potholes are present over the majority of the ranch – both in higher elevation, forested areas as well as lower elevation, grassland pastures.

The Bandy Ranch is located in a glacial moraine area, situated over Pleistocene materials as well as Miocene and Oligocene (Tertiary) lake deposits. Surveys conducted by the Natural Resource Conservation Service indicate that the soils in the southern portion of the ranch consist primarily of Mollisols. The soils in the northern, forested, portion of the ranch are predominantly Alfisols and Inceptisols (USFS 1996).

Prairie potholes are the dominant freshwater wetland systems at the Bandy Ranch. These depressional lentic, or still water wetlands, are common to glaciated areas. Although freshwater prairie potholes typically recharge surface water to groundwater, the main loss of water is due to evapotranspiration (Hansen and others 1995). Many of the potholes at the Bandy Ranch are seasonal (water present in spring/summer months); however, many other potholes at the ranch appear to be perennial. Hydrophytic vegetation such as

cattails, sedges, rushes, and other obligate and facultative wetland species dominate the majority of the potholes at the ranch.

Prairie potholes present numerous benefits to the environment and for wildlife habitat.⁴

Freshwater potholes also provide water and high quality forage for livestock (Hansen and others 1995).

1.3 USE OF THE TERM “HEALTH”

The term “health” is used throughout this study and is an integral term used in the RWRP Lentic Inventory and Health Evaluation processes. This use of this term with respect to ecosystems has been debated over the years. Much of the original debate (early 1990s) revolves around the term’s ambiguity and vagueness. There are also arguments that the term “health” (whether it is used by scientists, regulators, or laypeople) tends to be associated with a set of values rather than with measurable parameters.

Using the word “health” in ecosystem management was recently examined critically by Costanza (1992) and Suter (1993). In general, a healthy ecosystem is an ecosystem that functions properly. Because ecosystems are complex, the ecosystem health approach helps to view ecosystems in a multidimensional, complex manner. Ecosystem management and assessments are best evaluated using a multitude of criteria rather than a single species or element. Suter (1993) argues that the phrase “ecosystem health” is a

⁴ In 1997, wildlife (such as elk, deer, waterfowl and Sandhill cranes) were observed on the ranch.

metaphor and does not reflect an observable property. This may be valid in the sense that it is impossible to measure the absolute health of an ecosystem using a standard set of indices. Health is not universal – it cannot be given an absolute universal standard of measure (as opposed to the degree of heat which can be measured in centigrade, a length can be measured in feet – both of which are universal, absolute standards). However, as we see in the various procedures being used to assess the health of ecosystems, indices are used, but in a relative manner. Section 4.4 explores some of the different wetland assessment procedures used in Montana.

Costanza (1992) states that defining and measuring ecosystem health is a process involving the identification of important indicators of health. Different groups have developed a wide variety of parameters and indicators for measuring and assessing health. A common idea to many of these groups is that a healthy ecosystem is a properly functioning ecosystem. What constitutes a properly functioning ecosystem, however, is not typically agreed upon. Some define the a healthy system as one that functions with society (human) influences, others (including the RWRP) define a healthy system as one that functions in a natural, dynamic manner, without human influences. Most scientists agree that to be constituted a wetland an ecosystem has to meet at least one of the three criteria (that is, hydric soils, hydrophytic vegetation, and wetland hydrology) as outlined by Cowardin and others (1979). Therefore, health of a wetland is closely tied to these three criteria used to define a wetland.

Based on criteria developed by Schaeffer (1988), Costanza and many of his peers arrived at the following working definition of ecosystem health in terms of the three main characteristics applicable to complex systems (that is, sustainability, organization, and resilience):

An ecological system is healthy and free from “distress syndrome” if it is stable and sustainable – that is, if it is active and maintains its organization and autonomy over time and is resilient to stress (Costanza 1992).

This definition has some merit however; the idea of ecosystem health is an evolving concept and therefore, so is the definition. The current concept of ecosystem health is closely linked to natural ecosystem functions and benefits. In addition a healthy ecosystem should ideally follow a natural progression of change without human influences. Because scientists have attempted to identify the functions critical to sustaining several types of ecosystems, methods that attempt to assess ecosystem health based on these functions should be less subject to value judgements than approaches that focus on values to humans.

The fact is “health” is a term that appeals to the public. “Healthy” is a term that is commonly accepted as representing ideal functioning systems. It is important to use a term that can be used in several different arenas (regulatory, academic, and public), because public concerns regarding the maintenance and preservation of sensitive ecosystems are historically what has prompted much of the regulatory protection and permitting as well as scientific/academic research on the topic.

For the purpose of this study, the health of an ecosystem, or in this case prairie pothole, refers to its condition as it relates to function. In simple terms, a functioning system is a healthy system. The RWRP defines the health of a lentic system as the ability of that system to perform certain wetland functions, including, sediment trapping, bank maintenance, water storage, aquifer recharge, wave energy dissipation, and primary biotic production (RWRP 1999). Because the assessment form used for this study was developed by the RWRP, their definition of the term “health” is also used. Further discussion regarding this term and the RWRP health assessment process is provided in Section 4.4.

2.0 METHODS AND MATERIALS

The RWRP developed the methods used in this study for inventorying and assessing lentic wetlands. The inventory process measures a variety of features associated with lentic wetlands that can be visually observed in the field. Data from the inventory is used to derive health assessments.

The data that was collected in the field were recorded on RWRP Lentic Inventory Forms. In addition to the inventory forms, the codes and instructions explaining how to use the form were necessary. The codes and instructions contain detailed instructions on how to conduct the inventories and fill out the inventory form. Both the RWRP Lentic Inventory

Form and the codes and instruction are available on the RWRP website⁵. A blank inventory form and the codes and instructions are included as Appendices A and B.

The following sections summarize the general approach used in this study, including 1) the selection of a study area, 2) the delineation of prairie potholes, 3) data collection, 4) data entry, program execution, and health score calculations, 5) identification of current and preexisting conditions that may have influenced the results of the inventories, and 6) discussion and recommendations based on results of inventories.

2.1 SELECTION OF STUDY AREA

Prairie potholes are the dominant freshwater wetland systems at the Bandy Ranch. More than 140 potholes are present on the ranch. Based on the manner in which the pastures are segregated at the ranch (that is, the layout and arrangements of fences at the ranch), the southern pasture was determined to be an optimal site due to the clustering of potholes. Although potholes are present in other areas of the ranch, it was possible to inventory 100 percent of the potholes in the southern pasture, eliminating the need for statistical selection of a data set. The southern pasture is low elevation grassland that contains 42 potholes. In addition, this pasture shows evidence that cattle grazing during the early season grazing rotation heavily utilized some of the potholes, while others were essentially non-utilized.

⁵ The RWRP Lentic Inventory Form and Codes and Instructions can be found on the RWRP internet website (<http://www.rwrp.umt.edu>).

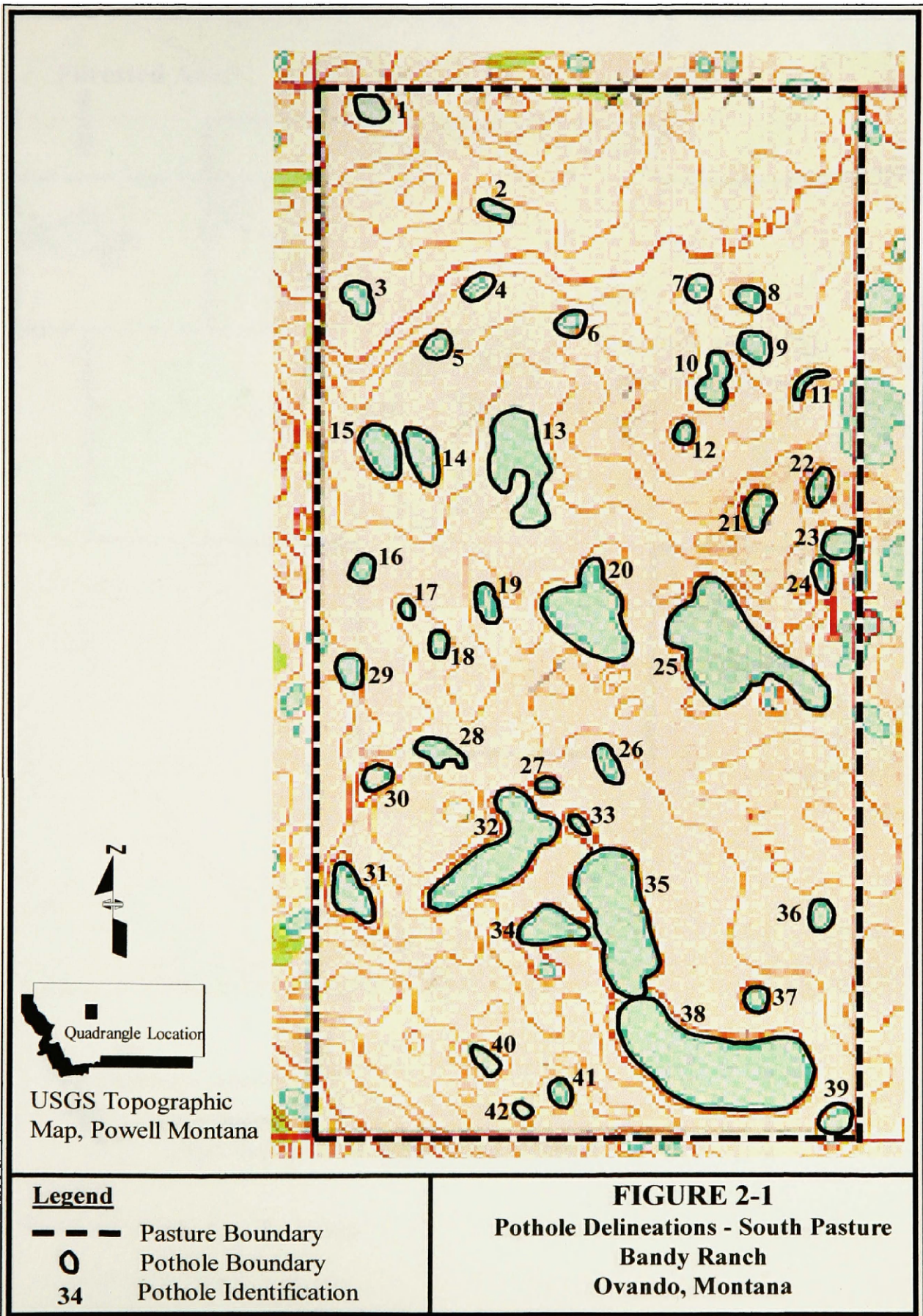
The elevation of the south pasture ranges from 1,250 meters (4,100 feet) to 1,285 meters (4,215 feet). A second area on the forested, northwest corner of the ranch was selected in order to inventory two potholes, one to which cattle had access, and the other non-used by cattle. The elevation of the forested area is between 1,253 meters (4,110 feet) and 1,257 meters (4,125 feet). By conducting inventories on these two main areas (a total of 44 potholes), baseline information is provided for utilized and non-utilized areas of the grassland and forested area of the ranch, particularly in 1997.

2.2 POTHOLE DELINEATIONS

The potholes are identified as Potholes 1 through 42 in the southern pasture and Potholes 43 and 44 in the forested area. A record identification number was also assigned by the RWRP database for each pothole inventory entry. All of the potholes inventoried in the south pasture are located in Township 15 North, Range 13 West, and in the western half of Section 15. The two potholes in the northwestern portion of the ranch are located in Township 15 North, Range 13 West, and in the northeast quarter of Section 8.

Each distinct pothole was designated as a single polygon on the map. A polygon is defined as the “basic unit of delineation within which data is collected.” (RWRP 1999) Each polygon contains only one set of lentic inventory data (a single Lentic Inventory Form is completed for each selected polygon). Polygon delineations were determined based on the presence of hydrophytic vegetation, high water lines, and topography. Potholes that were designated as separate distinct polygons in 1997 may have been

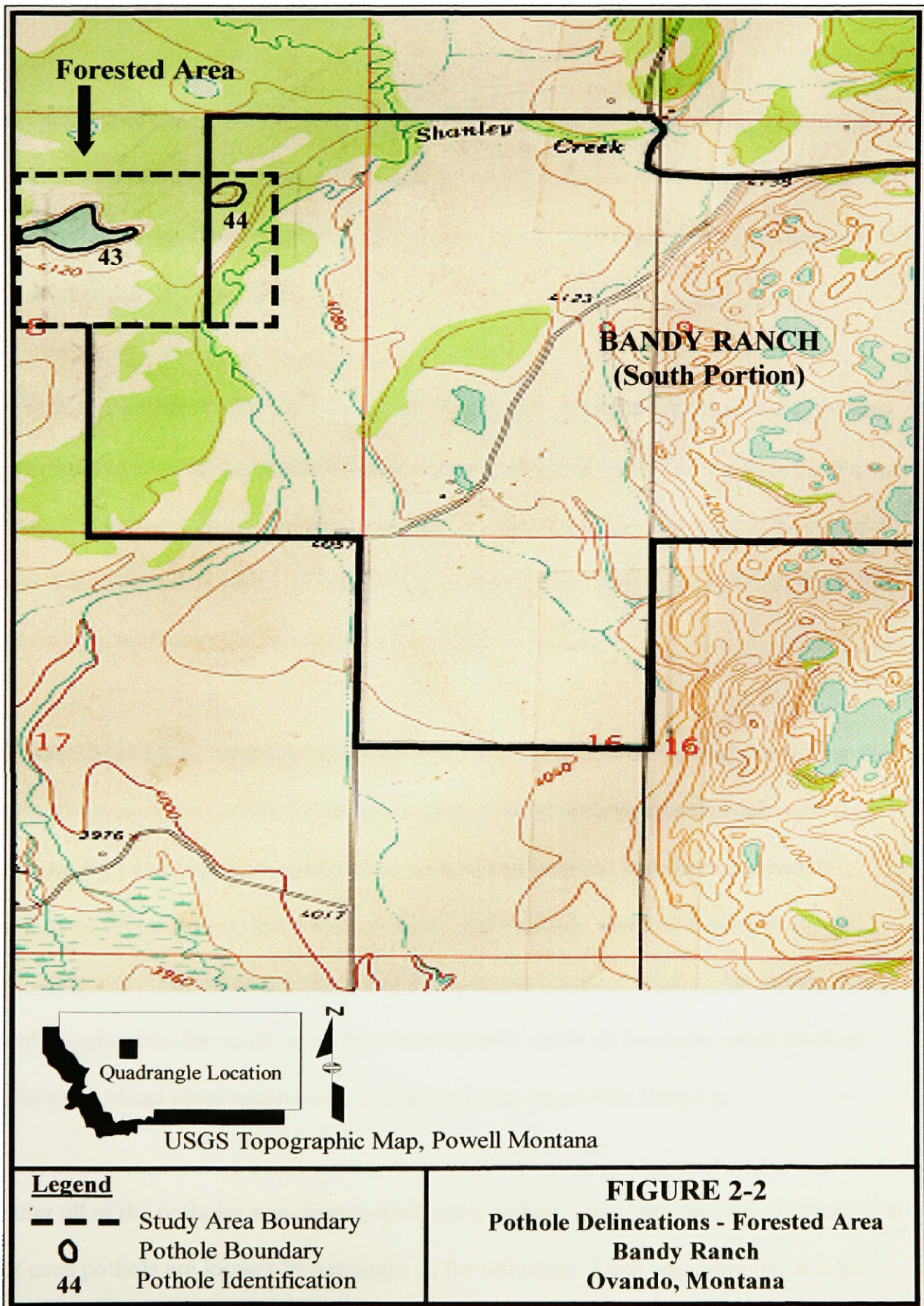
connected in other years (particularly wet years). Areas of potholes with “deepwater” habitat (greater than 6.6 feet deep) and/or lacking persistent emergent vegetation were excluded from polygons. A detailed description of the methods for polygon delineation is located in the codes and instruction in Appendix B. The outer limits (delineations) of each polygon and pothole identifications are shown on Figures 2-1 and 2-2.



USGS Topographic
Map, Powell Montana

- Legend**
- Pasture Boundary
 - Pothole Boundary
 - 34 Pothole Identification

FIGURE 2-1
Pothole Delineations - South Pasture
Bandy Ranch
Ovando, Montana



2.3 DATA COLLECTION

As previously stated, the methodologies for inventorying the prairie potholes at the Bandy Ranch were developed by the RWRP and are explained in the RWRP Lentic Inventory Codes and Instructions. The inventory process involves the collection of a wide range of biological and physical data.

Specific data required for the inventory form includes administrative data, location data, selected summary data, vegetation data, water quality data, physical site data, photograph data, and optional data. Optional data includes use by wildlife, accessibility to livestock, and other site-specific data. A blank copy of the RWRP Lentic Inventory Form and the codes and instruction are included in Appendices A and B.

Visual observations were also recorded for each pothole in order to evaluate further the effectiveness of the pothole health assessment. Visual observations typically served to explain further a condition noted at the pothole that may not have been adequately explained or detailed on the inventory form. For example, if recent hummocking or pugging was observed at a pothole and it was it was recorded whether the hummocking and pugging was the result of recent disturbance by cattle or livestock, when obvious. The same visual observations were noted regarding vegetation foraging.

After all of the potholes were inventoried, each pothole was photographed. Photographs of each pothole are located in Appendix C, for reference. Each photograph is labeled

according to the pothole identification number and the direction each photograph was taken. All photographs were taken in October 1997.

2.4 HEALTH SCORE CALCULATIONS

Following pothole inventories and photographs, all of the data obtained and recorded on the RWRP Lentic Inventory forms were entered into the RWRP database at the University of Montana. Once the data were entered into the database and checked for accuracy, the Lentic Health Evaluation scoring program was run to calculate the health scores for each individual pothole.

Scoring was conducted according to the RWRP Lentic Inventory scoring system. Table 2-1 outlines the inventory items used for scoring each pothole, a brief description of the item, and the scoring system used to derive the actual scores for each category. Inventory items that are used in scoring for health are discussed in detail in Section 4.1.

TABLE 2-1. Lentic Health Scoring System Health Evaluation Breakdown by Inventory Item

Health Score Category	Brief Description of Inventory Items used in Scoring	Health Scoring Points	
1. Tree regeneration	The presence of all age classes of tree species in the inventoried pothole	3 2 1 0	>10% of the total canopy cover of trees represented by seedlings and saplings >1% to 10% of the total canopy cover of trees represented by seedling and saplings >0% to 1% of the total canopy cover of trees represented by seedling and saplings Tree seedlings or saplings absent
2. Woody decadent and dead amounts	The total amount (in percent) of woody (tree and shrub species) vegetation that is decadent or dead.	3 2 1 0	5% or less of the total canopy cover of woody species decadent or dead >5% to 25% of the total canopy cover of woody species decadent or dead >25% to 45% of the total canopy cover of woody species decadent or dead >45% of the total canopy cover of woody species decadent or dead
3. Utilization of trees and shrubs	The degree to which woody (tree and shrub) species have been foraged by livestock and or wildlife.	3 2 1 0	5% or less of 2nd year and older leaders browsed >5% to 25% of 2nd year and older leaders browsed >25% to 50% of 2nd year and older leaders browsed >50% of 2nd year and older leaders browsed
4. Shrub regeneration	Whether all age classes of shrub species in the inventoried pothole are present.	3 2 1 0	>10% of shrub canopy cover represented by seedlings and saplings >1% to 10% of shrub canopy cover represented by seedlings and saplings >0% to 1% of shrub canopy cover represented by seedlings and saplings shrub seedlings and saplings present
5. Total canopy cover of woody species	The percentage of the inventoried pothole that has a canopy cover of woody (tree and shrub) species.	3 2 1 0	>45% of the total area occupied by woody species >25% to 45% of the total area occupied by woody species >5% to 25% of the total area occupied by woody species 5% or less of the total area occupied by woody species
6. Combined canopy cover of four plant life forms	The percentage of the inventoried pothole that has a canopy cover of all species (trees, shrubs, graminoids, and forbs).	3 2 1 0	>95% of the soil surface covered by plant growth >85% to 95% of the soil surface covered by plant growth >75% to 85% of the soil surface covered by plant growth 75% or less of the soil surface covered by plant growth
7. Total area occupied by noxious weed species	The percentage of the inventoried pothole that is occupied by noxious weed species. A list of noxious weed species is provided in the inventory form.	3 2 1 0	5% or less of the polygon occupied by noxious weeds >5% to 25% of the polygon occupied by noxious weeds >25% to 45% of the polygon occupied by noxious weeds >45% of the polygon occupied by noxious weeds

8. Total area occupied by undesirable herbaceous species	The percentage of the inventoried pothole that is occupied by undesirable herbaceous species. A list of undesirable herbaceous species is provided in the inventory form.	3 2 1 0	5% or less of the polygon is covered by undesirable herbaceous species >5% to 25% of the polygon is covered by undesirable herbaceous species >25% to 45% of the polygon is covered by undesirable herbaceous species >45% of the polygon is covered by undesirable herbaceous species
9. Percent of polygon with human-caused exposed soil surface	The percentage of the inventoried pothole that is not vegetated and has exposed soil.	6 4 2 0	1% or less of the polygon with human-caused exposed soil surface >1% to 5% of the polygon with human-caused exposed soil surface >5% to 15% of the polygon with human-caused exposed soil surface >15% of the polygon with human-caused exposed soil surface
10. Frequency and degree of artificial drawdown of water	The frequency and degree to which water has been artificially drawn from the pothole, if any.	6 4 2 0	The waterbody is not subject to artificial drawdown Drawdown levels are minor Drawdown levels are Extensive Drawdown levels are Extreme
11. Overflow structure stability	The stability of an overflow structure, if present in the pothole.	6 4 2 0	Overflow structure is made of concrete, pipe, or armored rock – appears stable Overflow structure is unprotected or is made of other material – appears stable Overflow structure is made of concrete, pipe, or armored rock – appears unstable Overflow structure is unprotected or is made of other material – appears unstable
12. Percent of shoreline with a deep, binding root mass	The percentage of the inventoried pothole that is vegetated with species that have deep, binding root masses.	6 4 2 0	>85% of the shoreline with a deep, binding root mass >65% to 85% of the shoreline with a deep, binding root mass >35% to 65% of the shoreline with a deep, binding root mass 35% or less of the shoreline with a deep, binding root mass
13. Percent of polygon hummocked and/or pugged	The percentage of the inventoried pothole that shows signs of hummock and pugging (large animal hoof damage).	6 4 2 0	Hummocking or pugging affects less than 5% of the polygon Hummocking or pugging affects less than 15% of the polygon Hummocking or pugging affects less than 25% of the polygon Hummocking or pugging affects 25% or more of the polygon
14. Percent of shoreline altered by human-caused disturbance	The percentage of the inventoried pothole that has been altered (impacted) by human-caused disturbances. A partial list is provided in the inventory form.	6 4 2 0	5% or less of the shoreline altered by human-caused disturbances >5% to 15% of the shoreline altered by human-caused disturbances >15% to 35% of the shoreline altered by human-caused disturbances >35% of the shoreline altered by human-caused disturbances

Notes:

Inventory Item Numbers 1 through 8 have a highest possible score of 3.

Inventory Item Numbers 9 through 14 have a highest possible score of 6.

Non applicable items receive an actual and potential score of 0.

Each category has a predetermined highest possible score. Categories 1 through 8 have a highest possible score of 3, indicating the healthiest scenario for that category. Based on information obtained from the RWRP Inventory Form, each category then receives an actual score between 0 and 3 (3 representing the highest possible score). Therefore, categories 1 through 8 will receive a ratio of the actual score (0 through 3) to the possible score (3).

Categories 9 through 14 have a highest possible score of 6, indicating the healthiest scenario for that category. Based on information obtained from the RWRP Inventory Form, each category then receives an actual score of 0, 2, 4, or 6 (6 representing the highest possible score). Therefore, categories 9 through 14 will receive a ratio of the actual score (0, 2, 4, or 6) to the possible score (6).

If a particular category is not applicable to the health score of a pothole, both the potential and actual score for the category is 0 and not applied to an overall health score. For example if there was no potential for trees at a pothole, the potential and the actual scores are 0 and the health of the pothole does not reflect the ability of trees to regenerate within that vegetative community.

Based on the method described above, health scores are determined for each of the categories for each pothole. In addition to individual category scores, an overall health score is calculated for each pothole. To determine the overall score of a pothole, actual

scores for items 1 through 14 are added together, the sum of the scores is then divided by the highest possible score, and multiplied by 100 percent.

Health scores of 80 to 100 percent are interpreted to mean that the inventoried polygon (pothole) is healthy (that is, proper functioning condition, functioning similarly to unaltered systems). Health scores of 60 to 79 percent are interpreted to mean that the pothole is healthy with some problems performing one or more of its functions. Health scores below 60 percent indicate an unhealthy pothole (one that is inadequately performing several of its functions).

A detailed explanation of the health scoring system is located in the RWRP Lentic Health Evaluation Codes and Instructions, which can be found in Appendix D. Results of the health evaluations are presented in Section 3.2 and are discussed in Section 4.1.

2.5 GRAZING AND PRECIPITATION CONDITIONS AT THE BANDY RANCH

Climate and human-caused disturbances have a propensity to influence the vegetative species composition of a pothole (Van der Valk 1989). The inventories were conducted from July through October 1997. Data regarding specific conditions related to the Bandy Ranch during the time of the inventories, such as current and historic precipitation data and grazing strategies, are presented and discussed. Precipitation data were obtained from the Western Regional Climate Center and the National Weather Service for Missoula, Montana (WRCC 1999 and NWSM 1999), the nearest weather station to the Bandy

Ranch. Cattle grazing strategies were collected from interviews with Joe Broseder, current Bandy Ranch manager. Precipitation and grazing strategies are presented because they could have an impact on the vegetation, soils, and hydrology observed during the inventories. Precipitation data and grazing strategies are presented in Section 3-3 and discussed in Section 4.2.

3.0 RESULTS

The following sections present the results of the study including vegetation data for the inventoried prairie potholes, calculated health scores, and grazing and precipitation conditions at the Bandy Ranch. The health scores are presented separately in terms of the scored inventory items and overall score.

3.1 VEGETATIVE DATA

Vegetation data collected during the pothole inventories include tree species, shrub species, graminoids, and forbs. Brief descriptions (including foragability, palatability, usage by livestock and wildlife, and wetland status) of each of the species identified in the potholes at the ranch are provided in Appendix E. Vegetation identified in the southern pasture and the forested area as well as the specific pothole occurrences are detailed in Table 3-1. Scientific and common species names are shown along with the specific potholes where each species was identified. A total of 44 potholes were inventoried at the Bandy Ranch, therefore, species occurrence is out of 44. Vegetation that was identified in

the forested potholes (Potholes 43 and 44) are noted. Canada thistle (*Cirsium arvense*) was the only noxious weed species identified in the inventoried potholes. None of the species that are listed in the RWRP Lentic Inventory Codes and Instructions as undesirable herbaceous species were identified in any of the potholes on the ranch. Many noxious weeds and undesirable herbaceous species were observed outside of the polygon boundaries at the ranch.

TABLE 3-1. Prairie Pothole Vegetation at the Bandy Ranch

Species (Scientific)	Species (Common)	Pothole ID Occurrence	Total Number of Potholes Occurred
Tree Species			
<i>Juniperus scopulorum</i>	Rocky Mountain Juniper	30	1
<i>Pinus ponderosa</i>	Ponderosa Pine	44	1
<i>Pseudotsuga menziesii</i>	Douglas Fir	44	1
<i>Populus tremuloides</i>	Quaking Aspen	42,41,40,16,29,31,32,1,15,43,44	11
Shrub Species			
<i>Salix geyeriana</i>	Geyer Willow	42,41,40,29,30,31,32,15,44	9
<i>Rosa woodsii</i>	Woods Rose	26,43,44	3
<i>Symphoricarpos occidentalis</i>	Western Snowberry	40,15	2
Graminoid Species			
<i>Agropyron canium</i>	Slender Wheatgrass	26	1
<i>Agrostis scabra</i>	Rough Bentgrass	26,18,39,37,36	5
<i>Alopecurus pratensis</i>	Meadow Foxtail	42,41,40	3
<i>Bromus inermis</i>	Smooth Broom	41,40	2
<i>Calamagrostis stricta</i>	Slimstem Reedgrass	39,37,31	3
<i>Carex aquatilis</i>	Water Sedge	19,13	2
<i>Carex atherodes</i>	Slough Sedge	11,8,4,5,26,27,18,17,39,42,41,40,16,29,28,30,24,23,12,37,36,34,31,33,7,1,3	27
<i>Carex athrostachya</i>	Slender-beaked Sedge	21,2,10,32,19	5
<i>Carex diandra</i>	Lesser-panicled Sedge	10	1
<i>Carex flava</i>	Yellow Sedge	32	1
<i>Carex lanuginosa</i>	Woolly Sedge	19	1
<i>Carex lasiocarpa</i>	Slender Sedge	11,8,18,42,41,40,16,29,30,24,23,2,10,9,37,32,13,43 ^a	18
<i>Carex nebranskensis</i>	Nebraska Sedge	11,8,39,41,29,30,24,23,22,10,9,34,19,20,1,14,43 ^a	17
<i>Carex rostrata</i>	Beaked Sedge	5,39,40,23,22,2,25,38,35,34,31,32,20,7,6,1,3,14,15,43,44	21
<i>Carex vesicaria</i>	Inflated Sedge	11,4,5,18,17,39,42,41,40,16,29,28,30,23,21,22,2,12,10,9,25,37,36,38,35,34,31,32,20,13,1,15	32
<i>Eleocharis acicularis</i>	Needle Spikesedge	11,8,17,39,42,41,40,30,24,21,22,36,31,1,15	15
<i>Eleocharis palustris</i>	Creeping Spikesedge	11,8,4,5,26,27,18,17,39,42,41,40,16,29,28,30,24,23,21,22,2,12,10,9,25,37,36,35,34,31,33,32,19,20,7,6,13,1,3,14,15,43,44	43
<i>Juncus balticus</i>	Baltic Rush	11,8,5,26,27,18,17,39,41,16,29,28,30,24,23,21,2,12,10,9,37,36,38,35,34,31,33,32,19,20,7,6,13,1,3,14,15	37

<i>Juncus longistylis</i>	Long-styled Rush	28,30	2
<i>Juncus regelii</i>	Regel's Rush	8,39,37,36	4
<i>Phalaris arundinacea</i>	Reed Canarygrass	23,32,43	3
<i>Phleum pratense</i>	Common Timothy	11,4,26,27,18,42,41,2,10,31,15	11
<i>Poa palustris</i>	Fowl Bluegrass	8,4,5,27,18,17,39,42,41,40,29,28,21,22,2,31,14	17
<i>Poa pratensis</i>	Kentucky Bluegrass	26,39,42,41,40,21,10,37,14,15	10
<i>Scirpus acutus</i>	Hardstem Bulrush	27,23,22,10,9,25,38,35,34,31,32,20,6,13,1,15,43	17
Forb Species			
<i>Alisma plantago-aquatica</i>	Water Plantain	11,17,22,2,10,37,1	7
<i>Cirsium arvense</i>	Canada Thistle	39,42,40,30,24,23,22,25,35,31,32,19,13,1,14,15,43	17
<i>Equisetum laevigatum</i>	Smooth Horsetail	22	1
<i>Iris missouriensis</i>	Rocky Mountain Iris	2,10,6,13	4
<i>Mentha arvensis</i>	Field Mint	11,8,5,26,27,18,17,39,42,41,40,16,29,28,30,23,21,22,2,12,10,9,37,36,38,35,33,32,20,7,6,13,1,3,14,15,43	37
<i>Polygonum amphibium</i>	Water Smartweed	27,18,39,41,40,16,29,28,30,24,23,21,2,12,10,25,36,31,20,1,3,15,43	23
<i>Potamogeton praelongus</i>	Pondweed	15	1
<i>Potentilla anserina</i>	Common Silverweed	11,8,27,18,17,41,40,16,29,28,24,23,22,2,9,37,36,31,7,14,15	21
<i>Potentilla palustris</i>	Marsh Cinquefoil	27,17,39,37	4
<i>Rumex crispus</i>	Curled Dock	42,41,37,36	4
<i>Sium suave</i>	Water Parsnip	11,5,27,18,17,39,42,41,40,16,29,28,30,24,23,21,2,12,10,9,37,19,6,13,1,3,14,15,44	29
<i>Sparganium emersum</i>	Narrow-leaved Burreed	28	1
<i>Typha latifolia</i>	Common Cattail	41,10,20,1,14	5

Many of the vegetative items requested on the RWRP Inventory Form go into the scoring of the overall health of the pothole. Several items in the inventory do not get factored into health scores that are important in distinguishing the particular vegetative characteristics and composition of a particular pothole. For example, individual species names and individual percent canopy do not play a factor in the health scores, but do indicate the vegetative makeup of a pothole. As shown in Table 3-1, several species were common throughout more than half of potholes inventoried at the ranch, including Slough Sedge (*Carex atherodes*), Inflated Sedge (*Carex vesicaria*), Spikesedge (*Eleocharis palustris*), Baltic Rush (*Juncus balticus*), Field Mint (*Mentha arvensis*), Water Smartweed (*Polygonum amphibium*), Common Silverweed (*Potentilla anserina*), and Water Parsnip (*Sium suave*). Appendix E also contains information regarding management for each species.

Other vegetative information collected during the inventory process that did not influence the health scores included the amount of foraging by animals and general classification of upland vegetation. This information is also located in Appendix E.

3.2 HEALTH SCORES

Health scores were calculated using the methodology described in Section 2.4. A functional wetland is considered by most wetland scientists to meet at least one of the three criteria (that is, hydric soils, hydrophytic vegetation, and wetland hydrology) as

outlined by Cowardin and others (1979). The three categories of scores output by the RWRP Lentic Health Evaluation can be summarized in the following manner:

- Healthy (Scores between 80 and 100 percent) – all three of the criteria functioning at a high level, performing benefits such as shoreline stability, sediment trapping, water storage, aquifer recharge, wave energy and raindrop dissipation, and primary biotic production.
- Healthy with some problems (Scores between 60 to 79 percent) – one or more of the three criteria have been impacted such that the overall ability of the wetland to function has been somewhat compromised. The wetland is; however, carrying out the majority of its beneficial functions.
- Unhealthy (Scores less than 60 percent) – one or more of the three criteria have been impacted to such a degree that the wetland does not have the ability to perform the majority of its beneficial functions.

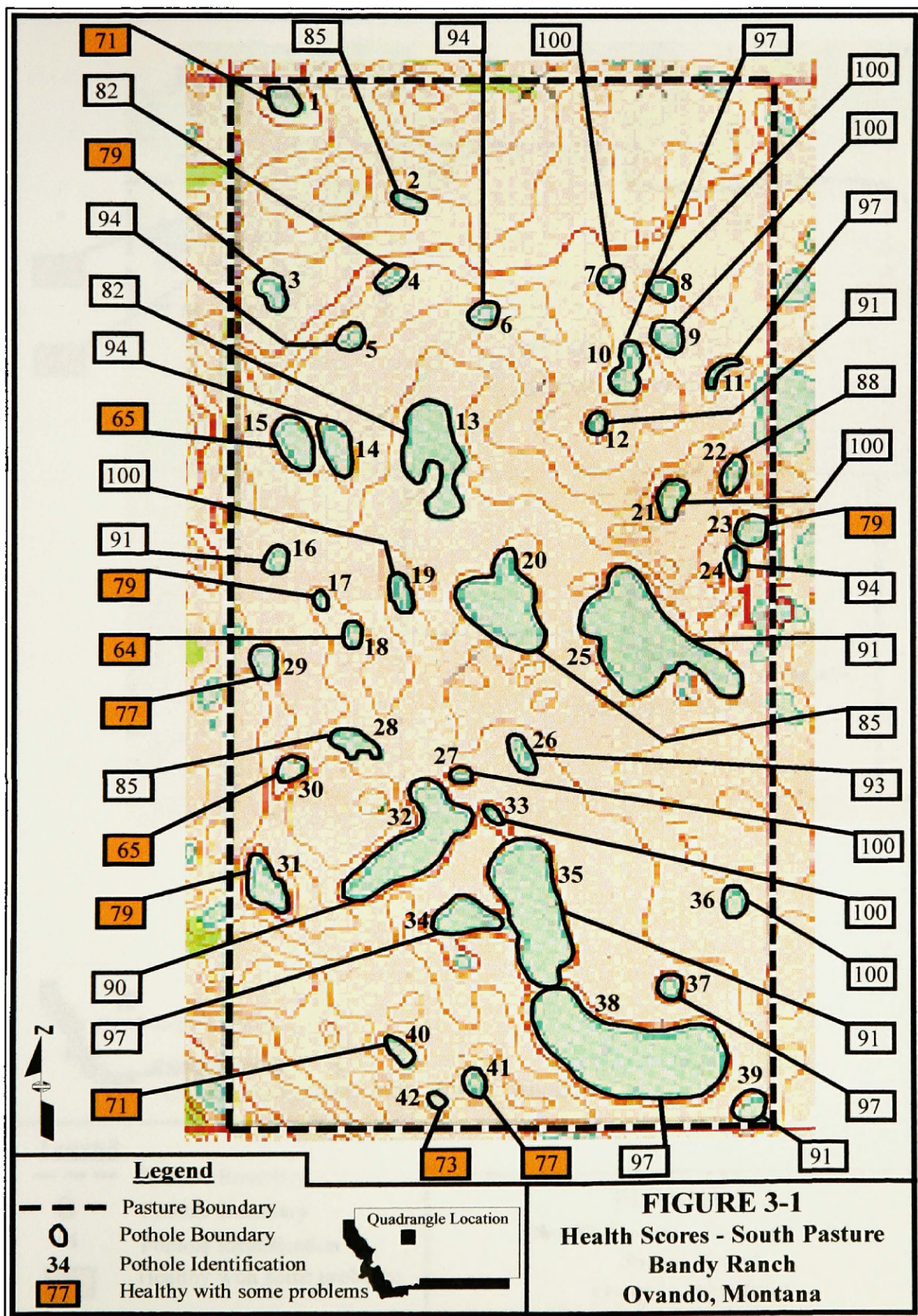
Therefore, potholes at the Bandy Ranch that have been determined to be healthy with some problems exhibit one or more scored inventory items that are impacting one or more of the three criteria (hydric soils, hydrophytic vegetation, or wetland hydrology). These potholes are performing many of their beneficial functions; however, not to their fullest potential.

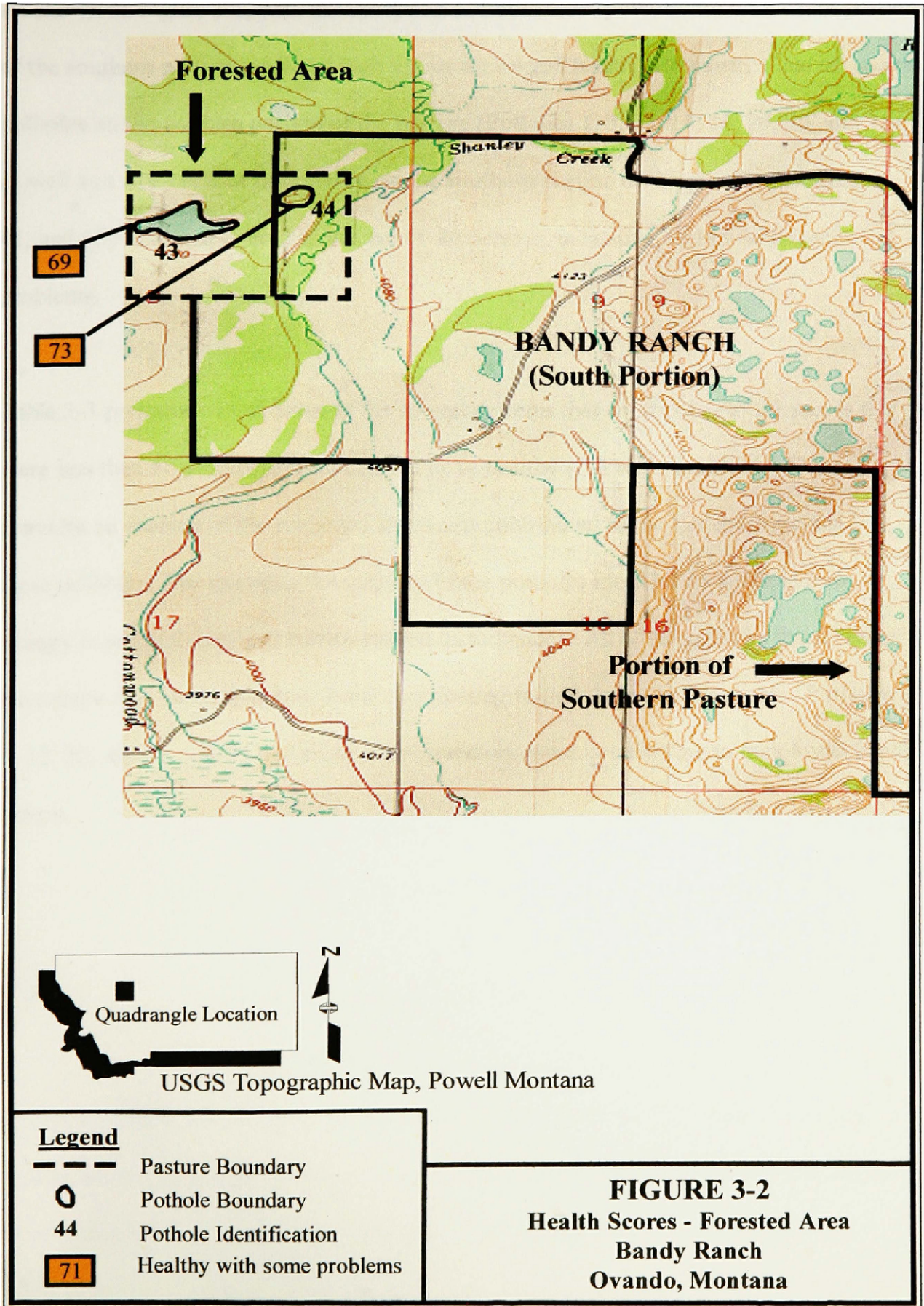
Overall health scores for individual potholes as well as inventory items that contributed to low health, if any, are provided in Table 3-2. Potholes that were determined to be healthy with some problems performing one or more of its functions are noted. These potholes are discussed at length in Section 4.1. None of the potholes received overall health scores below 60 indicating a pothole that is unhealthy.

TABLE 3-2. Health Scores for Prairie Potholes on the Bandy Ranch

Pothole Number	Item Contributing to a Lower Health Score	Overall Health Score	List of Items
1	1,2,5,6,7,9,12	71	1. Tree Regeneration
2	6,13	85	
3	6,9,13	79	2. Woody Decadent and Dead Amounts
4	9,13	82	
5	13	94	3. Utilization of Trees and Shrubs
6	12	94	
7	none	100	4. Shrub Regeneration
8	none	100	
9	none	100	5. Total Canopy Cover of Woody Species
10	6	97	
11	6	97	6. Combined Canopy Cover of Four Plant Lifeforms
12	6	91	
13	6,7,9,12	82	7. Total Area Occupied by Noxious Weed Species
14	7	97	
15	1,2,5,6,9,12,13	65	8. Total Area Occupied by Undesirable Herbaceous Species
16	5,6	91	
17	6,9,12,13	79	9. Percent of Polygon with Human-Caused Exposed Soil Surface
18	6,9,12,13	64	
19	none	100	10. Degree of Artificial Drawdown of Water
20	6,9,12	85	
21	none	100	11. Overflow Structure Stability
22	6,7,13	88	
23	7,9,13	79	12. Percent of Shoreline with a Deep, Binding Root Mass
24	6	94	
25	6	91	13. Percent of Polygon Hummocked and/or Pugged
26	5	93	
27	none	100	14. Percent of Shoreline Altered by Human-Caused Disturbances
28	6,9,13	85	
29	4,5,6,9	77	<p>Notes:</p> <p>Shaded areas are potholes with overall health scores less than 80 percent.</p> <p>* Forested area of Bandy Ranch</p>
30	1,2,4,5,6,9,12	65	
31	5,6,7,9,13	79	
32	2,5,6	90	
33	none	100	
34	6	97	
35	6,13	91	
36	none	100	
37	6	97	
38	6	97	
39	6,9	91	
40	1,2,5,6,7,9,12	71	
41	5,6,9,12,13	77	
42	2,5,6,7,9,12	73	
43*	5,6,7,12,13	69	
44*	2,5,6,9,12,13	73	

As shown in Table 3-1, 30 potholes were determined to be healthy, 14 potholes (12 in the southern pasture and 2 in the northern area) were determined to healthy with some problems, and none of the inventoried potholes at the Bandy Ranch were determined to be unhealthy. Figures 3-1 and 3-2 below show the locations of the potholes and the overall health score for each pothole. Potholes with an overall health score that represents a healthy system but with some problems are noted.





As shown on Figure 3-1, with the exception of Pothole 23, potholes on the eastern portion of the southern pasture exhibited high scores for overall health. However, a line of potholes on the western portion of the pasture (Potholes 1, 3, 15, 17, 18, 29, 30, and 31), as well as a small cluster of potholes on the southern portion of the pasture (Potholes 40, 41, and 42) exhibited overall scores below 80 percent, indicating healthy with some problems.

Table 3-3 presents a breakdown of the inventory items that contributed to the scores that were less than 80 percent and determined to be healthy with some problems. This table provides an analysis of the particular items that contributed to the low health scores for these potholes. For example, the majority of the potholes listed below suffered from canopy cover problems and human-caused disturbances. All of the potholes listed below have more than three inventory items contributing to their lower health scores. Potholes 1, 15, 30, 40, 42, and 44 had six or more inventory items contributing to their lower health scores.

TABLE 3-3. Items Contributing to Health Scores of Less Than 80 Percent

Lentic Health Scoring System Breakdown ^a	Pothole ID													
	1	3	15	17	18	23	29	30	31	40	41	42	43	44
Tree Regeneration	X		X					X		X				
Woody Decadent and Dead Amounts	X		X					X		X		X		
Shrub Regeneration							X	X						
Total Canopy Cover of Woody Species	X		X				X	X	X	X	X	X	X	X
Combined Canopy Cover of 4 Plant Lifeforms	X	X	X	X	X		X	X	X	X	X	X	X	X
Total Area Occupied by Noxious Weed Species	X					X			X	X		X	X	
Percent of Polygon with Human-Caused Exposed Soil Surface	X	X		X	X	X	X	X	X	X	X	X		X
Percent of Shoreline with a Deep, Binding Root Mass	X		X	X	X			X		X	X	X	X	X
Percent of Polygon Hummocked and/or Pugged		X	X	X	X	X			X					X

Notes:

^a List refers to selected components from Table 2-1 in Section 2.4.

RWRP Lentic Health Evaluation forms detailing the scores for all pothole inventoried are located in Appendix F. These forms show basic administrative, location, and physical data for each pothole as well as the health scores.

3.3 GRAZING AND PRECIPITAITON CONDITIONS

The two primary potential influences on the condition of the potholes at the ranch are grazing strategies and precipitation. Grazing and precipitation data for the Bandy Ranch were evaluated to determine the conditions at the ranch at the time of, and prior to

inventories. There are likely other influences that impact the conditions of the potholes that are not discussed in this study.

Precipitation Data

Precipitation affects the amount of water available in a pothole in a given year. Because the health assessments occurred in 1997, it is important to determine how 1997 precipitation compares to the long-term record. Precipitation data were evaluated for 1991 through 1998. Normal mean precipitation represents precipitation average over the years 1948 through 1990. Table 3-4 presents the recorded monthly and annual mean precipitation data for Missoula, Montana, the nearest weather station to the Bandy Ranch. The months that the potholes were inventoried are shaded. The Western Regional Climate Center (WRCC 1999) and the National Weather Service for Missoula, Montana (NWSM 1999) compiled the data presented. The year 1997 and three of the four years immediately preceding it had higher than average precipitation.

TABLE 3-4. Precipitation Data, Missoula, Montana

Month	Normal Mean Precipitation ¹ (centimeters)	Total Precipitation (centimeters)							
		1991 ²	1992 ²	1993 ²	1994 ²	1995 ²	1996 ^{2,3}	1997 ³	1998 ³
January	3.05	1.6	1.02	2.18	0.89	2.18	2.06	4.29	3.66
February	2.03	0.48	0.46	1.70	1.24	0.94	2.13	1.98	0.84
March	2.29	3.0	3.02	1.68	1.24	1.6	1.96	4.55	2.51
April	2.54	0.76	4.24	4.65	7.65	1.91	6.02	3.78	4.27
May	4.57	5.77	1.73	5.05	4.52	2.77	5.66	4.39	9.63
June	4.57	7.42	5.41	3.68	3.68	5.92	4.88	5.72	10.74
July	2.29	0.69	4.45	5.13	2.39	4.67	0.91	3.86	8.03
August	2.54	1.6	1.52	3.35	0.74	3.02	2.92	2.41	0.99
September	2.79	0.79	1.85	0.89	0.79	6.5	1.78	1.65	2.97
October	2.03	0.74	1.35	5.08	3.86	2.9	1.63	3.02	0.91
November	2.29	4.22	2.44	1.17	1.07	4.7	4.72	0.91	7.62
December	2.79	2.41	1.98	1.02	1.50	4.09	11.81	0.84	3.15
Annual	34.04	29.51	29.46	35.59	29.57	41.2	49.66	37.41	55.40

Notes:

¹ Precipitation data averaged from 1948 to 1990, compiled by the National Weather Service for Missoula, Montana.

² Data compiled by the Western Regional Climate Center

³ Data compiled by the National Weather Service for Missoula, Montana.

 Shaded area indicates the months that the pothole inventories were conducted.

Grazing Data

In 1997, a Doctoral candidate leased the southern pasture from the University of Montana for research purposes. The leased pasture was not to be grazed for a period of three years. Minor incidents occurred in the year of the inventories, where cattle accessed the pasture. Prior to 1997, the southern pasture was grazed in the early season (April through May/June) by approximately 120 head of cattle for approximately 30 days on an alternating season of use. According to Bandy Ranch managers, cattle were regularly put into the southern pasture via the north gate in years that the pasture was grazed. The

cattle would typically follow along the western portion of the pasture, to the area along the south portion of the pasture, following the natural topography to a lower elevation.

During the second week of September 1997, six cattle were accidentally allowed access to the south pasture. On that date the cattle were observed in and around Pothole 1. On other occasions, Potholes 40, 41, and 42 were observed to have cattle in the pothole. Based on conversations with Bandy Ranch managers, these cattle were owned by an adjacent landowner that accessed the property through an unmended fence.

In the 1960s and 1970s, the forested area was logged. In 1996, the forested area, which includes Pothole 44, was moderately grazed for a long period in the late season. In 1997, a portion of the forested area was grazed by 104 head of cattle for 44 days between May 18 and July 1. The following spring (1998), 200 head of cattle were in that northern area for approximately 15 to 20 days. According to the ranch manager, future grazing strategies for this area will generally consist of high intensity grazing for short durations.

The area where Pothole 43 is located is fenced off and had not been grazed. This area is a potential future grazing area.

Historic grazing in each pasture of the ranch was difficult to identify due to changes in ranch management and the lack of documented grazing records. However, this information is likely available for recent history (particularly since the date of the

inventories) and should be taken into account when planning for future grazing management strategies.

4.0 DISCUSSION

The results of this study are discussed below in terms of issues identified in the health assessment of the potholes at the Bandy Ranch, precipitation and grazing conditions at the Bandy Ranch, the use of this study outside of the Bandy Ranch, and issues related to the health assessment process.

4.1 BANDY RANCH DISCUSSION

The information provided in Section 3.0 summarizes measures of relative health for the inventoried potholes on the Bandy Ranch for 1997. The results of this study create a baseline of data that future health assessments at the ranch can be compared to.

Based on the results of the RWRP inventories conducted on the prairie potholes at the Bandy Ranch, all of the inventoried potholes (southern pasture and forested area) had overall scores indicating either healthy, or healthy with some problems. Therefore, the majority of the potholes at the ranch appear to be performing most of their desired functions. However, as stated in Section 3.0, 12 potholes in the southern pasture and both potholes in the forested area exhibit overall health scores that reflect between three and

seven of inventory items that contributed to a lower health score. These items in turn indicate lower functioning potential for those potholes.

As stated in Section 3, the inventory items contributing to the lower health scores at the Bandy Ranch include:

- Tree regeneration,
- Woody decadent and dead vegetation,
- Shrub regeneration,
- Total canopy cover of woody species,
- Combined canopy cover of four plant life forms, and
- Total area occupied by noxious weed species,
- Percent of polygon with human-caused exposed soil surface,
- Percent of shoreline with a deep binding root mass, and
- Percent of polygon hummocked and/or pugged.

The following is a summary of these items and how they relate to the potholes at the Bandy Ranch. Items that did not contribute to health scores of the inventoried potholes (such as, total area occupied by undesirable herbaceous species, degree of artificial drawdown of water, and overflow structure stability) are also discussed briefly. These items are also discussed in the RWRP Lentic Health Evaluation Codes and Instructions document in Appendix B.

Tree Regeneration

A clear indicator of ecological health of a site with a tree habitat type is the presence of all age classes (seedling, sapling, pole, mature, decadent, and dead) of tree species. The

presence of all age classes is a good indicator that this component of the community is sustaining itself (RWRP 1999). If there is no potential for trees at a site, the category is not calculated into the health score.

In the four potholes with overall scores affected by this factor (Potholes 1, 15, 30, and 40), the majority of individuals of the tree species inventoried (*Populus tremuloides* [quaking aspen] and *Juniperus scopulorum* [Rocky Mountain Juniper]) were in the mature and dead age classes. Minor amounts (0 to 3 percent) were in the seedling and sapling age groups. It appears that the quaking aspens located around the prairie potholes at the Bandy Ranch are not successfully reproducing in these locations. This situation only occurred at these potholes. Only eight other potholes were inventoried with the potential for trees. Of those, no other potholes were determined to be deficient in tree regeneration. The cause of the lack of quaking aspen reproduction was not determined in this study. However, if the management of the ranch determines a particular value in the preservation or perpetuation of the quaking aspen community around the potholes, further research on this issue could be conducted.

Woody Decadent and Dead Vegetation

Large amounts of decadent and dead woody material can indicate severe stress due to high levels of browsing. In addition, decadent and dead woody material may indicate a dewatering of the wetland site due to either human or natural causes. Dewatering, if severe enough, may change the site potential from wetland species to upland species.

Finally, large amounts of decadent and dead woody material may indicate climate fluctuations (RWRP 1999). If there is no potential for woody vegetation (tree or shrub species) at a site, the category is not calculated into the health score.

Of the six potholes whose overall scores were affected by this factor (Potholes 1, 15, 30, 40, 42, and 44), the majority of the tree individuals inventoried were mature, decadent or dead. As indicated above, the quaking aspen community around the prairie potholes is not being perpetuated. Further study regarding this issue may be desired to better evaluate this issue.

Shrub Regeneration

An important indicator of ecological health of a site with a potential for shrubs is the presence of all age classes (seedling, sapling, mature, decadent, and dead) of the shrub species characteristic of that community. As with trees, the presence of all age classes of shrub species ensures the self-perpetuating stability inherent to all potential natural communities (RWRP 1999). If there is no potential for shrubs at a site, the category is not calculated into the health score.

As with tree regeneration discussed above, the inventory of Potholes 29 and 30 identified one shrub species (*Salix geyeriana* [geyer willow]) that was mature at both potholes. No seedling or sapling willows were identified during the inventories. This species does not appear to be perpetuating itself in this location. Very few geyer willows were noted

during the inventory process. It is not likely, based on the inventories and visual observations, that the south pasture is an adequate location to encourage a healthy geyer willow community.

Total Canopy Cover of Woody Species

Woody species (trees and shrubs) play a critical role in shoreline integrity, total primary production, and wildlife values. It is critically important to manage for healthy woody vegetation. The extent of woody canopy cover is a factor in mitigating raindrop impact, all erosive forces, and the rate of evaporation (RWRP 1998). As stated with the previous categories, if there is no potential for woody vegetation at a site, this category does not get calculated into the health score.

Several potholes (Potholes 1, 15, 29, 30, 31, 40, 41, 42, 43, and 44) had overall health scores affected by this category. All of the woody species identified in the inventories were determined to cover between 0 and 25 percent of the total canopy cover area. Based on the vegetative health score calculations (RWRP 1999), a healthy pothole would ideally contain greater than 45 percent woody species canopy cover, if woody species are present. Although there are clear benefits to woody species associated with wetlands, prairie potholes that do not have woody species present are not necessarily unhealthy systems, just different in their vegetative composition. The majority of prairie potholes in the southern pasture did not appear to have the potential for woody species, and therefore were not scored in this category. Both potholes in the forested area are in pastures that

were at logged in the 1960s and 1970s. The logging in the forested area significantly impacted the woody species (particularly trees) canopy cover by altering the plant community composition.

Combined Canopy Cover of Four Plant Life Forms

Vegetation cover is instrumental in the ability of wetland system to trap sediments entering it from adjacent uplands. The vegetative canopy cover mitigates raindrop impact, other erosive forces, and the rate of evaporation (RWRP 1999).

Thirteen of the 14 potholes with problems reflected in their health scores were affected by this factor. Based on the health score calculations (RWRP 1999), a healthy canopy cover of all four plant forms (trees, shrubs, graminoids, and forbs) would ideally have greater than 95 percent of the surface area of the pothole covered by vegetation.

Decreases in total canopy cover of wetland vegetation and increase in bare ground are strong indicators of excessive grazing over a prolonged period of time (Adamus 1995).

Based on the grazing patterns in the south pasture of the ranch, the potholes on the west side of the south pasture are likely showing increased impacts from excessive grazing. In recent years one of the potholes (Pothole 44) in the forested area was included in a grazing area. Grazing could have contributed to the decrease in canopy cover in that pothole. As stated above, both potholes in the forested area are in pastures that were at

logged in the 1960s and 1970s. The logging in the forested area significantly impacted the woody vegetative canopy cover.

Total Area Occupied by Noxious Weed Species

Abundant noxious weed species are considered one indicator of an unhealthy ecosystem.

While some weeds may contribute to some wetland functions, their negative impacts on the ecosystem reduce a site's overall ecological health (RWRP 1999). Although noxious weeds may perform some wetland functions, such as sediment trapping, it can inhibit other functions such as vegetative productivity and wildlife habitat and should be a management concern (Hansen and others 1999).

Six potholes (Potholes 1, 23, 31, 40, 42, and 43) with health scores less than 80 percent were affected by the presence of noxious weed species. The inventories for these potholes indicate between 10 and 30 percent *Cirsium arvense* (Canada thistle). Ideally, a wetland would not have any noxious weeds; however, a pothole that contains 5 percent or less noxious weeds is still given an actual score of 3 out of a potential score of 3, indicating a healthy site. As previously stated all of these potholes exhibited varying amounts of bare ground, which is evidence of disturbance.

Some of this disturbance around the potholes in the southern pasture may be attributed to cattle grazing and use by large game animals. Canada thistle was observed to be invading not only the bare ground areas, but also interspersing within other graminoid and forb

species. Pothole 43 was not in an area that was grazed by livestock. There was evidence (bedding, hummocking, pugging, and foraging) of a significant number of large game animals. No other noxious weeds were identified within the established polygons for these inventories at the Bandy Ranch.

Several noxious species were observed outside of the polygon delineations such as, dalmation toadflax, spotted knapweed, and leafy spurge. Other noxious weed species may be present at the ranch that were not observed during the inventories. Efforts are being made to apply herbicide to the noxious weeds on the ranch. Neighboring properties have not made a concerted effort to combat their own noxious weed problems, and as a result, noxious weeds will continue to spread to the Bandy Ranch. Canada thistle will likely increase with bare-ground disturbances. Appendix E contains more information regarding this species.

Total Area Covered by Undesirable Herbaceous Species

Disturbance-induced herbaceous plants (either native or introduced) can indicate a trend away from potential natural communities or a reduction in a site's ability to function as a healthy wetland ecosystem. Most of these weedy, herbaceous species provide less soil holding and sediment trapping capability, are less productive and offer less wildlife values than native, later successional species (RWRP 1999).

None of the potholes inventoried for this study had the presence of undesirable herbaceous species. Undesirable herbaceous species, such as dandelions and Kentucky bluegrass, were observed outside of the pothole delineations.

Percent of Polygon with Human-Caused Exposed Soil Surface

Exposed soil surfaces are those surfaces not protected from erosive forces by plants, litter or duff, downed woody materials or rocks of cobble size or larger (greater than 2.5 inches). Exposed soil surface is an important factor for evaluating the health of wetland sites for several reasons: 1) exposed soil is vulnerable to erosion; 2) it may contribute to, as well as reflect, shoreline deterioration; 3) the more exposed soil, the less vegetation is available for soil protection and sediment entrapment; and 4) exposed soil provides opportunity for invasion by noxious weeds and other less desirable species (RWRP 1999).

As stated above, the presence of bare ground is an indicator of long-term disturbance. Cattle grazing and the presence of large game animals at the Bandy Ranch have likely caused some degree of disturbance to the prairie potholes in the southern pasture. Most of the potholes in the southern pasture that scored less than 80 percent were affected by this inventory item. Pothole 44, in the forested area, had been historically logged and grazed by livestock. Based on the health score calculations, a perfect score (actual 6 out of a potential 6) is given to potholes with one percent or less bare ground exposed. The potholes that were affected by this item had between 3 and 20 percent bare ground.

Degree of Artificial Drawdown of Water

The artificial drawdown of water has a negative affect on wetland systems because it alters natural water levels. It is caused when water is diverted or pumped from the wetland.

The artificial drawdown of water impacts the maintenance of healthy native wetland plant communities. The result is often an exposed shoreline, barren of vegetation for most of the growing season. Shorelines will destabilize, contributing little natural functions (RWRP 1999).

None of the inventoried potholes at the Bandy Ranch experience any artificial drawdown of water. Because none of the potholes were subject to the impacts caused by diverting or pumping water, all of the potholes inventoried received a high health score based on this category.

Overflow Structure Stability

The presence of an overflow structure can impact the natural wetland system when the stability of the structure is poor. Although a healthy system can develop behind a stable outlet structure, more often, due to the construction materials and the relative stability of the structures, they will not. The presence of an overflow structure that is made of concrete, pipe, or other armored rock and is stable will still merit an actual score of 6 out of a potential score of 6. Systems that lack an overflow structure are not scored in this category.

None of the potholes inventoried at the Bandy Ranch have overflow structures. Therefore the health scores do not reflect this category.

Percent of Shoreline with a Deep Binding Root Mass

The vegetation along a shoreline stabilizes the soil with a deep, binding root mass and filters sediments from overland flow. A greater density of woody species or vigorously rhizomatous herbaceous species indicates greater soil stability (RWRP 1999).

Several potholes (Potholes 1, 15, 17, 18, 30, 40, 41, 42, 43, and 44) that scored below 80 percent overall health were affected by this inventory item. As previously stated, these potholes were noted as having between 3 and 20 percent of their total area occupied by bare ground. In addition, a large percentage of the potholes lacked the presence of trees and shrubs, which are excellent shoreline stabilizers. Large percentages of moderate stabilizers, such as spikesedge (*Eleocharis palustris*) and Baltic rush (*Juncus Balticus*) was observed in many of the shoreline areas. A perfect score (actual 6 out of a possible 6) was given to potholes that had greater than 85 percent of the shoreline exhibiting this type of vegetation. Pothole 43 had between 0 and 35 percent of the shoreline occupied by vegetation with deep, binding root mass; Pothole 42 had between 36 and 65 percent; and the remainder of the above-listed potholes had between 66 and 85 percent.

Percent of Polygon Hummocked and/or Pugged

Moist, fine-textured soils are very susceptible to hoof damage by heavy animals. Hummocks and pugging reflect severe impact to a site that can mean functional degradation when the area affected is large. Normal vegetative succession can be disrupted, and the soil surface is exposed and roughened to increase erosion potential (RWRP 1999).

Much of the bare ground that was observed around Potholes 3, 15, 17, 18, 31, 41, 43, and 44 exhibited both hummocking and pugging. While it is likely that the hummocking and pugging was caused by cattle grazing (all of these potholes are located areas with grazing), some of the hummocking and pugging can be the result of large game animals such as elk or deer.

4.2 GRAZING AND PRECIPITATION AT THE BANDY RANCH

Factors such as climate (water availability) and human-caused disturbances have a propensity to influence vegetative species composition in potholes (Van der Valk 1989). The following is a discussion of precipitation factors as they relate to the Bandy Ranch and a discussion regarding the grazing in the southern pasture and the forested area.

Precipitation

Precipitation data compiled by the Western Regional Climate Center and the National Weather Service (see Table 3-1, Section 3.1) indicates that the calendar year (January through December 1997) that the inventories were conducted, the Bandy Ranch had slightly higher annual precipitation (49.7 centimeters [14.7 inches]) than normal (34 centimeters [13.4 inches]). In addition, the year prior to the inventories, November 1996 through October 1997, had an annual precipitation of 52.3 centimeters (20.6 inches), or 18.3 centimeters (7.2 inches) above normal. Annual precipitation recorded for 1993 for that area was slightly above average. Annual precipitation records for 1991, 1992, and 1994, however, were all lower than average by 4.6 centimeters (1.8 inches). The cumulative precipitation from 1991 through 1994 was 11.9 centimeters (4.7 inches) lower than average. Precipitation in the years 1995 through 1998 exceeded the average in recent decades. Because precipitation can influence water availability and vegetative species composition, precipitation data should be considered when conducting inventories and health assessments.

Although the results of yearly pothole monitoring may not reflect the amount of precipitation received in a given year, it will likely identify long term precipitation changes.

The amount of water available in a given year at the Bandy Ranch likely plays a significant role in the vegetation, soils, and hydrology observed in the prairie potholes. Flooding of a prairie pothole region tends to have a greater effect on the vegetative community

composition than occasional drought (Van der Valk and Squires 1992). Years of low precipitation were recorded for 1991 through 1994, however, the amount of precipitation significantly increased in the year prior to the inventories. Cyclical variation in precipitation (high precipitation to drought conditions) produces effects on the vegetative community that may be considered normal dynamic changes to the wetland. As stated in Section 4.1, the changes will have a tendency to influence the vegetative community, and thus influences the functions of a pothole.

Grazing Strategies

While grazing in the southern pasture has been discontinued for a period of three years (1997 through 1999), many of the potholes at the Bandy Ranch exhibit characteristics of excessive grazing over a long period. Grazing strategies that were incorporated prior to the University of Montana's ownership did not likely take the health of the pothole into consideration, but rather, the availability of water and palatable vegetation (to cattle) in the pastures.

The inventories were conducted on the first year that the southern pasture was left ungrazed (1997). Future inventories of that pasture, particularly for Potholes 1, 3, 15, 17, 18, 23, 29, 30, 31, 40, 41, and 42, could determine whether the removal of grazing has improved the health of these potholes. Specific grazing strategies and future ranch management decisions can be made using this baseline health assessment. For example, the western portion of the south pasture is a main cattle route through the pasture from

the entrance at the north gate. By incorporating fencing into the western portion of the south pasture, it may encourage cattle to follow alternative routes through the pasture, lessening potential impacts to some of the potholes that did not produce high health scores. Monitoring the health of the potholes will aid in determining its status as grazing strategies change and management decisions are made. Using the RWRP Lentic Inventory and Health Evaluation processes regularly will facilitate monitoring and analysis.

Natural variations of a wetland can occur as a result of the amount of precipitation and the degree of wildlife usage. A difficult management situation arises when natural variations together with human-caused impacts (logging and cattle grazing) occur simultaneously. While human-caused impacts can be reduced or managed for, natural variations (such as, cyclical trends of precipitation and drought and wildlife usage) can not be controlled.

First, a manager must evaluate the health scores for a certain site and determine the potential human-caused influences that may have contributed to a lower health score. If health scores are directly related to cattle grazing alone, management decisions can be made to limit or lessen the severity by altering a grazing strategy in that area.

4.3 APPLICABILITY OUTSIDE OF BANDY RANCH

Seventy-one percent of the prairie potholes at the Bandy Ranch that were inventoried for this study were determined to be either healthy. Thirty-three percent of the potholes inventoried were determined to be healthy with some problems. Several potholes received

perfect or close to perfect health scores and are therefore considered to be in proper functioning condition. Not only do the inventories and health evaluations provide a baseline of information on the inventoried potholes on the Bandy Ranch, but also the potholes inventoried on the Bandy Ranch can serve as reference potholes for this ecoregion⁶.

Reference potholes represent the variability that occurs as a result of natural processes and disturbances (Hauer and others 1999). Potholes with particularly high health scores (for example, Potholes 7, 8, 9, 19, 27, 33, and 36⁷) can be presumed to reflect natural processes and disturbances such as climate, wildlife use, vegetative succession, and hydrologic and hydrogeologic conditions with no observable human-caused impacts. Conditions identified at reference potholes should provide data that can be repeatedly observed and measured (Hauer and others 1999) relative to natural changes in the ecosystem.

4.4 HEALTH ASSESSMENT PROCESS

The recent recognition of the values and functions of wetlands has prompted the development of numerous wetland assessment procedures that are used throughout the United States. Assessment procedures were developed to measure and assess function, social impact, and relative importance of a wetland (Bartoldus 1999). The use of health

⁶ An ecoregion can be defined as the geographic area occupied by a specific ecosystem. In this case, the ecoregion is the glaciated pothole region of north central Montana. However, the ecoregion can be expanded past Montana's borders to encompass the North American plains.

assessments can provide useful insights towards managing for sustainability and developing positive relationships between human and ecosystem health. While some assessment procedures are used for a single purpose, (such as for regulatory only, or created wetlands only), several have multi-purpose applications. Bartoldus (1999) has prepared a manual summarizing 40 different wetland assessment techniques. This manual offers a synopsis of each procedure including its purpose, applicability, procedure, and output.

Although a myriad of assessments exists, three assessment methods are primarily used in the state of Montana: the Hydrogeomorphic (HGM) Approach, the Montana Wetland Field Evaluation Form (MT Form), and the RWRP Inventory, Evaluation, and Assessment methods. A brief description of these assessment methods is provided below. In addition, an expanded discussion of the RWRP processes is provided specific to this study.

HGM Approach

The HGM Approach is being developed by the U.S. Corps of Engineers in cooperation with other federal agencies. Its approach is based on a hydrogeomorphic classification of wetland functions (Brinson 1993). It assesses wetlands by using criteria that fundamentally influence the functions of wetlands (Hauer and others 1999). The method compares (using models) wetland sites to reference wetlands in order to measure the functional capacity of the site. Reference wetlands establish the basis for defining what

⁷ All potholes listed were determined to have perfect health scores of 100 percent.

constitutes a characteristic, sustainable level of function across the suite of functions selected for a type and class of wetland (Hauer and others 1999).

The HGM Approach contains two main phases, the developmental phase (including hydrogeomorphic classification, development of reference wetlands, and assessment models and functional indices), which can be very time consuming⁸, and the application phase⁹. The results of the HGM assessment can be used to: 1) compare the same wetland assessment area at different points in time; 2) compare different wetland assessment areas at the same point in time; 3) compare different alternatives to a project; and 4) compare different types and classes of wetlands (Hauer and others 1999). Its main application is to satisfy regulatory requirements as well as a variety of government planning and management situations. It is primarily used for assessments under the 404 Regulatory Program¹⁰; however, because the assessment results can be plugged into established models for comparison purposes, it can be also used for design, management, and planning. The limits of the HGM approach are mainly: 1) the time needed to develop models for each subclass of wetland; 2) few of the 14 regional wetland subclasses have working models; and 3) the high level of wetland expertise needed to apply the approach.

⁸ It can take several months to develop the reference wetlands used in the assessment model (Bartoldus 1999).

⁹ One site can be assessed in an estimated one to two hours (Bartoldus 1999).

¹⁰ Section 404 of the Clean Water Act which governs and permits discharges of dredge and fill material to waters of the United States.

Montana Wetland Field Evaluation Form

The Montana Department of Transportation and other state agencies have developed a Wetland Field Evaluation Form that is used to evaluate relatively small highway and other linear projects are expected to have a minimal impact on wetland resources. The procedure evaluates 12 functions and values of wetlands, including; habitat to federally listed, proposed, or candidate threatened or endangered plants or animals; habitat for state plant and animal species of concern; general wildlife habitat; general fish habitat; flood attenuation and storage; dynamic surface water storage; sediment/nutrient/toxicant retention and removal; sediment/shoreline stabilization; production export/food chain support; groundwater discharge/recharge; uniqueness; and recreation/education (Bartoldus 1999).

The assessment method requires the assessor to assign a point scale to each of the listed functions and values. Based on the assigned points, the ratio of actual function/value points to possible function/value points determines the overall score (or category) of the wetland.

One benefit of this assessment method is that it is a very quick assessment when information is available on a specific site. However, there are a number of limits to this method. First the process cannot be used for large-scale projects, 404 Regulatory permitting, or design. The assessment process requires assessors to assign points to functions and values based on personal experience and judgements. This process leaves

room for arbitrary and biased results and conclusions. In addition, many of the 12 values and functions are societal-driven as opposed to being scientific. For example, education and recreation are societal values and are not inherent functions of a healthy system.

RWRP Inventory and Evaluation Process

Since 1988 the RWRP has been working on the development of various inventory and assessment processes. There are currently seven systems developed by the RWRP for inventorying and assessing wetland and riparian sites. These processes have evolved over the years incorporating up-to-date research and a vast amount of professional input, experience, and field-testing. The following is a brief description of the seven methods developed by the RWRP (Hansen and others 1999):

Lotic Inventory – A comprehensive stream inventory containing over 800 data base fields that incorporate information on vegetation, physical site data, wildlife, and miscellaneous information.

Lotic Health Evaluation (derived from the Lotic Inventory) – Evaluates information derived from the Lotic Inventory form. An array of information pertaining to hydric soils, hydrophytic vegetation, and wetland hydrology is weighted and a health score is calculated. The process outputs an index rating of lotic wetland function.

Lotic Health Assessment (stand-alone) – A rapid assessment method of functional health that does not include an inventory, rather on-site estimates of information pertaining to hydric soils, hydrophytic vegetation, and wetland hydrology. As with the evaluation process, the assessment outputs an index rating of lotic wetland function. The calculated health score should be the same score as derived in the Lotic Health Evaluation, however, without the extensive inventory data. Specific characteristics of a site are not recorded.

River Health Assessment (stand-alone) – Similar to the Lotic Health Assessment method, however, developed for the functional assessment of river systems, rather than stream systems. This process also outputs an index rating of river wetland functions.

Lentic Inventory – A comprehensive lentic wetland inventory containing over 800 data base fields that incorporate information on vegetation, physical site data, wildlife, and miscellaneous information.

Lentic Health Evaluation (derived from the Lentic Inventory) – Evaluates information derived from the Lentic Inventory form. An array of information pertaining to hydric soils, hydrophytic vegetation, and wetland hydrology is weighted and a health score is calculated. The process outputs an index rating of lentic wetland function.

Lentic Health Assessment (stand-alone) – A rapid assessment method of the functional health of lentic wetlands that does not include an inventory, rather on-site estimates of information pertaining to hydric soils, hydrophytic vegetation, and wetland hydrology. As with the evaluation process, the assessment outputs an index rating of lentic wetland function. The calculated health score should be the same score as derived in the Lentic Health Evaluation, however, without the extensive inventory data. Specific characteristics of a site are not recorded.

The Lentic Inventory and the Lentic Health Evaluation were used in this study. The RWRP process was designed to output an index rating (called a health score) of wetland function. Health scores rate wetland sites into three categories: 1) healthy, 2) healthy with some problems, and 3) unhealthy. Because this method was designed for identifying problems associated with the function of wetlands, indices (health scores) are not absolute values. Health scores do allow for sites to be evaluated for a snapshot in time, evaluated regarding problems with function, and monitored when used over a period of time (Thompson and others 1998).

One feature of the RWRP methods is that emphasis is placed on the main characteristics and functions of wetlands. Societal values and benefits do not play a role in the determination of health scores; therefore, the assessment of the wetland system is, for all practical purposes, without biases. For example, the health score of a site takes the percentage of noxious weed species occupying a site; however, the particular species is irrelevant to the health score. Also, hummocking and pugging are identified in the calculation of the health score, but they are not attributed to a specific cause (such as large game animals, livestock, or vehicle traffic). The assessment assumes that all hummocking and pugging within a wetland will have affects on its functions and will be reflected in the health score.

These assessment methods are a means to assess the health of a wetland system in a relatively quick manner without the use of complex models and reference wetlands. They are not designed for an in-depth comprehensive analysis of ecological processes (Hansen and others 1999). For these reasons, this method is best used for land management and planning. It is not a suitable method for evaluating wetlands under the 404 Regulatory Permitting process.

5.0 RECOMMENDATIONS

The results of the inventories and health assessments of prairie potholes at the Bandy Ranch provide a baseline of information regarding the conditions and functions of those potholes. Because cattle grazing in the southern pasture will be reestablished in the year

2000, monitoring the health of the potholes in that pasture is recommended. Particular attention should be given to potholes that had health scores less than 80 percent (healthy but with some problems) that were primarily located on the western portion of that pasture.

The forested area has received heavier cattle use since the date of the 1997 inventory¹¹.

An inventory and health assessment on Pothole 44 is recommended to evaluate the current condition of that pothole after heavy cattle use. Although Pothole 43 is currently in an area that does not have access for grazing, ranch managers are considering it as a potential grazing pasture. The health score for this pothole indicates some problems that can likely be traced to logging and use by large game animals. The current problems associated with this pothole warrant consideration if the area is to become subject to livestock grazing. Limiting livestock access to the pothole may not increase the health score; however, it may help to prevent any further impacts to its health.

A regular monitoring program is recommended not only for the potholes assessed in this study, but also for potholes located elsewhere on the ranch to establish a baseline health assessment for the entire ranch. In addition to monitoring, future grazing strategies and ranch management decisions should take into account the results of this baseline evaluation as well as any updated information.

¹¹ Increased usage of this area was due to the closure of the south pasture for a three-year period.

Problems that were identified at several of the potholes at the ranch included tree and shrub regeneration, dead and decadent amounts of woody vegetation, canopy cover of woody species as well as all four plant life forms, noxious weeds, exposed soil, lack of shoreline stabilizers, and hummocking and pugging. These problems may be related to livestock grazing and, to a lesser extent, large game animal usage. Because management of the ranch will primarily be dealing with grazing issues (main activity in the pastures), the following list was compiled from *Effective Cattle Management in Riparian Zone: A Field Survey and Literature Review* (Ehrhart and Hansen 1997) to provide some of the general principals of grazing techniques in wetlands areas¹².

- Tailor the grazing approach to the specific [wetland] ecosystem under consideration.
- Incorporate management of [wetland] areas into the overall management plan.
- Select season of use so grazing occurs, as often as possible, during periods compatible with animal behavior, conditions in the [wetland] zone, and [wetland] objectives.
- Limit the time livestock spend in pastures with [wetland] areas.
- Control the distribution of livestock within the targeted pasture.
- Ensure adequate residual vegetation cover.
- Provide adequate regrowth time and rest for plants.
- Be prepared to play an active role in managing [wetland] areas.

These techniques were provided specific to riparian areas, however, as long as the primary focus is management for the health of the wetland system, these principals can be applied to wetlands (lotic and lentic) in general.

Based on the results of the RWRP health assessments, all of the inventoried potholes at the Bandy Ranch were determined to be relatively healthy. In addition, several potholes

¹² The term “wetland” replaces the terms “riparian” and “stream” used in the original text.

with overall health scores over 80 could potentially be used as reference potholes for this ecoregion. Further study of the potholes in this ecoregion could provide a better understanding of health and functions associated with glaciated potholes, as well as the influences on their health.

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APPENDIX A

RIPARIAN WETLAND RESEARCH PROGRAM LENTIC INVENTORY FORM

RWRP LENTIC INVENTORY FORM

Record ID No: _____

ADMINISTRATIVE DATA

A1. Field data collected by: _____

A2. Funding Agency/Organization: _____

A3a. BLM State Office: _____ **A3b.** BLM Field Office: _____

A3c. BLM District: _____ **A3d.** BLM Resource Area: _____

A3e. BLM Office Code: _____ **A3f.** Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____

If **Yes**, **A3g:** GABS Allot. No: _____ **A3h:** GABS Allot. No: _____

GABS ID: _____ GABS ID: _____

GABS Allotment Name: _____ GABS Allotment Name: _____

GABS Mgmt. Status: _____ GABS Mgmt. Status: _____

A4. USFWS Refuge: _____

A5. Reservation: _____

A6. NPS Park/NHS: _____

A7. BOR Project: _____

A8. USFS National Forest: _____

A9. Year: _____ **A10.** Date field data collected: _____ **A11.** Observers: _____

A12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): _____

If **Yes**, **A12b.** This polygon coincides exactly with another inventoried polygon? (Yes; No): _____

A12c. Is this the latest inventory for this polygon? (Yes; No): _____

A12d. ID No.(s) of other inventories of this polygon: _____

A12e. Other years: _____ **12f.** This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____

A12g. Other years: _____

A12h. ID No.(s) of other records sharing area with this polygon: _____

A13a. Has a change in management occurred? (Yes; No): _____ If **Yes**, **A13b.** Year that changed occurred: _____

A13c. Type of management change applied:

LOCATION DATA

B1. State/Province: _____ **B2.** County/Municipal District: _____

B3. Allotment/Range Unit: _____

B4. Area name: _____ **B5.** Polygon No.: _____

B6. Location: T: _____ R: _____ Sec: _____

1/4 Sec: _____ 1/4 1/4 Sec: _____ **B7.** Elev. (ft): _____ ; (m): _____

B8a. Hydrologic unit code (HUC): _____ **B8b.** Sub-basin name (4th level HUC): _____

B8c. Sub-basin (sq mi): _____ ; (sq m): _____ **B8d.** Sub-basin (ac): _____ ; (hect): _____

B8e. Sub-basin perimeter (mi): _____ ; (m): _____

B9a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____

B9b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____

B9c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____

B9d. GPS Unit #: _____ WPT Upper: _____ WPT Lower: _____ WPT Other: _____

B9e. Comments: _____

B10. Quad map(s): _____

SELECTED SUMMARY DATA

Record ID No: _____

- C1. Wetland type: _____ C2. Polygon size (acres): _____ ; (hect.): _____
 C3a. Is the entire polygon an upland? (Yes; No): _____ If **No**, C3b. Does the polygon consist entirely of functional wetland types? (Yes; No): _____ C3c. Functional wetland (acres): _____ ; (hect.): _____ C3d. Percent of total polygon: _____
 C4. Does the polygon contain a defined shoreline? (Yes; No): _____
 C5. Shoreline length (mi): _____ ; (km): _____ C6. Number of shoreline miles the polygon represents: _____ ; (km): _____
 C7. Polygon length (mi): _____ ; (km): _____
 C8a. Average polygon wetland width (ft): _____ ; (m): _____
 C8b. Wetland zone width range (ft): _____ to _____ ; (m): _____ to _____

Health Assessment Summary

- C9. Polygon Health: Rating Percent _____ Descriptive Category: _____
 Vegetation: _____
 Soil / Hydrology: _____
 Overall: _____

<i>Rating Percent Range</i>	<i>Descriptive Category</i>
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

VEGETATION DATA

- D1a. Wetland prevalence index: _____
 D1b. Vegetation structural diversity: _____

Trees

- D2a. Are trees present? (Yes; No): _____
 D2b. Tree species by canopy cover class and percent age group
- | <u>SPECIES</u> | <u>COV</u> | <u>SDLG/DEC</u> | <u>SPLG/DEC</u> | <u>POLE/DEC</u> | <u>MAT/DEC</u> | <u>DEAD</u> |
|----------------|------------|-----------------|-----------------|-----------------|----------------|-------------|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ |

SPECIES

D3. Regeneration Category

D4. Age Group Distribution Category

D5. Seedling/Sapling Utilization

Shrubs

Record ID No: _____

D6a. Are shrubs present? (Yes; No): _____

Shrub util. not coll.
prior to 1990

Not collected
prior to 1991

D6b. Shrub species canopy cover, age/size groups, and utilization

<u>SPECIES</u>	<u>COV</u>	<u>SPLG-SPLG/UTIL</u>	<u>MATURE/UTIL</u>
_____	_____	_____	_____

DEC-DEAD/UTIL

D6c. Shrub Growth Form (N,F,U)

D7. Graminoids

Graminoids present?
(Yes; No): _____

SPECIES	COV
_____	_____

D8. Forbs

Forbs present?
(Yes; No): _____

SPECIES	COV
_____	_____

Record ID No: _____

D9. Plant Group by Canopy Cover

Layer	Trees	Shrubs	Graminoids	Forbs
3 (>6.0 ft):	_____	_____	_____	_____
2 (>1.5 - 6.0 ft):	_____	_____	_____	_____
1 (0 - 1.5 ft):	_____	_____	_____	_____

D10. Total canopy cover by lifeform:

Trees: _____ Shrubs: _____

Graminoids: _____ Forbs: _____

D11. Total canopy cover by woody species: _____

D12. Total canopy cover by all plant lifeforms: _____

Weed Data

D13a. Are invasive weeds present ? (Yes; No; NC): _____

If **Yes**, D13b. The portion of the polygon *infested* by each of the following invasive weed species:

Canada Thistle: _____	Leafy Spurge: _____
Common Hound's-tongue: _____	Purple Loosestrife: _____
Common Tansy: _____	Sulphur Cinquefoil: _____
Dalmatian Toadflax: _____	Russian Olive: _____
Diffuse Knapweed: _____	Saltcedar (Tamarisk): _____
Spotted Knapweed: _____	Scotch Thistle: _____
Russian Knapweed: _____	Dyer's Woad: _____
Whitetop: _____	St. John's Wort: _____
Others: _____	_____
Others: _____	_____
Others: _____	_____

D13c. What percent of the polygon is *infested* by all invasive weeds? _____

D14. Habitat Types and Community Types

Record ID No: _____

Classification Type Name	Phase	Percent of Polygon	Successional Stage or Comments
_____	_____	_____	_____
_____	_____	_____	_____

D15a. Are undesirable herbaceous species present? (Yes; No; NC): _____ *Not collected prior to 1991*

If **Yes**, **D15b.** Record the combined canopy cover of all undesirable herbaceous species observed: _____

D16. Polygon trend: Improving, Degrading, Static, or Status Unknown? _____

D17. Explain trend description and give other vegetation comments:

WATER QUALITY DATA (TMDL DATA)

Record ID No: _____

E1. Waterbody number: _____

E5. Probable cause(s):

E2a. Is the waterbody a 303(d) listed impaired stream? (Yes; No) _____

If **Yes**, E2b. Year of listing? _____

E3. Waterbody TMDL priority: _____

E4. TMDL development status: _____

E6. Probable impaired uses:

_____E7. Probable source(s):

_____**PHYSICAL SITE DATA**

F1. Estimate the polygon breakdown into these NWI classes: Emergent: _____ Scrub/shrub: _____ Forested: _____

F2. What is the primary water source on the polygon? (Perennial stream, Overland surface flow, Springs/seeps, Topographic contact with groundwater table, Unknown, Other): _____ Explain Other: _____

F3. Is the water body in a closed basin with no outlet? (Yes, No, NA, NC): _____

F4. Describe the water chemistry (Alkaline/Saline; Fresh, Unknown, NC): _____

F5. Degree of artificial drawdown (Not Subjected, Minor, Extensive, Extreme, NC): _____

F6a. Is there an overflow structure? (Yes, No, NA, NC): _____

If **Yes**, F6b. Indicate type (Concrete, Pipe, Rock Armored, Unprotected, Other): _____

Explain "Other": _____

F6c. Does the overflow structure appear stable? (Yes, No, NA, NC): _____

Explain: _____

F7a. Is there a shoreline? (Yes, No, NA, NC): _____ If **Yes**, F7b. Are shoreline materials visible? (Yes, No, NA, NC): _____If **F7b Yes**, F7c. Give the percent of each size (must approx. 100%):

_____ >20 inches (Medium Boulders +)	_____ 0.6 - 2.5 inches (Coarse Gravel)
_____ 10 - 20 inches (Small Boulders)	_____ 0.08 inches - 0.6 inches (Fine Gravel)
_____ 5 - 10 inches (Large Cobbles)	_____ 0.062 mm - 2 mm (Sand)
_____ 2.5 - 5 inches (Small Cobbles)	_____ <0.062 mm (Silt and Clay)

F8a. Is shoreline structurally altered by on-site human, or human-caused activities? (Yes, No, NA, NC): _____

If **Yes**, F8b. How much of the shoreline length has human-caused alterations? _____

F8c. Of this, how much resulted from: (must approx. 100%)

Grazing: _____ Logging: _____ Railroads: _____ Vegetation Removal: _____

Roads: _____ Mining: _____ Recreation: _____ Other: _____

Explain "other": _____

F9. Percent of the shoreline with deep, binding root mass (0-35%; 36-65%; 66-85%; over 85%; NC): _____

F10a. Is there exposed soil surface (bare ground)? (Yes; No; NC): _____

If **Yes**, complete items F10b-d; if **No** or **NC**, go to item F12a.

F10b. Percent of the polygon which is exposed soil surface (bare ground): _____

F10c. Of this, how much is due to: Natural processes: _____ Human-caused disturbance: _____ (must approx. 100%)

OPTIONAL DATA

Record ID No: _____

H1. Vegetative use by animals (0-25%; 26-50%; 51-75%; 76-100%): _____

H2. Adjacent uplands (Agriculture; Grassland; Shrubland; Forest; or Other): _____

H3a. Were Category 2 (T & E) plant species observed? (Yes; No): _____ If **Yes**, H3b. Species: _____

H3c. Location(s): _____

H4. Percent of shoreline accessible to livestock: _____

H5a. Has the shoreline configuration been modified by construction? (Yes, No, NA, NC): _____

If **Yes**, H5b. What percent of the shoreline is modified? _____

H5c. What part of the modification resulted from these various sources: (must approx. 100%)

Dikes _____	Railroads _____	Mining _____
Berms _____	Road Construction _____	Bridges _____
Dams _____	Water Diversion Structures _____	Logging _____
Rip-rap _____	Vegetation Removal _____	Other _____

Explain "Other": _____

H5d. Locations: _____

Waterfowl Data

H6a. Were waterfowl nests or broods observed? (Yes; No): _____

If **Yes**, H6b. Describe: _____

Fishery Data

H7a. Does the polygon contain a fishery? (Yes; No; Unknown): _____

If **Yes**, H7b. Is it a sport fishery, non-sport fishery, or unknown: _____

H7c. Fish types present, if known (use common names or descriptions): _____

H7d. How many fish were observed? (0; 1-10; 11-50; >50): _____

H7e. If the polygon does not contain a fishery, is there potential for one? (Yes; No; Unknown): _____

Explain: _____

Amphibian and Reptile Data

H8a. Were amphibians observed? (Yes; No): _____

If **Yes**, H8b. Number observed: Frogs: _____ Toads: _____ Salamanders: _____

H9a. Were reptiles observed? (Yes; No): _____

If **Yes**, H9b. Number observed: Snakes: _____ Turtles: _____ Lizards: _____

H10. List amphibian or reptile species and the quantity of each identified in the polygon.

Spp. #1: _____	No.: _____	Loc.: _____
Spp. #2: _____	No.: _____	Loc.: _____
Spp. #3: _____	No.: _____	Loc.: _____
Spp. #4: _____	No.: _____	Loc.: _____

Threatened and Endangered Species Data

H11a. Were T & E animal species observed? (Yes; No): _____

If **Yes**, H11b. What species? Peregrine Falcon: _____ Bald Eagle: _____ Bull Trout: _____
Peregrine Falcon Nest: _____ Bald Eagle Nest: _____

H11c. Other species observed?

<u>Species</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____

H11d. Location in polygon where T & E animals or nests were sighted:

APPENDIX B

**RIPARIAN WETLAND RESEARCH PROGRAM LENTIC INVENTORY FORM
CODES AND INSTRUCTIONS**

RWRP LENTIC INVENTORY CODES AND INSTRUCTIONS

These codes and instructions are intended to accompany the RWRP (Riparian and Wetland Research Program) Lentic Inventory Form for the inventory of still water (lentic) wetlands. This document can serve as the field reference to assist data collectors in answering each item on the form. It can also serve as an aid to the database user in the interpretation of data presented in the RWRP Lentic Inventory Form format. Another form entitled RWRP Lotic Inventory Form, with a different set of codes and instructions, is to be used for lotic (flowing water) wetlands.

BACKGROUND INFORMATION

Flowing Water (Lotic) Wetlands vs. Still Water (Lentic) Wetlands

Cowardin and others (1979) point out that no single, correct definition for wetlands exists, primarily due to the nearly unlimited variation in hydrology, soil, and vegetative types. Wetlands are lands transitional between aquatic (water) and terrestrial (upland) ecosystems. Windell and others (1986) state that "wetlands are part of a continuous landscape that grades from wet to dry. In many cases, it is not easy to determine precisely where they begin and where they end."

In the semi-arid and arid portions of western North America, a useful distinction has been made between wetland types based on association with different aquatic ecosystems. Several authors have used *lotic* and *lentic* to separate wetlands associated with flowing water from those associated with still water. The following definitions represent a synthesis and refinement of terminology from Shaw and Fredine (1956), Stewart and Kantrud (1972), Boldt and others (1978), Cowardin and others (1979), American Fisheries Society (1980), Johnson and Carothers (1980), Cooperrider and others (1986), Windell and others (1986), Environmental Laboratory (1987), Kovalchik (1987), Federal Interagency Committee for Wetland Delineation (1989), Mitsch and Gosselink (1993), and Kent (1994).

Lotic wetlands are associated with rivers, streams, and drainageways. Such wetlands contain a defined channel and floodplain. The channel is an open conduit which periodically or continuously carries flowing water, dissolved and suspended material. Beaver ponds, seeps, springs, and wet meadows on the floodplain of, or associated with, a river or stream are part of the lotic wetland.

Lentic wetlands are associated with still water systems. These wetlands occur in basins and lack a defined channel and floodplain. Included are permanent (i.e., perennial) or intermittent bodies of water such as lakes, reservoirs, potholes, marshes, ponds, and stockponds. Other examples include fens, bogs, wet meadows, and seeps not associated with a defined channel.

Functional vs. Jurisdictional Wetland Criteria

Defining wetlands has become more difficult as greater economic stakes have increased the involvement of more politics and less science. A universally accepted wetland definition satisfactory to all users has not yet been developed because the definition depends on the objectives and the field of interest. However, scientists generally agree that wetlands are characterized by one or more of the following features: 1) *wetland hydrology*, the driving force creating all wetlands, 2) *hydric soils*, an indicator of the absence of oxygen, and 3) *hydrophytic vegetation*, an indicator reflecting wetland site conditions. The problem is how to define and obtain consensus on thresholds for these three criteria and various combinations of the three criteria.

In the United States *jurisdictional wetlands* are those wet areas that are protected by law through section 404 of the Clean Water Act and the Swampbuster Provision of the Food Security Act (Mitsch and Gosselink 1993). The US Army Corps of Engineers (Federal Register 1982) and the Environmental Protection Agency (Federal Register 1980) jointly define wetlands for purposes of Section 404 of the Clean Water Act as:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Currently, jurisdictional wetlands in the United States are those that meet the criteria defined in the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and part 513 of the National Food Security Act Manual, Third Edition (Conservation Planning Division 1994). These are not inclusive of all wetlands included in the classification of Cowardin and others (1979).

Wetlands are not easily identified and delineated for jurisdictional purposes. Functional definitions have generally been difficult to apply to the regulation of wetland dredging or filling. Although the intent of legislation is to protect wetland functions, the current delineation of jurisdictional wetland still relies upon structural features or attributes. The hydrogeomorphic (HGM) approach being developed by the US Corps of Engineers is intended to focus more specifically on wetland functions.

The prevailing view among many wetland scientists is that *functional wetlands* need to meet only one of the three criteria as outlined by Cowardin and others (1979) (e.g., hydric soils, hydrophytic plants, and wetland hydrology). On the other hand, *jurisdictional wetlands* need to meet all three criteria, except in limited situations. Even though functional wetlands may not meet jurisdictional wetland requirements, they certainly perform wetland functions resulting from the greater amount of water that accumulates on or near the soil surface relative to the adjacent uplands. Examples include some woody draws occupied by the *Fraxinus pennsylvanica/Prunus virginiana* (green ash/common chokecherry) habitat type and some floodplain sites occupied by the *Artemisia cana/Agropyron smithii* (silver sagebrush/western wheatgrass) habitat type or the *Pinus ponderosa/Cornus stolonifera* (ponderosa pine/red-osier dogwood) habitat type. Currently, many of these sites fail to meet jurisdictional wetland criteria. Nevertheless, these functional wetlands provide important wetland functions vital to wetland dependent species and may warrant special managerial consideration. The current interpretation, at least in the western United States, is that not all functional wetlands are jurisdictional wetlands, but that all jurisdictional wetlands are functional wetlands.

Polygon Delineation

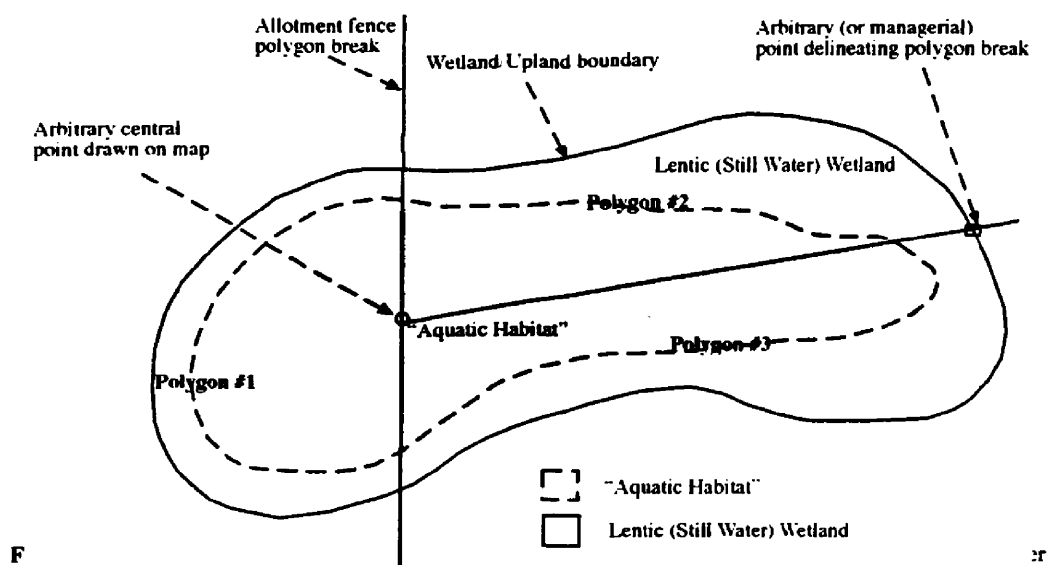
The RWRP lentic inventory process incorporates data on a wide range of biological and physical categories. The basic unit of delineation within which this data is collected is referred to as a *polygon*. A polygon is the area upon which one set of data is collected. One inventory form is completed (i.e., one set of data is collected) for each polygon. One or more (usually several) polygons constitute a project. A lentic (still water) wetland polygon is a wetland, or portion of a wetland, which is not associated with a waterway (stream or river) and which has no defined channel. Polygons are delineated on 7.5 minute topographic (topo) maps before observers go to the field. It is important to clearly mark and number the polygons on the topo map. Polygons are numbered pre-field (in the office) with consecutive integers (1, 2, 3 . . .). In cases where field inspection reveals the need to change the delineation or to subdivide polygons, additional polygons should be numbered using alpha-numerics (e.g., 1a, 1b, 2a, 2b, etc.). Combinations of delineated polygons will be field identified as the hyphenated tags of both combined parts (e.g., 1-2, 2-3, etc.).

If aerial photos are available, pre-field polygon delineations may be based on vegetation differences, geologic features, or other observable characteristics. On larger systems with wide wetland areas, aerial photos may allow the pre-field delineation of multiple vegetatively-based polygons away from the water source. In these cases, where polygons can be drawn as enclosed units, a minimum mapping unit of possibly 5 to 10 acres (2 to 4 ha) should be established and followed to avoid division into excessively small polygons. The size of the minimum mapping unit should be based on factors such as management capabilities and the costs and capabilities of data collection.

Once in the field, observers are to verify (ground truth) the office-delineated polygon boundaries. If the preassigned numbers are used, be sure the inventoried polygons correspond exactly as drawn originally. Observers are allowed to move polygon boundaries, create new polygons, or consolidate polygons if the vegetation, geography, location of fences, or width of the wetland zone warrant. If polygon boundaries are changed, the changes must be clearly marked on the field copies of the 7.5 minute topographic maps. Observers should draw the complete polygon boundary onto their field maps if possible at the 1:24,000 scale (7.5 minute). The original polygon numbers should be retained on the map for cross reference. ***Polygons should not cross fences between areas with different management.***

This lentic inventory form is intended for use on only the following National Wetland Inventory (NWI) classes: emergent wetlands, scrub/shrub wetlands, and forested wetlands within the palustrine system, as defined by Cowardin and others (1979). These NWI classes are characterized by persistent erect vegetation and occur within lentic (still water) systems on or near the shore. Palustrine sites to be inventoried may include lentic wetlands associated with lacustrine systems (lakes or reservoirs with more than 20 acres [8 ha] of surface water or waters deeper than 6.6 ft [2 m]), but the polygons will be delineated to exclude the "deep water habitat," or lacustrine area.

In most cases involving small bodies of water or small lentic wetlands, the inventoried polygon will be a closed unit of area. Around larger lakes, extensive marshes, or other large lentic wetlands, it may be necessary to divide the wetland into separate polygons (Figure 1). Polygons should be at distinct locations such as fences, stream entrances or exits, or other features easily recognized in the field.



F systems, i.e. those too big to inventory as a single polygon (more than about one half mile in length) or those with managerial breaks across them; 2) a typical relationship between "aquatic habitat" (open water) and surrounding lentic wetland, which includes areas of persistent emergent vegetation in standing water.

The outer boundaries of polygons are at the wetland vegetation outer edges. These boundaries are sometimes easily determined by abrupt changes in the geography and/or vegetation, but proper determination often depends on experienced interpretation of more subtle differences. The inner polygon boundary is the landward edge of the deep water habitat. Deepwater habitat is the area covered by surface water deeper than 6.6 ft (2 m) and/or lacking persistent emergent vegetation. Persistent emergent vegetation consists of emergent species that normally remain standing at least until the beginning of the next growing season, e.g., *Typha* spp. (cattails) or *Scirpus* spp. (bulrushes) (Cowardin and others 1979).

INVENTORY FORM CODES AND INSTRUCTIONS

Class Codes

Field observers will use class codes to represent ranges of percent wherever percent data is recorded. The class codes are defined below. These codes and range classes are from the USDA Forest Service Northern Regions ECODATA (1989) program.

T = 0.1<1%	2 = 15<25%	5 = 45<55%	8 = 75<85%
P = 1<5%	3 = 25<35%	6 = 55<65%	9 = 85<95%
1 = 5<15%	4 = 35<45%	7 = 65<75%	F = 95-100%

The class codes are converted to class midpoints in the office. The class midpoints are: T = 0.5%; P = 3.0%; 1 = 10.0%; 2 = 20.0%; 3 = 30.0%; 4 = 40.0%; 5 = 50.0%; 6 = 60.0%; 7 = 70.0%; 8 = 80.0%; 9 = 90.0%; F = 97.5%. These class midpoints are used in data reporting and in all calculations throughout the data analysis process.

Polygon Data

The following are the codes and instructions for the individual data items on the form. All data items are to be recorded in the field unless otherwise noted. Numbering corresponds to that of items on the form. Also included are comments about the data, how it is collected, and its meaning. When the inventory methodology follows a published source, that source is cited. However, in many instances, due to the lack of preexisting guidelines, we have developed our own methodologies.

Field data collection may be done using field forms customized by deleting certain items from the Lentic Data Form which need not be completed while in the field. *Fill in all blanks on the Field Form.* Enter "0" for any item to indicate the absence of value. Do not use "—" and do not leave items blank, except for the following: 1) items that logically would not be answered because they follow an answer of "No" in a leading "Yes/No" question, and 2) lines in a species list below the last species observed. An answer of "0" means the observer looked and saw none, whereas a blank line means the observer did not look, either by negligence or because the point was moot. *NA* means the item is not applicable to a particular polygon. *NC* means data was not collected for that item in a particular polygon. Observers must write legibly and should limit their use of abbreviations throughout to those which allow for no confusion.

Record ID No. This is the unique identifier allocated to each polygon. This number will be assigned in the office when the form is entered into the database.

Administrative Data

A1. Agency or organization collecting the data (recorded in the office).

A2. Funding Agency/Organization (recorded in the office).

A3a. BLM (Bureau of Land Management) State Office (recorded in the office).

A3b. BLM Field Office (recorded in the office).

A3c. BLM District (recorded in the office).

A3d. BLM Resource Area (recorded in the office).

A3e-h. For BLM polygons, the BLM Office Code, whether the polygon is in an active BLM grazing allotment, and the GABS Allotment Number is supplied by the BLM. These items are entered into the computer in the office; the computer then references a master list of GABS ID's to complete the remaining GABS data items. Because some polygons incorporate more than one GABS Allotment space is provided to enter two sets of GABS data. The master GABS list is periodically updated by the BLM National Applied Resource Sciences Center to make needed corrections.

A4. US Fish and Wildlife Service Refuge name.

A5. Native American Reservation name.

A6. National Park Service Park/National Historical Site name.

A7. BOR (Bureau of Reclamation) project name.

A8. USFS (Forest Service) National Forest name.

A9. Year the field work was done.

A10. Date of field work by day, month and year.

A11. Names of all field data observers.

Note: Information for items A12a-h is entered in the office; field evaluators need not complete these items.

A12. The several parts of this item are to identify various ways in which a data record may represent a resampling of a polygon that may have been inventoried again at some other time. The data in this record may have been collected on an area that coincides precisely with an area inventoried at another time and recorded as another record in the database. It may also represent the resampling of only a part of an area previously sampled. This would include the case where this polygon overlaps, but does not precisely and entirely coincide with one inventoried at another time. One other case is where more than one polygon inventoried one year coincide with a single polygon inventoried another year. All of these cases are represented in the database, and all have some value for monitoring purposes, in that they give some information on how the status on a site changes over time.

A12a. Has any part of the area within this polygon been inventoried previously, or subsequently, as represented by any other data record in the RWRP database? Such other records would logically carry different dates.

A12b. Does the areal extent of this polygon exactly coincide with that of any other inventory represented in the RWRP database? In many cases subsequent inventories only partially overlap spatially. The purpose of this question is to identify those records that can be compared as representing exactly the same ground area.

A12c. Does this record represent the latest data recorded for this site (polygon)?

A12d. If A12b is answered "Yes," then enter the record ID number(s) of any other previous or subsequent reinventories (resamplings) of this exact polygon for purposes of cross-reference.

A12e. Enter the years of any records recorded in item A12d as representing other inventories of this exact polygon.

A12f. Even though this polygon is not a re-inventory of the exact same area as any other polygon, does it share at least some common area with one or more polygons inventoried at another time?

A12g. Enter the years of any other inventories of polygons sharing common ground area with this one.

A12h. If A12f is answered "Yes," then enter the record ID number(s) of any other polygon(s) sharing common ground area with this one.

A13a. Has a management change been implemented on this polygon?

A13b. If A13a is answered "Yes," in what year was the management change implemented?

A13c. If A13a is answered "Yes," describe the management change implemented.

Location Data

B1. State or Canadian province in which the field work was done.

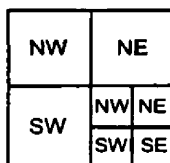
B2. County or municipal district in which the field work was done (recorded in the office).

B3. This field for allotment or range unit is intended for entities other than the BLM to use for grouping polygons by management unit. The BLM management units are grouped using the GABS information in A3 above.

B4. The area name (locality) is some name on the map that locates the site. Often used are lake or stream names.

B5. Polygon number is a sequential identifier of a section of the area inventoried. This is referenced to the map delineations. Sequences normally progress clockwise.

B6. The Township, Range, Section, 1/4 section, and 1/4,1/4 section is the location of the *centroid* of the polygon. On this form, section subdivisions are listed in descending size order, so the last unit listed is 1/4 mile on a side. When reading this information as a legal description, the order is presented from smallest to largest unit.



B7. Elevation (feet or meters) of the polygon *centroid*. Elevation is interpolated from the 7.5 minute topo map(s).

B8a-e. The US Geological Survey has divided the nation into successively smaller hydrologic units based on drainage basins. These units in the United States are subdivided into fourth levels, uniquely identified by a two-digit number for each level. This results in a eight digit identifier for a drainage at the fourth level. Some regions have units defined to the fifth and sixth level (finer scales). Data is entered in the office.

B9a-c. Beginning with some work done in 1997 and all work in subsequent years, Universal Transverse Mercator (UTM) coordinates are recorded for the upper and lower ends of the polygon using GPS units in the field. Other locations of special interest may also be identified using the GPS unit. These coordinates are considered accurate to within approximately 50 m. Field observers are to use GPS units to obtain these coordinates following standard protocol. Record the UTM coordinates at each end of the long axis of the polygon.

Enter the UTM coordinate data, including the UTM zone and the identifying waypoint number, on the form for each point collected. Save the data in the GPS unit for downloading to the computer later. When starting work in a new location, always check the GPS against a known point by using the UTM grid and the quad map.

B9d, e. Record the number of the GPS unit and the name or number of the waypoints saved for the polygon. Record any comments worth noting about the waypoints (i.e., monument referenced or general location descriptions).

B10. Record the name(s) of the 7.5 minute quadrangle map(s) locating the polygon using precisely the name listed on the map sheet. Provision is made for listing two maps in case the polygon crosses between two maps.

Selected Summary Data

C1. Wetland type is a categorical description of predominant polygon character. Select from the following list of categories that may occur within a lentic system the one that best characterizes the majority of the polygon. Observers will *select only one category* as representative of the entire polygon. If significant amounts of other categories are present, indicate this in Vegetation Comments (item D17) or consider dividing the original polygon into two or more polygons.

Category Description

Wet Meadow. This type of wetland may occur in either riparian (lotic) or in still water (lentic) systems. A lotic wet meadow has a defined channel or flowing surface water nearby, but is typically much wider than the riparian zone associated with the classes described above. This is often the result of the influence of lateral groundwater not associated with the stream flow. Lotic and lentic wet meadows may occur in proximity (e.g., when enough groundwater emerges to begin to flow from a mountain meadow, the system goes from lentic to lotic). Such communities are typically dominated by herbaceous hydrophytic vegetation that requires saturated soils near the surface, but tolerates no standing water for most of the year. This type of wetland typically occurs as the filled-in basin of old beaver ponds, lakes, and potholes.

Spring/Seep. Groundwater discharge areas. In general, springs have more flow than seeps. This wetland type may occur in a riparian (lotic) or still water (lentic) system.

Reservoir. An artificial (dammed) water body with at least 20 acres (8 ha) covered by surface water.

Stock pond. An artificial (dammed) body of water of less than 20 acres (8 ha) covered by surface water.

Lake. A natural topographic depression collecting a body of water covering at least 20 acres (8 ha) with surface water.

Pothole or Small Mountain Lake. A natural topographic depression collecting a body of water covering less than 20 acres (8 ha) with surface water.

Other. Describe any other wetland type encountered which is not associated with a surface water channel.

Non-wetland (Upland). This designation is for those areas which are included in the inventoried polygon, but which do not support functional wetland vegetation communities. Such areas may be undisturbed inclusions of naturally occurring high ground or such disturbed high ground as roadways and other elevated sites of human activity.

C2. The size (acres/hectares) of polygons large enough to be drawn as enclosed units on 7.5 minute (1:24,000) topo maps is determined in the office using a planimeter, a dot grid, or a GIS. For polygons too small to be accurately drawn as enclosed units on 7.5 minute maps, polygon size is calculated by the computer using polygon length (item C7) and average polygon width (item C8a).

C3a-d. Observers may be asked to inventory some areas that have not been determined to be wetlands for the purpose of making such a determination. Other polygons include areas supporting non-wetland vegetation types. A "Yes" answer here indicates that no part of the polygon keys to a riparian habitat type or community type (HT/CT). Areas classified in item D14 as any vegetation type described in *Classification and Management of Montana's Riparian and Wetland Sites* (Hansen and others 1995) are counted as functional wetlands. Areas listed as UNCLASSIFIED WETLAND TYPE are also counted as functional wetlands. Other areas are counted as non-wetlands, or uplands. The functional wetland fraction of the polygon area is listed in item C3c in acres and as a percentage of the entire polygon area in item C3d.

C4. Some lotic polygons may not contain a defined shoreline between wetland and open water. In some cases these polygons are in ephemeral depressions which may be inundated only infrequently, but do support wetland plant communities. In other cases these polygons may be part of large marsh systems that may or may not be associated with lakes, but where polygons may be delineated in areas not adjacent to the shoreline.

C5. Shoreline length—the length of shoreline contained within or adjacent to the polygon—is measured by scaling from the 7.5 minute topo map. This data is considered accurate to the nearest 0.1 mile (0.16 km).

C6. In some cases the polygon record is used to characterize, or represent, a larger portion of a shoreline system. The length represented by the polygon is given here. For example, a 0.5 mile (0.8 km) polygon may be used to represent 2 miles (3.2 km) of total shoreline length. In this case 0.5 (0.8 km) is the shoreline length in the polygon (item C5), and 2 miles (3.2 km) is the overall shoreline entered in item C6.

C7. Record the length between the two UTM coordinates at the ends of the longitudinal axis of the polygon.

C8a. Record average width of the polygon, which in smaller wetlands corresponds to the width of the wetland area. To determine this width, measure the distance between the two opposite wetland/upland boundaries. In the case of very wide systems where the polygon inventoried does not extend across the full width of the wetland (e.g., area with wetland vegetation communities lying outside the polygon), record the average width of the polygon inventoried and make note of the situation in the comments (F25).

C8b. Record the range of width (ft/m), narrowest to widest, of the wetland area in the polygon.

Health Evaluation Summary

C9. Polygon Health (PFC) Score is an ecological function rating for the polygon derived by computer using data from several items in this polygon inventory. For detailed discussion of this process, see the companion document *RWRP Lentic Health Assessment (derived from the RWRP Lentic Inventory Form)*. The techniques used to obtain the data do not allow the ratings to be interpreted with a fine degree of precision. For example, two polygons rating 76% and 78% should not be interpreted as functionally different from each other, but they both are more likely to differ functionally from a third polygon that rates 61%. Therefore, use of the descriptive categories may be more useful than referring to the specific numerical figures.

The health ratings are presented both as an overall polygon score and in two subsections (vegetation and soil/hydrology) to give a broad indication of what part of the system may be in need of more management attention.

Vegetation Data

D1a. The wetland prevalence index is compiled by the computer from National Wetland Inventory (NWI) wetland status classes for plant species recorded on the site (Reed 1988) and weighted by species abundance measured in terms of canopy cover. The range of index values is from 1.0 to 5.0. Lower values indicate wetter sites.

D1b. The vegetation structural diversity category is automatically calculated in the office by the computer using plant group and height layer data (item D9). Trees and shrubs are considered major components of structural diversity. These terms are used to describe vegetation height: tall = > 6.0 ft (layer 3); medium = >1.5-6.0 ft (layer 2); short = 0-1.5 ft (layer 1). Graminoids and forbs are combined as the “herbaceous” lifeform. Trees and shrubs in layer 2 are also combined as “medium trees/shrubs.” A polygon is assigned the highest structural diversity category it can meet. To meet a category, each lifeform (by height) named in the description must have a canopy cover of at least 15% in the polygon. Combination groups (i.e., medium trees/shrubs; and short, medium, and tall herbaceous) must have at least 5% cover of both components or at least 15% cover of one component. *Note:* Structural diversity on a site can change as succession proceeds or if management changes.

Category Description

Tall trees; tall shrubs; medium trees/shrubs; herbaceous understory present¹

Tall trees; tall shrubs; herbaceous understory present¹

Tall trees; medium trees/shrubs; herbaceous understory present¹

Tall trees; herbaceous understory present¹

Tall shrubs; medium trees/shrubs; herbaceous understory present¹

Tall shrubs; herbaceous understory present¹
 Medium trees/shrubs; herbaceous understory present¹
 Tall herbaceous
 Medium herbaceous
 Short herbaceous
 Sparsely vegetated²

¹The herbaceous understory present does not need to have a minimum canopy cover.

²Sparsely vegetated refers to polygons in which the minimum canopy cover by the various lifeforms is not met.

D2a, b. If present, record the species code and the canopy cover in the two left-most columns for *all* tree species observed. (For all plant species in this inventory observers will use the preferred six-letter codes in the United States and seven-letters codes in Canada.) Within the total canopy cover of each species, estimate the proportion of each of five groups (seedling, sapling, pole, mature, and dead trees). The canopy covers of the five groups of each species must total approximately 100%. If some individuals in an age group have at least 30% of the upper canopy dead (are decadent), record the decadence as a percentage of that group. Record the total group cover to the left of the slash (/) and the decadent portion to the right.

Example:

SPECIES	Cover	Sdlg/Dec	Splg/Dec	Pole/Dec	Mat/Dec	Dead
POPTR	3	T/O	P/O	I/P	8/I	P

Note: The most common usage of the term *decadent* may be for over-mature trees past their prime and which may be dying, but we use the term in a broader sense, not restricted to the over-mature. We count decadent plants, both trees and shrubs, as those with 30% or more dead wood in the upper canopy.

Tree Age Groups

Age Group	Conifers ¹ and Cottonwoods	Other Broadleaf Species ²
Seedling	<4.5 ft tall OR <1.0 inch dbh	<3.0 ft tall
Sapling	≥4.5 ft tall AND 1.0 inch to 4.9 inch dbh	>3.0 ft tall AND <3.0 inch dbh
Pole	5.0 inch to 8.9 inch dbh	>6.0 ft tall AND 3.0 inch to 5.0 inch dbh
Mature	>9.0 inch dbh	>5.0 inch dbh
Dead	100% of canopy is dead	100% of canopy is dead

¹Species such as *Juniperus scopulorum* (Rocky Mountain juniper) and *Juniperus osteosperma* (Utah juniper) are exceptions to the specifications given, because they lack typical coniferous size, age, and growth form relationships. Assign age classes to individuals of these two species based on relative size, reproductive ability, and overall appearance.

²Other Broadleaf Species may include *Fraxinus pennsylvanica* (green ash), *Acer negundo* (box-elder), *Salix amygdaloides* (peach-leaf willow), *Populus tremuloides* (quaking aspen), *Betula papyrifera* (paper birch), *Elaeagnus angustifolia* (Russian olive), and *Ulmus americana* (American elm).

D3. The tree regeneration category is automatically calculated in the office by the computer using the age group data collected with the species' canopy cover as described in item D2b. The canopy covers of the seedling and sapling age groups are combined to quantify tree regeneration. The categories represent actual, not potential, tree regeneration.

Code	Description
1	No seedlings or saplings were observed in the polygon.
2	Seedlings and/or saplings were observed; individually, or in combination, these age groups have less than 5% of the species canopy cover.
3	Seedlings and/or saplings were observed; individually, or in combination, these age groups have 5% or more of the species canopy cover, but less than 15%.
4	Seedlings and/or saplings were observed; individually, or in combination, these age groups have 15% or more of the species canopy cover, but less than 25%.
5	Seedlings and/or saplings were observed; individually, or in combination, these age groups have 25% or more of the species canopy cover.

D4. The tree age group distribution category is automatically calculated in the office by the computer using age group canopy covers recorded in item D2b. In classifying tree age group distribution, the seedling and sapling groups are combined. Three resulting age groups (seedlings/saplings, pole, and mature), *and* the percent of the mature individuals which are decadent, determine age group distribution categories.

Tree Age Group Categories (An "X" under an age group indicates presence in that category.)

Category Code	Sdlg ¹ /Spig ² (CC > 1%)	Pole (CC > 5%)	Mature (Decadent ³) (CC > 5%)	Description
1	X			seedling/sapling only
2		X		pole age only
3	X	X		seedling/sapling and pole
4	X		X	seedling/sapling and mature (<75% dec.)
5		X	X	pole and mature (<75% dec.)
6	X	X	X	seedling/sapling, pole, & mature (<75% dec.)
7			X	mature only (<75% dec.)
8	X		X	seedling/sapling and mature (≥75% dec.)
9		X	X	pole and mature (≥75% dec.)
10	X	X	X	seedling/sapling, pole, & mature (≥75% dec.)
11			X	mature only (≥75% dec.)

¹ Sdlg indicates seedlings

² Spig indicates saplings

³ Decadent indicates percent of mature trees which are decadent

Decadence of younger age groups is ignored in this calculation. Younger decadent trees are assumed to have the capacity to grow out of any current condition caused by injury, disease, or other non-age related factors. A species with decadent mature individuals may fall into one of two classes: those having 75% or more of mature individuals decadent and those having less than 75% of mature individuals decadent. The age distribution category of a tree species on a polygon is defined by the presence of certain age groups. To be present, age groups must have minimum canopy covers in the polygon: seedlings/saplings must have a combined total canopy cover of at least 1%; pole and mature are treated separately and must each have at least 5% canopy cover.

D5. Record the appropriate category which best describes the amount of utilization (Utl) of the combined seedling (Sdlg) and sapling (Spig) age groups for each tree species.

Category	Description
None	0 to 5% of the available second year and older leaders are clipped (browsed).
Light	>5 to 25% of the available second year and older leaders are clipped (browsed).
Moderate	>25 to 50% of the available second year and older leaders are clipped (browsed).
Heavy	More than 50% of the available second year and older leaders are clipped (browsed).
Unavailable	Woody plants provide no browsed or unbrowsed material below 1.5 m, or are inaccessible due to location or protection by other plants.
NA	Age classes being considered are not present.

D6a, b. Record the preferred species code and percent canopy cover for *every* shrub species observed on the polygon. Determine the portion of the species cover represented by each of three groups: seedling/saplings; mature; decadent/dead. (*Note:* For shrubs, all decadent individuals are included in one group with dead individuals. This contrasts to the method of recording tree decadence, where the decadence within each age group is recorded.) As with trees, decadent shrubs are individuals having 30% or more dead material in the canopy. The canopy covers of the three age/size groups for a species must total approximately 100%.

In general, shrub seedling/saplings can be distinguished from mature plants on the following basis: For normally tall shrubs, which have an average mature height of over 6.0 ft, seedlings and saplings will be plants reaching only into the first and second vegetation layers (shorter than 6.0 ft). For shrub species having normal mature height between 1.6 and 6.0 ft, seedlings and saplings are individuals reaching only into the first vegetation layer (below 1.5 ft). For short shrub species whose mature height is 1.5 ft or less, observers must judge individual plants for height, reproductive structures, and other characteristics which indicate relative age. Refer to reference manuals on the regional flora for information of normal sizes for unfamiliar species. Remember that browsing may have shortened the stature of mature specimens. Record to the right of the slash (/) the *one category* which best describes shrub utilization for each age group (using the five categories in item D5).

<i>Example:</i>	<u>Species</u>	<u>Cover</u>	<u>Sdlg-Splg/Util</u>	<u>Mature/Util</u>	<u>Dec-Dead/Util</u>	<u>Shrub Growth Form</u>
	<u>ALNINC</u>	<u>2</u>	<u>P/Moderate</u>	<u>7/Light</u>	<u>3/Unavail.</u>	<u>N</u>

D6c. Record the category best describing the dominant appearance of each shrub species in the polygon.

Code	Description
N	<i>Normal Growth Form.</i> No apparent deviation from the normal appearance of the lifeform.
F	<i>Flat-Topped Growth Form.</i> Shrubs with the tallest leaders hedged (e.g., hedging from the top down). (Moose in winter deep snow browse exposed branches of shorter plants.)
U	<i>Umbrella-Shaped/Heavily-Hedged/High-Lined.</i> Shrubs that have most of the lower branches (up to 1.5 m in height) removed by browsing (hedging from the bottom up).

D7 and D8. Record the preferred species code and the percent canopy cover for graminoid and forb species observed in the polygon. *Include all species having at least 5% cover on the polygon.* This inventory is not intended to be comprehensive. It is not necessary to search for obscure species, just record all species readily seen. Observers should especially look, however, for hydrophytic (wetland) species that may be in trace representation due to site disturbance. Herbaceous species other than invasive weeds (see item D13) with minor presence may be overlooked without serious compromise to the inventory value.

D9. The purpose of this item is to describe the vegetation structure in terms of height layers and plant lifeforms on the polygon. (Think of the layering as a GIS file with 12 layers, each one representing one of four lifeforms [trees, shrubs, graminoids, and forbs] in one of three height layers.)

Record the percent canopy cover of each plant lifeform in each of the three height layers. Consider each group in each layer separately. For example, shrubs in layer 2 will be the canopy cover of all plants of all shrubs in the polygon between >1.5 and 6.0 ft tall (roughly knee high to head high). In estimating this value, ignore all plants taller and shorter than this range. Similarly estimate the cover separately of those taller and those shorter shrubs. Proceed in this way through each lifeform and layer. As a check, refer to your species/canopy lists to help remember what all you have seen on the site. *Leave no field blank*; enter "0" to indicate absence of a value. See further discussion in the note for item D10.

D10. Record the total percent of the polygon area occupied by canopy cover of each plant lifeform. Avoid counting overlapping areas more than once for one group. (For example, an area is not counted twice for total tree cover if seedlings cover all ground under mature trees.) However, the same piece of ground may occur under the canopy of more than one group. (For example, areas covered by grass which are also under trees would be counted for both tree and grass lifeforms.) On the other hand, when estimating total cover of all plants (item D12), the area covered by both trees and grass would only be counted once—trees and grass in this case being part of the same group ("all four plant groups").

D11. Record the percent of the polygon area covered by tree and shrub (woody species) canopy considered as a group in the sense described above.

D12. Record the percent of the polygon area covered by the canopy of all four plant groups together.

D13a, b. Record the portion of the polygon *infested by* each invasive weed species observed in the polygon. (Appropriate species are determined on a regional basis.) This is *not* the canopy cover of the species, but is instead the combination of all area under the canopy of the individual plants and the ground between individual plants within an infested area. Infested areas are those parts of the polygon on which a weed species has a well established population of individuals. Common

invasive weed species are listed on the form, and space is allowed for recording others. Observers should use a weed list that is standard for the locality. *Leave no listed species field blank, however; enter "0" to indicate absence of a value.*

D13c. Record total area infested by all invasive weed species on the polygon. Use the same concept of "infestation" as described above. Count overlapping areas only once.

D14. List the riparian habitat type(s) and/or community type(s) found in the polygon (Hansen and others 1995). If the habitat type cannot be determined for a portion of the polygon, then list the appropriate community type(s) of that portion. If neither the habitat type nor community type can be determined for any portion of the polygon (or in areas [outside of Montana] where the habitat and community types have not been named and described), list the area in question as "unclassified wetland type" and give the dominant species present. Indicate with the appropriate abbreviation if these are habitat types (HT), community types (CT), or dominance types (DT), for example, PSEMEN/CORSTO HT. For each type listed, estimate the percent of the polygon represented. If known, record the successional stage (i.e., early seral, mid-seral, late seral, and climax), or give other comments about the type. As a minimum, list all types which cover 5% or more of the polygon. The total must approximate 100%. Slight deviations due to use of class codes or to omission of types covering less than 5% of the polygon are allowed. *Note:* For any area classified as an "unclassified wetland type," it is important to list any species present which can indicate the wetness or dryness of the site.

D15a, b. Areas with historically heavy grazing often have large canopy cover of less productive, short, herbaceous species which tend to be less productive and which contribute less to ecological functions. Record the percent area covered by this general group, which may include the following listed species, among others of like character. (*Note:* Unlike invasive weeds [D13], this item looks at *canopy cover* rather than infestation.) *Count overlapping areas only once.* The following list is intended only to be representative. Additional species may be appropriate for specific regions and can be added in the space below.

Poa pratensis (Kentucky bluegrass)
Bromus tectorum (cheatgrass)
Bromus japonicus (Japanese brome)
Taraxacum spp. (dandelions)
Antennaria spp. (pussy-toes)

Trifolium spp. (small clover species)
Fragaria spp. (strawberries)
Plantago spp. (plantains)
Viola spp. (violets)
 weedy members of the *Brassicaceae* (mustard family)

D16. Select the *one category* (Improving, Degrading, Static, or Status Unknown) which best indicates the current trend of the vegetative community on the polygon to the extent possible. Trend refers, in the sense used here, not specifically to successional pathway change, but in a more general sense of apparent community health. By definition, trend implies change over time. Accordingly, a trend analysis would require comparison of repeated observations over time. However, some insights into trend can be observed in a single visit. For example, the observer may notice healing (revegetating) of a degraded shoreline and recent establishment of woody seedlings and saplings. This would indicate changing conditions that suggest an improving trend. If such indicators are not apparent, select the category "status unknown."

D17. Add any necessary commentary to explain or amplify the vegetation data recorded. *Do not leave this space blank.* Describe any unique characteristics of the site and other observations relating to the vegetation.

Check the Vegetation data for completeness.

Water Quality Data (TMDL Data)

Note: This category (items E1-E7) currently applies only to inventories conducted in the United States. Data will be entered in the office.

E1-E2. For Montana, this information can be obtained from the current state 303(d) list of impaired waters maintained by Montana Department of Environmental Quality. In other states, contact the appropriate agency.

E3. Enter High, Medium, or Low for TMDL development priority. Obtain from current federal/state 303(d) list of impaired waters.

E4. Enter TMDL development status: EPA approved, de-listed due to reassessment, incomplete at present. Obtain from state environmental health agency .

E5-E7. Enter probable causes, probable impaired uses, and probable sources. Information can be obtained from current state 303(d) list of impaired waters.

Physical Site Data

F1. A lentic wetland may consist of any combination of these three NWI Palustrine classes: emergent wetland (PEM); scrub/shrub wetland (PSS); and forested wetland (PFO) (Cowardin and others 1979). All NWI Lacustrine classes are included in the category aquatic habitat used here for the combination of all waters beyond the extent of persistent emergent vegetation. Estimate the proportional breakdown among the three palustrine classes.

F2. Record the primary water source for the polygon from the listed choices. If appropriate, list more than one in descending order of volume. Explain "unknown" and "other" entries.

F3. Indicate whether the water body has an outlet or is an internally draining closed basin.

F4. Make the distinction between "fresh water" and "alkaline/saline water" systems on the basis of the presence or absence of crystallized salts on the soil surface or a predominance of salt tolerant plant species.

F5. Water levels fluctuate seasonally in most systems. This item asks the observer to identify those systems where the water level is subject to artificially rapid or unnaturally timed fluctuations that might affect the ability of communities of plants to become established along the shoreline. Reservoirs for storage of water intended for power generation and/or irrigation are most typical of this situation. Below are the category descriptions.

Categories of Lentic Water Withdrawal Level	
Not Subjected	System not subject to artificial drawdown.
Minor	Lake, reservoir, or stock pond subject to minor withdrawal of water. Shore area is fully vegetated, though a water level fluctuation band up to ten feet wide may be occupied only by annual species.
Extensive	Reservoir subject to extensive drawdown, but the drawdown rate is sufficiently slow and timed to allow at least annual plants to vegetate the "drawdown zone." This "drawdown zone" may extend to 30 ft wide or as much as 10 ft of elevation.
Extreme	Reservoir subject to drawdown of extreme extent and/or frequency. An exposed "drawdown zone" remains unvegetated in a band more than 30 ft wide or over more than 10 ft of elevation.

F6a-c. For human-constructed dams, indicate the type of provision made for passage of overflow. Indicate the type of structure (if any) observed and the apparent stability. If no protected overflow structure is provided, describe any evidence of dam overflow and resultant cutting. Describe any other apparent instability (erosion, cutting, through-dam leakage, etc.) Categories of stability are described below.

Categories of Stability of Lentic System Overflow Structures

Highly stable	Overflow channeled through a protected and durable conduit; unable to erode at either end.
Moderately stable	Overflow structure of durable material, but showing some sign of inadequacy in the form of slight erosion at the ends or infrequent inability to contain maximum overflows.
Marginally stable	Earthen overflow (spillway directly over earthen dam) or a durable material overflow structure showing sign of frequent inability to contain high overflow events.
Unstable	An overflow structure showing significant erosion at the ends, sign of dam erosion due to downcutting by overflows in excess of the capacity of the structure, or an earthen overflow showing definite downcutting.

F7a-c. If the lentic wetland has a distinguishable boundary (shoreline) between aquatic and wetland habitat and there is shoreline substrate visibly exposed, estimate the proportional breakdown of this substrate into the listed particle size categories. *Shoreline* is used to mean the exposed area extending down from the high water mark to present surface water.

F8a, b. Altered shorelines are those having impaired structural integrity (strength or stability) due to human causes. These banks are more susceptible to erosion. The area to be considered is the area extending from 18 inches (45 cm) above the normal high water mark down to current water level. The inventory counts such areas as livestock hoof shear and concentrated trampling, vehicle tracks, and any other areas of human-caused disruption of shoreline vegetation or material integrity. The basic criterion is any disturbance to shoreline structure that increases erosion potential or shoreline profile shape.

If the shoreline has not been altered by on-site human activities, answer "No"; otherwise record the percent of current shoreline length altered by human-caused activities.

F8c. Account for the apparent sources of shoreline alteration by recording the percent that is attributable to each of the listed disturbance categories. The sum of these values must approximate 100%. Leave no field blank; enter "0" to indicate absence of a value.

F9. The vegetation along a shore performs the primary physical functions of stabilizing the soil with a deep, binding root mass and filtering sediments from overland flow. Few studies have documented the depth and extent of the root systems of the various plant species which are found in Montana wetlands. Despite this lack of documented evidence, there are some generalizations which can be made. All tree and shrub species are considered to have deep, binding root masses. Among wetland herbaceous species, annuals do not have deep, binding root masses. Perennial species offer a wide range of root mass qualities. Some rhizomatous species, such as the deep rooted *Carex* spp. (sedges), *Typha* species (cattails), and *Scirpus* species (bulrushes), are excellent shoreline stabilizers. Other rhizomatous species, such as *Poa pratensis* (Kentucky bluegrass), have only shallow root systems and are poor shoreline stabilizers. Still other species, such as *Juncus balticus* (Baltic rush), appear to have root systems which are intermediate in their ability to stabilize shores. (RWRP is accumulating information on the ability of various wetland species to perform this function. This information will be incorporated as available.)

F10a, b. Record the portion of the polygon with exposed soil surface (bare ground). Exposed soil surfaces are those surfaces not protected from erosional forces by plants, litter or duff, downed woody materials, rocks of cobble size or larger (>2.5 in [6.25 cm]).

F10c. Break down the exposed soil surface amount (item F10b) into two categories: that resulting from natural processes and that resulting from human causes. (These must total at least 100%. If there is strong reason to believe that both natural and human-caused processes are responsible for a portion of the exposed soil surface [bare ground], the total can be greater than 100%. Explain this situation if it occurs.) Examples of human causes include cattle wallows and trails, hiking trails, ATV trails, roads, timber harvesting skid trails, and mining activities.

F10d. Within each of the two categories—natural and human-caused processes—record the proportions of exposed soil surface (bare ground) resulting from the listed causes. Within each category the portions assigned to the individual causes must total 100%. Explain "other" if used.

F11. Record the percentage of the polygon covered by the ground surface covers listed. This list is of ground covers not accounted for by exposed soil surface (bare ground) and vascular plant canopy, which are recorded elsewhere.

F12a, b. Record the area of the polygon which displays pugging and/or hummocking. Indicate the position of the pugging and hummocks by assigning class codes to: 1) the amount within the shoreline and 2) the amount in areas outside of the shoreline. **Pugging** is simply the tracks of large animals left in soft soil. Clayey or silt mud is commonly of a consistency to hold the pug marks. Upon drying, pugged areas will have a honeycomb appearance and a hard, dried irregular surface difficult to walk across. Bare soil may or may not be present. **Hummocking** is a micro-topographic relief characterized by raised pedicels of vegetated soil 0.5-2 ft above the surrounding ground. Vegetation on the pedicels usually differs from that on the area below due to moisture difference between the two levels. Hummocking may be caused by natural conditions such as frost-heave. However, for this item observers will include only that hummocking which results from large animal trampling (pugging).

F13a-c. Check for sediment and debris being introduced from side slopes. Indicate whether the problem is human-caused or of natural causes and list the causes of the sedimentation: the kind of human disturbance (grazing, logging, recreation, roads, etc.) or the major soil type in cases of natural causes (Bear Paw shale, unconsolidated sands and silts, etc.).

F14. This question distinguishes between sites contaminated with materials toxic to wetland plants native to the site and sites upon which viable communities of wetland species normal to the locality are present.

F15. If the lentic zone is widening, the wetland plant species near the lateral edges of the zone will have young, vigorous individuals among the stands.

F16. At the time of the inventory is the lentic area saturated, or is ground water near or above the surface at any point within the polygon?

F17. Do wetland plants on the site exhibit high vigor? Do they appear healthy and of normal growth form and stature?

F18. Are there unusual micro-topographic features that might be attributed to frost heaving or extreme shrink/swell action of montmorillonitic clays, or do trees or shrubs grow at abnormal angles due to these soil actions?

F19. Observers must judge whether there is a favorable diversity of natural microsite variability in terms of structure, texture, aspect, shading, etc.

F20. Is there evidence of chemical accumulation on the site, such as salts concentrated by evaporation of water from a closed basin?

F21. Is there evidence of frequent saturation of sufficient duration to form and maintain hydric soils on the polygon? Look for such evidence of frequent inundation as ponding, a shoreline, and obligate wetland plants as well as hydric soil indicators.

F22. Is there evidence of bedrock, a clay layer, permafrost, or other impermeable layer near enough to the surface to restrict infiltration of surface water long enough to maintain a wetland plant community?

F23. Is there evidence of erosion or sediment accumulation to indicate an imbalance between water source and sediment supply? Evidence of erosion might be bared plant roots or exposed soil parent material. Any noticeable sediment accumulation in a lentic system is suspect of being excessive. Look for unvegetated deposits or accumulations around tree trunks.

F24. Are sites exposed to potentially strong wave action being protected from erosive energies by large rock, woody debris, or other stable structural features?

F25. Record comments which would amplify the meaning of the inventory data on the physical characteristics of the polygon. This would include a description of any alteration or other extreme uses of the site.

F26. Describe the polygon boundaries in terms of landmark features, fences, or whatever the delineation is based upon. This is to help future observers relocate the same polygon area.

Photograph Data

Note: At a minimum, take two photos from identifiable points along the upland edge of the polygon viewing (1) toward the water body and (2) along the longitudinal axis of the polygon. Identify all photo point locations sufficiently that they could be relocated by another individual.

G1a, b. Record the film roll number (use initials and number, e.g., "RE-02"), photographer's initials, photo numbers, and locations of photographs taken at the most northerly side of the polygon and of photographs taken to show other features of interest.

G1c. Describe the view in each photo with reference to direction and polygon features.

G1d. Note the presence of adjacent polygons, if any.

G2a-c. Same as G1a-c above, but for shots taken at the most southerly side of the polygon.

G2d. Note the presence of adjacent polygons, if any.

G3. Record the brand of film, film speed, camera lens size, and lens focal length or magnification.

Check the Physical Site data and Photograph data for completeness.

OPTIONAL DATA

Optional Site Data

Note: The following data items are optional

H1. Record the rating category which best describes the vegetative use by animals (Platts and others 1987). Do not record a specific percent within a category.

Category	Description
0 to 25%	Vegetative use is light or none. Almost all potential plant biomass at the current development stage remains. Vegetative cover is close to that which would occur without use. Unvegetated areas (such as bedrock) are not a result of land uses.
26 to 50%	Vegetative use is moderate. At least half the potential plant biomass remains. Average stubble height is more than half its potential at the present stage of development.
51 to 75%	Vegetative use is high. Less than half the potential plant biomass remains. Plant stubble height is usually more than 2 inches (on many ranges).
76 to 100%	Use of the streamside vegetation is high. Only short stubble remains (usually less than 2 inches on many ranges). Almost all potential plant biomass has been removed. Only the root systems and parts of the stems remain.

H2. Record the type(s) of uplands adjacent to the lentic wetland; if "other" is selected, describe.

H3a-c. Record any plant species observed that is listed or being considered for listing as threatened and/or endangered. Note the location of any threatened or endangered (T&E) species observed relative to polygon boundaries, stream, or other mapped features. More precise location can be determined using the GPS unit. If this is done, record the GPS unit number and the name or number of the waypoint designator in item H3c. Refer to the appropriate guide to determine which species to include here. (*Note:* Observers are rarely botany specialists and may not be aware of all T&E species on the site.)

H4. Record the percent of shoreline length accessible to livestock. In general, only consider topography (steep banks, deep water, etc.) and dense vegetation as restricting access. Fences, unless part of an enclosure, do not necessarily restrict livestock access, even though they may appear so at the time of inventory.

H5a-d. Note the types and locations of any of the listed human-caused shoreline modifications observed within the polygon. Use "other" to note kinds of modification observed but not included on this list.

Optional Wildlife Data (These wildlife data represent incidental observations only.)

H6a, b. If waterfowl nests or young broods were observed, describe location, type, and whether the nest was in use, of the year, or old.

H7a-e. Respond to the fishery questions based on observations.

H8a, b. Record the number and type of any amphibians observed.

H9a, b. Record the number and type of any reptiles observed.

H10. If possible, name the species, number of each, and sighting locations observed within the polygon (e.g., "upper 1/3 of polygon," "throughout polygon," "lower 1/4 of polygon").

H11a-d. List threatened and endangered animal species observed in the polygon along with any nesting sites. Species of concern which might be found in Montana wetland areas include Peregrine Falcon and Bald Eagle. Space is provided to list additional species. Consult relevant documents to determine appropriate species. Record the location in the polygon where animals or nests were sighted.

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APPENDIX C
PHOTOGRAPHIC LOG



Pothole 1 - Viewing west.



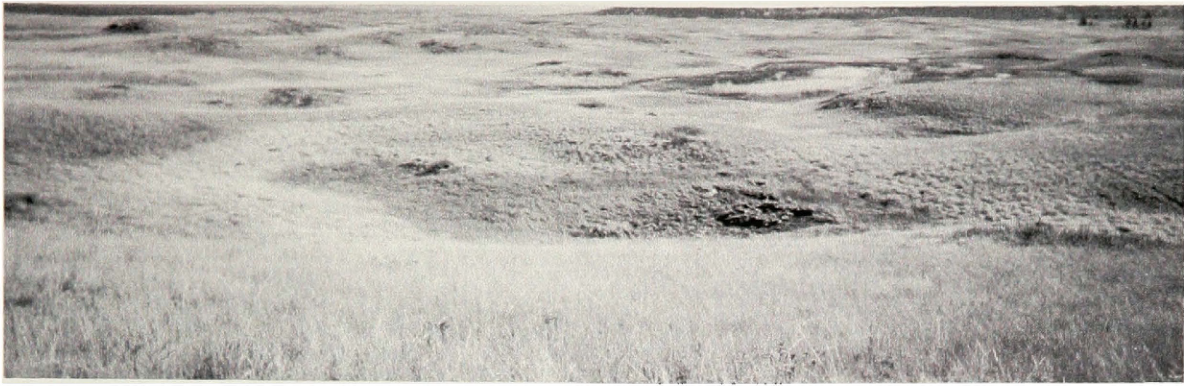
Pothole 2 - Viewing east.



Pothole 3 - Viewing northwest.



Pothole 4 - Viewing east.



Pothole 5 - Viewing east.



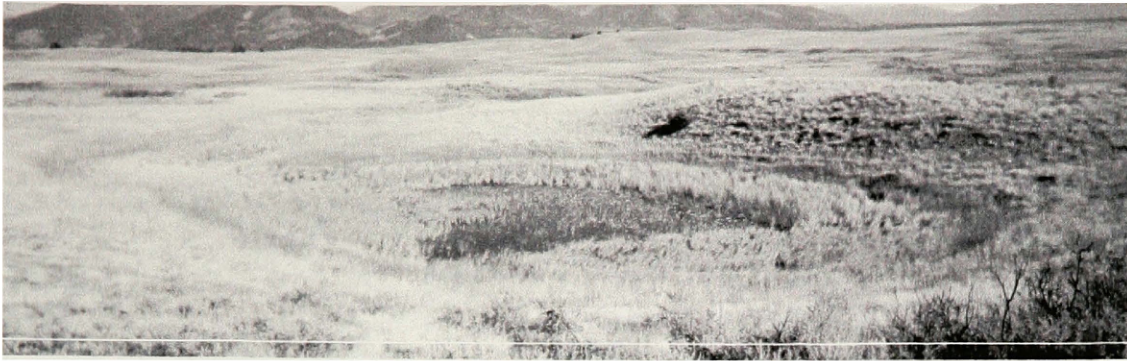
Pothole 6 - Viewing northeast.



Pothole 7 - Viewing northwest.



Pothole 8 - Viewing .



Pothole 9 - Viewing .



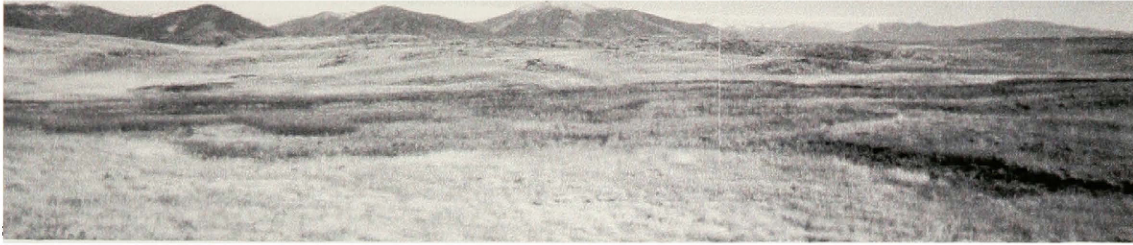
Pothole 10 - Viewing northeast.



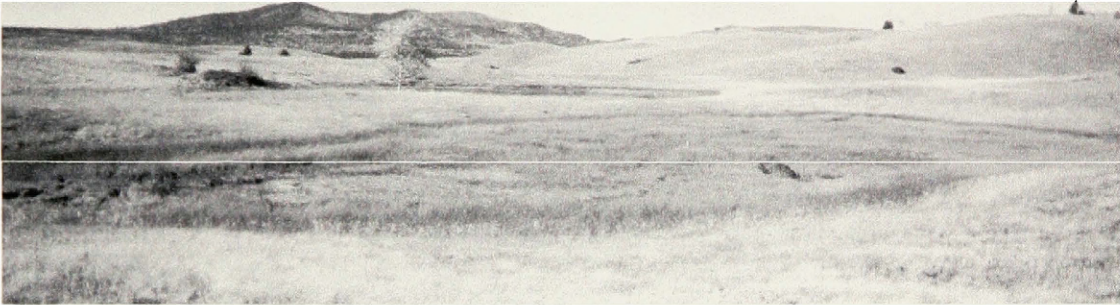
Pothole 11 - Viewing east.



Pothole 12 - Viewing north.



Pothole 13 - Viewing northeast.



Pothole 14 - Viewing west.



Pothole 15 - Viewing northwest.



Pothole 16 - Viewing northwest.



Pothole 17 - Viewing northwest.



Pothole 18 - Viewing west.



Pothole 19 - Viewing north.



Pothole 20 - Viewing west.



Pothole 21 - Viewing northeast.

Pothole 22 - Photo Not Available.



Pothole 23 - Viewing south.



Pothole 24 - Viewing east.



Pothole 25 - Photo not available.



Pothole 26 - Viewing west.



Pothole 27 - Viewing west.



Pothole 28 - Viewing west.



Pothole 29 - Viewing west.



Pothole 30 - Viewing northeast.



Pothole 31 - Viewing northwest.



Pothole 32 - Viewing southwest.



Pothole 33 - Viewing north.



Pothole 34 - Viewing west.



Pothole 35 - Viewing west.



Pothole 36 - Viewing west.



Pothole 37 - Viewing southwest.



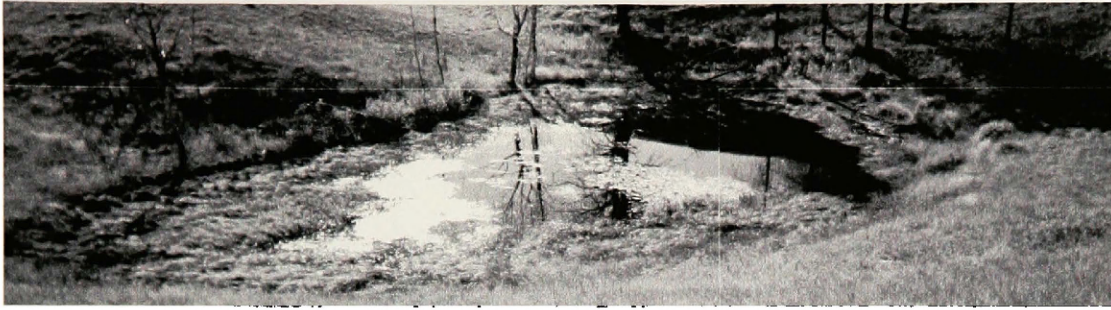
Pothole 38 - Viewing west.



Pothole 39 - Viewing southwest.



Pothole 40 - Viewing west.



Pothole 41 - Viewing southwest.



Pothole 42 - Viewing south.

Pothole 43 - Photo Not Available.

Pothole 44 - Photo Not Available.

APPENDIX D

RIPARIAN WETLAND RESEARCH PROGRAM LENTIC HEALTH SCORING SYSTEM

RWRP LENTIC HEALTH EVALUATION
(Derived from the RWRP Lentic Inventory Form)
CODES AND INSTRUCTIONS (12/18/98)

BACKGROUND INFORMATION

Three questions that are generally asked about a riparian or wetland site are: 1) What is the potential of the site (e.g., climax or potential natural community)? 2) What plant community currently occupies the site? and 3) What is the overall health (condition) of the site? For a Lentic site the first two questions can be answered by using the RWRP Lentic Inventory Form along with *Classification and Management of Montana's Riparian and Wetland Sites* (Hansen and others 1995). The health question is answered using the RWRP Lentic Health Evaluation to summarize data collected in the inventory. With answers to these three questions land managers can explore management actions necessary to achieve reasonable and attainable objectives.

The health of a lentic system may be defined as the ability of that system (including the saturated and inundated near-shore emergent wetland and all the shoreline area that is influenced by the lentic waters) to perform certain wetland functions. These functions include sediment trapping, bank maintenance, water storage, aquifer recharge, wave energy dissipation, and primary biotic production. A site's health rating may also reflect management considerations. For example, although spotted knapweed (*Centaurea maculosa*) or leafy spurge (*Euphorbia esula*) may help to trap sediment and provide soil-binding properties, other functions (i.e., productivity and wildlife habitat) will be impaired, and their presence should be a management concern.

No single factor or characteristic of a wetland site can provide a complete picture of either site health or the direction of trend.

In addition, an analysis of site health and its susceptibility to degradation must consider physical factors (soils and hydrology) for both ecologic and management reasons. Changes in soil or hydrologic conditions obviously affect functioning of a wetland ecosystem. Moreover, changes in physical characteristics are often (but not always) more difficult to remedy than vegetative changes. For example, downcutting of an unstable overflow point may lower the water table and thus change site potential from peachleaf willow (*Salix amygdaloides*) community type to silver sagebrush/western wheatgrass (*Artemisia cana/Agropyron smithii*) habitat type, or even to an upland type. Sites experiencing significant hydrologic, edaphic (soil), or climatic changes will likely also have a change in plant community potential.

Once a land manager has determined health of the site reach in question, he next needs to determine the appropriate course of action, if any. If the site rates "Properly Functioning" ($\geq 80\%$), then no action may be needed.

If the site rates "Functioning—At Risk" (≥ 60 to $< 80\%$) or "Nonfunctional" ($< 60\%$), the manager needs to determine what remedy is appropriate. The manager should review the evaluation to see which item(s) rated low. This indicates the prime area(s) for focus. *Classification and Management of Montana's Riparian and Wetland Sites* (Hansen and others 1995) offers assistance in this area. For example, if a site rated at 54%, and a review of the evaluation reveals major problems with: 1) altered shoreline, 2) hummocking and pugging, 3) cover of undesirable herbaceous species, 4) utilization of trees and shrubs, and 5) tree and shrub regeneration. (This is determined by comparing the actual score against the possible score for each factor.) Then the manager can know that the shoreline is eroding because of heavy animal trampling and reduction of woody species cover. If potential for the site is woody species (determined from the habitat types or community types recorded in item #44 of the Lentic Inventory Form), and there are low values for both utilization and regeneration of woody species; then the healing process may be accelerated by planting woody species. Appropriate species can be selected using *Classification and Management of Montana's Riparian and Wetland Sites* (Hansen and others 1995). If livestock is causing the problem, change in grazing regime is needed before planting to prevent browsing of the new plants. Measures to discourage livestock from spending long periods along the shoreline will be necessary.

Because they are more visible than soil or hydrological characteristics, plants may provide early indications of riparian health as well as successional trend. These are reflected not only in the types of plants present, but also by the effectiveness with which the vegetation carries out its wetland functions of stabilizing the soil and trapping

sediments. Furthermore, the utilization of certain types of vegetation by animals can indicate the current condition of the wetland, and may indicate trend toward or away from potential natural community (PNC).

Note: In the following instructions the corresponding RWRP Lentic Inventory Form item numbers are given in the parentheses. Details on the source data items can be found in the RWRP Lentic Inventory Form Codes and Instructions.

1. Tree regeneration One of the clearest indicators of a tree habitat types ecological stability, and subsequent health, is the presence of trees of all age classes (seedling, sapling, pole, mature, decadent, and dead) of the species which characterizes that habitat type. The presence of all age classes promises the self-perpetuating stability inherent to all habitat types' potential natural communities (PNCs). Likewise, a seral community type's ecological stability and health is indicated by one of the following conditions: 1) for late seral communities, the presence of seedlings, saplings, and poles of climax tree species and mature and older individuals of later seral stages, **Or** 2) for early seral communities, the presence of seedlings, saplings, and poles of seral species and the absence of any climax tree species.

Tree regeneration is determined as the percent of tree canopy cover represented by seedlings and saplings. To calculate this, multiply the sum of the seedlings and saplings canopy cover by the total canopy cover for a species. Repeat this process for all tree species in the polygon. Sum the results for all tree species and divide by the sum of the canopy cover of all tree species. **Note:** Total canopy cover for woody species may be greater than 100% because different species occur in different vertical layers.

Example: A polygon has two tree species (A and B). For species A, seedling canopy cover = 3.0%, sapling canopy cover = 10.0%, and the total canopy cover = 80%. Multiply the percent of species A represented by seedlings and saplings (13%) by the total canopy cover (80%) to determine that 10.4% of the polygon area is either seedlings or saplings of species A. For species B, seedling canopy cover = 3.0%, sapling canopy cover = 20.0%, and the total canopy cover = 40%. Multiply the percent of species A represented by seedlings and saplings (23%) by the total canopy cover (40%) to determine that 9.2% of the polygon area is covered by seedlings or saplings of species B. For total canopy cover of seedlings and saplings, use $(10.4\% + 9.2\%) / 120\% = 16.3\%$. of total tree canopy cover in the polygon is seedlings or saplings.

Scoring: If the site has no potential for trees, replace both Possible Score and the Actual Score with zero.

3 pts: >10% of the total canopy cover of trees represented by seedlings and saplings.

2 pts: >1% to 10% of the total canopy cover of trees represented by seedlings and saplings.

1 pt: >0% to 1% of the total canopy cover of trees represented by seedlings and saplings.

0 pts: Tree seedlings or saplings absent.

2. Woody decadent and dead amounts The amount of decadent and dead woody material can indicate the overall health of a riparian wetland. Large amounts of decadent and dead woody material can indicate severe stress due to high levels of browsing. In addition, decadent and dead woody material may indicate a dewatering of the riparian wetland site due to either human or natural causes. Dewatering of a site, if severe enough, may change the site potential from riparian wetland species to upland species. Finally, large amounts of decadent and dead woody material may indicate climate fluctuations. Severe winter temperatures may kill certain species like thorny buffaloberry (*Shepherdia argentea*), or cyclic insect infestations may kill individuals in a stand of sandbar willow (*Salix exigua*). In all cases, overall riparian wetland health has been affected which may lead to reduced streambank integrity, channel incisement, and lateral cutting.

In this item, scores are based on the average death and decadence for all species weighted by each species' proportional cover. This score is calculated by multiplying the decadent portion of each age group by total cover for the species, summing the results, and adding in the dead amount for the species. **Note:** Total cover for all woody species may be greater than 100% because species occur in multiple layers.

Example: If 30% of the mature age group for species A was decadent and the total canopy cover of the species was 50%, then the percent decadent canopy cover represented by the mature age group of species A is $30\% * 50\% = 15\%$. Repeat this process for each age group of species A. Repeat the process for each tree species in the polygon. Following a similar process for shrub species, calculate the portion of the polygon

covered by decadent members of shrub species. Sum the results for all tree and shrub species and divided the total by the sum of the coverages of all tree and shrub species.

Scoring: If the site has no potential for shrubs, replace both Possible Score and the Actual Score with zero.

3 pts: 5% or less of the total canopy cover of woody species decadent or dead.

2 pts: >5% to 25% of the total canopy cover of woody species decadent or dead.

1 pt: >25% to 45% of the total canopy cover of woody species decadent or dead.

0 pts: >45% of the total canopy cover of woody species decadent or dead.

3. Utilization of trees and shrubs If either the seral stage(s) (community type) or the PNC(s) (habitat type) (#44 on the Inventory Form) do not have the potential for trees or shrubs, or the seedling sapling age groups are not present for any species in the polygon (category F) or when woody material is unavailable (category E) then replace both the Possible Score value and the Actual Score value with zero.

Many riparian wetland woody species are browsed by livestock and/or wildlife. Heavy browsing by either group can prevent the regeneration or establishment of woody species, and thus block succession of the plant community toward a later seral stage. As with herbaceous species, excessive use of these woody species may cause them to be eliminated from the site and replaced by disturbance-caused species or undesirable invaders. Therefore, this item reflects both successional direction of the vegetation community and current site condition.

This item is rated on the amount of available tree (seedling and sapling) and shrub growth leaders browsed by livestock and/or wildlife. An average value for the browse of all tree and shrub species is weighted by each species' proportional canopy cover in the polygon.

Scoring:

3 pts: 5% or less of 2nd year and older leaders browsed

2 pts: >5% to 25% of 2nd year and older leaders browsed

1 pt: >25% to 50% of 2nd year and older leaders browsed

0 pts: >50% of 2nd year and older leaders browsed

4. Shrub regeneration Another clear indicator of a habitat type's ecological health is the presence of shrubs representing all age classes (seedling, sapling, mature, decadent, and dead) of the species characteristic of that habitat type. The presence of all age classes ensures the self-perpetuating stability inherent to all potential natural communities. Similarly, but less apparent in determining a seral community type's ecological stability and health, is the existence of one of the following conditions: 1) for late seral communities, the presence of seedling and sapling climax shrub species and mature and older individuals of later seral stages, *Or* 2) for early seral communities, the presence of seedlings and saplings of seral species and the absence of any age classes of climax shrub species.

As with tree regeneration, shrub regeneration is the percent of shrub canopy cover represented by seedlings and saplings. Calculate this by multiplying the canopy cover of seedlings and saplings by the total canopy cover for a species, repeating the process for all shrub species. Add the results for all shrub species, then divide by the total canopy cover for shrub species in the polygon.

Scoring: If the site has no potential for shrubs, replace both Possible Score and Actual Score with zero.

3 pts: >10% of shrub canopy cover represented by seedlings and saplings.

2 pts: >1% to 10% of shrub canopy cover represented by seedlings and saplings.

1 pt: >0% to 1% of shrub canopy cover represented by seedlings and saplings.

0 pts: shrub seedlings and saplings absent.

5. Total canopy cover of woody species Woody species provide a critical role in streambank integrity. Natural streambanks are armored by both bank rock materials (e.g., boulders and cobbles) and by woody vegetation. In floodplains comprised of only fine textured materials, the armoring of the streambanks is provided solely by woody vegetation. In these cases, it is critically important to manage for healthy woody vegetation since it is the glue that holds the streambanks together, along with deep rooting herbaceous species. In addition to providing streambank integrity, woody vegetation traps sediment and helps to reduce

the velocity of water moving over the floodplain. The extent of woody canopy cover is a factor in mitigating raindrop impact, all erosive forces, and the rate of evaporation.

Scoring: If the site has no potential for woody species, replace both Possible Score and Actual Score with zero.
3 pts: >45% of the total area occupied by woody species.
2 pts: >25% to 45% of the total area occupied by woody species.
1 pt: >5% to 25% of the total area occupied by woody species.
0 pts: 5% or less of the total area occupied by woody species.

6. Combined canopy cover of four plant life forms Vegetation cover is instrumental in the ability of the system to trap sediments and to reduce the velocity of water moving over the floodplain or along the streambanks. The vegetative canopy cover mitigates raindrop impact, other erosive forces, and the rate of evaporation.

Scoring: **3 pts:** >95% of the soil surface covered by plant growth.
2 pts: >85% to 95% of the soil surface covered by plant growth.
1 pt: >75% to 85% of the soil surface covered by plant growth.
0 pts: 75% or less of the soil surface covered by plant growth.

7. Total area occupied by noxious weed species Abundant noxious weed species indicate an unhealthy ecosystem. While some weeds may contribute to riparian wetland functions, their negative impacts on the ecosystem reduce a site's overall ecological health.

Scoring: **3 pts:** 5% or less of the polygon occupied by noxious weeds.
2 pts: >5% to 25% of the polygon occupied by noxious weeds.
1 pt: >25% to 45% of the polygon occupied by noxious weeds.
0 pts: >45% of the polygon occupied by noxious weeds.

8. Total area covered by undesirable herbaceous species Disturbance-induced herbaceous plants (either native or introduced) may indicate a trend away from PNC, or a reduction in a site's ability to function as a healthy riparian wetland ecosystem. Most of these weedy, herbaceous species provide less soil holding and sediment trapping capability and less desirable forage and wildlife values than native, later successional species.

Scoring: **3 pts:** 5% or less of the polygon is covered by undesirable herbaceous species.
2 pts: >5% to 25% of the polygon is covered by undesirable herbaceous species.
1 pt: >25% to 45% of the polygon is covered by undesirable herbaceous species.
0 pts: >45% of the polygon is covered by undesirable herbaceous species.

9. Percent of polygon with human-caused exposed soil surface (bare ground) Exposed soil surfaces are those surfaces *not* protected from erosive forces by plants, litter or duff, downed woody materials or rocks of cobble size or larger (>2.5 in). Examples of human-caused exposed soil surfaces include: cattle trails and wallows; hiking and ATV trails; roads; logging skid trails; mining activities; etc. Exposed soil surface is an important factor for evaluating the health of wetland sites for several reasons: 1) exposed soil is vulnerable to erosion; 2) it may contribute to, as well as reflect, shoreline deterioration; 3) the more exposed soil, the less vegetation is available for soil protection and sediment entrapment; and 4) exposed soil provides opportunity for invasion by noxious weeds and undesirable species. It is important to ask: What has caused the soil to be exposed? If the causes are human related or are accelerated by land management practices, this more strongly suggests a deteriorating situation.

Scoring: **6 pts:** 1% or less of the polygon with human-caused exposed soil surface.
4 pts: >1% to 5% of the polygon with human-caused exposed soil surface.
2 pts: >5% to 15% of the polygon with human-caused exposed soil surface.
0 pts: >15% of the polygon with human-caused exposed soil surface.

10. Degree of Artificial Drawdown of Water Many bodies of water have been altered or constructed to allow for diversion and/or pumping-out of stored water. This artificial drawdown of water level often does not follow a temporal regime conducive to maintenance of healthy native wetland plant communities. The result is often a barren shoreline band exposed for much of the growing season, allowing shoreline soils to destabilize, and contributing little of productive or wildlife value.

Scoring: 6 pts: The waterbody is not subject to artificial drawdown.

4 pts: Drawdown levels are "Minor" (up to 10 ft wide shoreline exposure).

2 pts: Drawdown levels are "Extensive" (up to 30 ft wide, or 10 ft elevation, shoreline exposure).

0 pts: Drawdown levels are "Extreme" (more than 30 ft wide, or 10 ft elevation, shoreline exposure).

11. Overflow Structure Stability Often the most dynamically unstable point in a lentic system is at the overflow, or outlet. Natural systems usually evolve behind a relatively stable outlet structure, but the overflow structures, or spillways, of man-made water bodies often become unstable and erode, wash out, or downcut causing severe disruption to the lentic system dependent on that body of water.

Scoring: 6 pts: The overflow structure is made of concrete, pipe, or armored rock; and appears stable.

4 pts: The overflow structure is unprotected or is made of other material; but still appears stable.

2 pts: The overflow structure is made of concrete, pipe, or armored rock; but appears unstable.

0 pts: The overflow structure is unprotected or is made of other material; and appears unstable.

12. Percent of shoreline with a deep, binding root mass The vegetation along a shoreline stabilizes the soil with a deep, binding root mass and filters sediments from overland flow. *All* tree and shrub species are considered to have deep, binding root masses. Among riparian wetland herbaceous species, the first rule is that *annual plants* lack deep, binding root masses. Perennial species, offer a wide range of root mass qualities. Some rhizomatous species such as the deep rooted sedges (*Carex* spp.) are excellent bank stabilizers. Other rhizomatous species, such as Kentucky bluegrass (*Poa pratensis*) have only shallow root systems and are poor bank stabilizers. Still other species, such as Baltic rush (*Juncus balticus*) appear to have root systems which are intermediate in their ability to stabilize banks. *In all situations*, a greater density of woody species or vigorously rhizomatous herbaceous species indicates greater soil stability.

Scoring: 6 pts: >85% of the shoreline with a deep, binding root mass.

4 pts: >65% to 85% of the shoreline with a deep, binding root mass.

2 pts: >35% to 65% of the shoreline with a deep, binding root mass.

0 pts: 35% or less of the shoreline with a deep, binding root mass.

13. Percent of polygon hummocked and/or pugged Moist, fine-textured soils are very susceptible to hoof damage by heavy animals. Hummocks are the bumpy micro-topographic relief caused by a combination of frost heaving, vegetative influences, and large animal trampling. Pugging is simply the hoof imprints left in soft soil to harden as a damaged, irregular surface. Both these effects reflect severe impact to a site that can mean functional degradation when the area affected is large. Normal vegetative succession can be disrupted, and the soil surface is exposed and roughened to increase erosion potential.

Scoring: 6 pts: Hummocking or pugging affects less than 5% of the polygon.

4 pts: Hummocking or pugging affects less than 15% of the polygon.

2 pts: Hummocking or pugging affects less than 25% of the polygon.

0 pts: Hummocking or pugging affects 25% or more of the polygon.

14. Percent of shoreline altered by human-caused disturbance Moist shorelines are often susceptible to structural damage due to their fine texture, wetted condition, and to the fact that they attract a concentration of animal and human activity. In many instances, current land use practices have accelerated this damage to levels that impair the natural wetland function of the site. We define altered shoreline as having impaired structural integrity (strength or stability) due to human-caused activities. The observers count such impacts as livestock hoof shear and concentrated trampling, vehicle tracks, and any other areas of human caused disruption of bank vegetation or substrate integrity.

APPENDIX E
SPECIES IDENTIFIED AT THE BANDY RANCH

APPENDIX E –Species Identified at the Bandy Ranch

Species (Scientific)	Species (Common)	Wetland Status	Selected Species Information
Tree Species			
<i>Juniperus scopulorum</i>	Rocky Mountain Juniper	Facultative Upland	Provides good to excellent structural diversity for thermal and hiding cover for wildlife. Forage is not very palatable to livestock, but young plants can be highly grazed, especially by some large game animals.
<i>Pinus ponderosa</i>	Ponderosa Pine	Facultative Upland	Forage production for wildlife and livestock is variable. Most sites are subjected to heavy grazing pressures because of their topographic location and ease of access.
<i>Pseudotsuga menziesii</i>	Douglas Fir	Facultative Upland	Management of these sites is not well documented. Most developmental activities may be possible without causing excessive site damage.
<i>Populus tremuloides</i>	Quaking Aspen	Facultative Upland	An important source of forage. Forage production typically moderate to high – depending on understory composition. Livestock uses include forage, shade, and as a bed ground. High value as wildlife cover and feeding areas. Use by elk during spring, fall, and winter is often moderate to heavy. Can be used to revegetate disturbed sites having moist, well-drained soils. The influence of site conditions (such as soil type and water regime) on the successional status has not been clearly determined.
Shrub Species			
<i>Salix geyeriana</i>	Geyer Willow	Facultative Upland	Stands are relatively stable. Disturbances to wettest stands will not permanently affect species composition due to the sprouting nature of the dominant willows. Highly productive of browse and forage. Wildlife and livestock usage is high.
<i>Rosa woodsii</i>	Woods Rose	Facultative Upland	Forage production from dense thickets ranges from low to moderate. Stands may be too thick for livestock usage; however, leaves are fair to fairly good livestock forage (particularly for sheep). Deer and elk may heavily browse plants. Strongly grazing tolerant but can be dwarfed and thinned by intense browsing or defoliation by season-long use.
<i>Symphoricarpos occidentalis</i>	Western Snowberry	Facultative Upland	Forage production for dense, monotypic stands is low. As stands open, forage production increases. Palatability ranges from low to fair for sheep and cattle, and to good for deer and elk. Provides thermal and hiding cover for livestock and wildlife. Well adapted for revegetating sites (best when not excessively disturbed).
Graminoid Species			
<i>Agropyron canium</i>	Slender Wheatgrass	Facultative Upland	Good forage and palatability for cattle, sheep, and horses. Wildlife forage is fair to poor (Hansen and others 1995).
<i>Agrostis scabra</i>	Rough Bentgrass	Facultative Upland	Good forage for livestock. Most grazing occurs before plants flower. Elk make moderate use of it.
<i>Alopecurus pratensis</i>	Meadow Foxtail	Facultative Wetland	No information obtained regarding forage or grazing management.

<i>Bromus inermis</i>	Smooth Broom	Facultative	Forage value is high. Very palatable to livestock when green, but low in winter. Moderate grazing complements native ranges grazed during the summer. A rotation grazing system encourages more uniform grazing use. Elk and Canada geese make moderate use of it.
<i>Calamagrostis stricta</i>	Slimstem Reedgrass	Facultative Wetland	Herbage production is typically high; however, limited extent of stands reduces its grazing value. Its coarse growth decreases its palatability, but will be lightly to moderately grazed by cattle and horses. Use is greatest in spring when leaves are young and tender.
<i>Carex aquatilis</i>	Water Sedge	Obligate	Herbage production is normally high. It is very palatable for cattle and horses. Domestic livestock do not readily use until soil surfaces dry in late summer or early fall. Season-long grazing, especially when soils are saturated will damage plants and compact soils. Confining grazing to late in the season or complete rest will allow stands to recover quickly. Waterfowl consume seeds and use it for nesting and cover.
<i>Carex atherodes</i>	Slough Sedge	Obligate	Herbage production is often high. Persistent wet soil conditions limit livestock and wildlife use. Palatability may increase late in the season as the shoots cure, soils dry, and upland vegetation becomes less abundant. Highly resistant to trampling damage and quickly recovers following disturbance.
<i>Carex athrostachya</i>	Slender-beaked Sedge	Facultative Wetland	Palatability is fair to good for horses and cattle. Submerged wet sites are of limited grazing value, but may be utilized in fall when soils are drier.
<i>Carex diandra</i>	Lesser-panicked Sedge	Obligate	Little is known regarding the palatability, however its limited size and extent reduces its importance for grazing animals. It can be expected to provide food and cover for waterfowl.
<i>Carex flava</i>	Yellow Sedge	Obligate	Specific information regarding grazing value is lacking.
<i>Carex lanuginosa</i>	Woolly Sedge	Obligate	Produces moderate to high amounts of herbage. Palatable to domestic livestock and may attract animals to wet sites earlier in the season than desired. Overuse of stands may shift dominance toward Kentucky bluegrass. Rest or deferment of grazing until late in the season will allow rapid recovery. It can be expected to provide nesting and feeding areas for waterfowl.
<i>Carex lasiocarpa</i>	Slender Sedge	Obligate	Produces moderate to high amounts of herbage. Limited use by livestock due to low palatability and wet conditions. Overuse of stands may shift dominance toward Kentucky bluegrass. Rest or deferment of grazing until late in the season will allow rapid recovery.

<i>Carex nebraskensis</i>	Nebraska Sedge	Obligate	Forage production grazing levels are high. Very palatable to cattle and horses, especially in spring and early summer when stems and leaves are tender. Withstands heavy usage without apparent damage. Repeated defoliation during the period of early shoot growth lessens plant vigor. Under continued season-long grazing it may act as an increaser, replacing former climax dominants
<i>Carex rostrata</i>	Beaked Sedge	Obligate	Herbage production is high. Cattle, Horse, elk, and moose may only lightly utilize it. Use is greatest in spring when young shoots appear, but decreases in the summer as shoots become coarse and tough. Use in the fall may increase after foliage has cured. Highly resistant to erosion. Relatively stable if water table does not change drastically. Strongly competitive species that adapts well to high water levels.
<i>Carex vesicaria</i>	Inflated Sedge	Obligate	Herbage production is moderate to high. Wet conditions preclude early season grazing by livestock and wildlife. May be grazed later in the year when water levels drop, shoots cure, and upland forage dries and becomes less palatable. Nutritive value is low. Favors high water table. Low water table will tend to shift dominance to Beaked sedge.
<i>Eleocharis acicularis</i>	Needle Spikesedge	Obligate	Herbage production is low and bare ground amounts are often high. Palatability is low for domestic livestock and wildlife.
<i>Eleocharis palustris</i>	Creeping Spikesedge	Obligate	Herbage production is moderate. Palatability is low for domestic livestock and wildlife. Heavy grazing may allow it to increase and spread. Use increases in drought years due to the limited availability and palatability of upland forage.
<i>Juncus balticus</i>	Baltic Rush	Facultative	Herbage production is moderate to high. Palatable early in the growing season when plants are young and tender. Palatability decreases as stems mature and toughen. Usually considered an increaser under moderate levels of use. Heavy grazing may also result in increases of unpalatable forbs. Elk may heavily use it during the summer. Other wildlife usage is typically low.
<i>Juncus longistylis</i>	Long-styled Rush	Facultative Wetland	No information obtained regarding forage or grazing management.
<i>Juncus regelii</i>	Regel's Rush	Facultative Wetland	No information obtained regarding forage or grazing management.
<i>Phalaris arundinacea</i>	Reed Canarygrass	Facultative Wetland	Herbage production is high. Palatability is low to moderate. Grazing should begin when this species is about 12 inches tall and soils have dried enough to minimize trampling damage. To maintain dense stands, plants should not be grazed to less than 4 inches in height. Its future use should be severely restricted due to its threat to wetlands dominated by other native species.

<i>Phleum pratense</i>	Common Timothy	Facultative Upland	Forage production is moderate to high. Palatability for livestock from spring to fall is good but declines after maturity. Elk use it in spring and summer, while deer use new growth in the spring.
<i>Poa palustris</i>	Fowl Bluegrass	Facultative	Forage production varies from moderate to high. Withstands grazing well and is considered an increaser under excessive grazing. Palatability for domestic animals is considered fair, especially in spring when new, tender shoots appear. It is an introduced species. It may replace native grasses following disturbance.
<i>Poa pratensis</i>	Kentucky Bluegrass	Facultative Upland	Herbage production is moderate. Palatable to all classes of livestock. Well adapted to grazing and is considered an increaser. Grazing practices influence the type of growth form present. A high density of weak, low-vigor tillers result under season-long grazing. Grazing practices incorporating early season rest increase its vigor. It is an introduced by naturalized species. It reflects prior disturbance such as heavy grazing or lowered water tables.
<i>Scirpus acutus</i>	Hardstem Bulrush	Obligate	Herbage production is high but forage value is typically low. Livestock or wildlife seldom grazes it if other forage is available. It is an important source of food and cover for waterfowl and small wildlife. It is stable on sites with relatively constant water regimes. It is fairly drought tolerant and can persist through several years of dry conditions.
Forb Species			
<i>Alisma plantago-aquatica</i>	Water Plantain	Obligate	No information obtained regarding forage or grazing management.
<i>Cirsium arvense</i>	Canada Thistle	Facultative Upland	An exotic invader of disturbed sites (noxious weed). Becomes dominant following disturbances such as flooding or excessive grazing. Pesticides have proven successful in reductions; however, special care should be taken to avoid contamination of water supplies. Forage production varies. Forage value is low. Elk may make limited use of it during the spring.
<i>Equisetum laevigatum</i>	Smooth Horsetail	Facultative Wetland	Forage value appears to be minimal. Some species of horsetail have documented toxic properties for domestic livestock, especially when fed as hay.
<i>Iris missouriensis</i>	Rocky Mountain Iris	Facultative Wetland	Herbage production is moderate. Grazing value is low. Dense stands normally indicate excessive levels of past grazing.
<i>Mentha arvensis</i>	Field Mint	Facultative	Its limited size and distribution limits its value for grazing. It is rated as fair forage for cattle and sheep and as poor for horses. It appears to be of little value for wildlife.
<i>Polygonum amphibium</i>	Water Smartweed	Obligate	Herbage production is low to moderate. Palatability to livestock and wildlife is low. Tolerant to flooding.
<i>Potamogeton praelongus</i>	Pondweed	Obligate	No information obtained regarding forage or grazing management.

<i>Potentilla anserina</i>	Common Silverweed	Obligate	Herbage is moderate. Acts as an increaser in heavily grazed stands, due to its low palatability and decumbent, nodal-rooting growth form.
<i>Potentilla palustris</i>	Marsh Cinquefoil	Obligate	Herbage production is low to moderate. Palatability is unknown but appears to be minimal. Wet soil conditions also deter or delay grazing until late in the summer.
<i>Rumex crispus</i>	Curled Dock	Facultative Wetland	Herbage production rates low to moderate. Palatability to livestock is low. Tolerant to flooding
<i>Sium suave</i>	Water Parsnip	Obligate	No information obtained regarding forage or grazing management.
<i>Sparganium emersum</i>	Narrow-leaved Burreed	Obligate	Wet conditions limit the value for grazing animals. Provides valuable food and cover for waterfowl.
<i>Typha latifolia</i>	Common Cattail	Obligate	Herbage production is high to very high. Palatability is low to moderate. Livestock or wildlife seldom grazes it if other forage is available. It will form stable communities when water levels are fairly constant. It is also fairly drought resistant and can persist through several years of dry conditions. It is an important source of shade, hiding cover, and food for wildlife.

Notes:

All information provided is from *Riparian Dominance Types of Montana*, Montana Forest and Conservation Experiment Station, School of Forestry, the University of Montana, Miscellaneous Publication No. 49. (Hansen and others 1995), unless otherwise noted.

Facultative Plant species that can occur both in wetlands and uplands. There are three subcategories of facultative species: 1) facultative wetland, 2) facultative, and 3) facultative upland (Hansen and others 1995).

Obligate Plant species that occur almost always (estimated probability greater than 99 percent) under natural conditions in wetlands (Hansen and others 1995).

APPENDIX F
RIPARIAN WETLAND RESEARCH PROGRAM
LENTIC HEALTH EVALUATION FORMS

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740001

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 07/24/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 15
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,150 ; (m): 1,265
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740001

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.584 ; (hect.): 24
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.6 ; (hect.): 0.2 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 11.8 ; (km): 19 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>2</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>1</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>15</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>2</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>16</u>	<u>24</u>
Overall Polygon Total:	<u>31</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>15</u> / <u>24</u> x100 = <u>63%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology:	<u>16</u> / <u>24</u> x100 = <u>67%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Total Rating:	<u>31</u> / <u>48</u> x100 = <u>65%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Degrading

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740002

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number** _____
GABS Mgmt. Status: **Incor**
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 10/16/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: 2
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 14
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,150 ; (m): 1,265
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

Record ID No: 9740002

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.539 ; (hect.): .22
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.122 ; (km): .2 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x 100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x 100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>32</u> / <u>33</u> x 100 = <u>97%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range 80-100 60-79 <60	Descriptive Category Proper Functioning Condition (Healthy) Functional At Risk (Healthy, but with Problems) Nonfunctional (Unhealthy)
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15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Degrading

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740003

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 10/02/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 3
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,210 ; (m): 1,283
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740003

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.283 ; (hect.): 11
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.3 ; (hect.): 0.1 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.085 ; (km): 14 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>2</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>18</u>	<u>24</u>
Overall Polygon Total:	<u>26</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 8 / 9 x100 = 89% Proper Functioning Condition (Healthy)

Soil / Hydrology: 18 / 24 x100 = 75% Functional At Risk (Healthy, but with Problems)

Total Rating: 26 / 33 x100 = 79% Functional At Risk (Healthy, but with Problems)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740004

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/02/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 1
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,190 ; (m): 1,277
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740004

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.377 ; (hect.): .15
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.4 ; (hect.): 0.2 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.091 ; (km): .15 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>2</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>1</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>1</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>0</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>12</u>	<u>21</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability (#54b & c)	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>45</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>12</u> / <u>21</u> x100 = <u>57%</u>	<u>Nonfunctional (Unhealthy)</u>
Soil / Hydrology:	<u>20</u> / <u>24</u> x100 = <u>83%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>32</u> / <u>45</u> x100 = <u>71%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Degrading

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740005**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 07/29/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powall 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 13
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,130 ; (m): 1,259
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740005

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 2.495 ; (hect.): 1.01
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 2.5 ; (hect.): 1.0 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.328 ; (km): .53 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>7</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>27</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>7</u> / <u>9</u> x100 = <u>78%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology:	<u>20</u> / <u>24</u> x100 = <u>83%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>27</u> / <u>33</u> x100 = <u>82%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range 80-100 60-79 <60	Descriptive Category Proper Functioning Condition (Healthy) Functional At Risk (Healthy, but with Problems) Nonfunctional (Unhealthy)
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15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740006**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 07/29/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 6
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,155 ; (m): 1,266
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740006

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.147 ; (hect.): 0.6
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.2 ; (hect.): 0.1 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.055 ; (km): 0.09 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>22</u>	<u>24</u>
Overall Polygon Total:	<u>31</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>22</u> / <u>24</u> x100 = <u>92%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>31</u> / <u>33</u> x100 = <u>94%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740007

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g: GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/02/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 7
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: NE 20. Elev. (ft): 4,170 ; (m): 1,271
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740007

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.129 ; (hect.): 0.05
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.1 ; (hect.): 0.1 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.051 ; (km): 0.08 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 9 / 9 x100 = 100% Proper Functioning Condition (Healthy)

Soil / Hydrology: 24 / 24 x100 = 100% Proper Functioning Condition (Healthy)

Total Rating: 33 / 33 x100 = 100% Proper Functioning Condition (Healthy)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740008

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 08/16/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 20
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,115 ; (m): 1,254
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740008

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 2.455 ; (hect.): .99
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 2.5 ; (hect.): 1.0 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.280 ; (km): .45 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>28</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>20</u> / <u>24</u> x100 = <u>83%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>28</u> / <u>33</u> x100 = <u>85%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740009

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 08/06/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 19
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,125 ; (m): 1,257
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740009

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.194 ; (hect.): 0.08
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.075 ; (km): 12 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>33</u> / <u>33</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740010

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 08/19/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 32
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: W 20. Elev. (ft): 4,115 ; (m): 1,254
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740010

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 2.722 ; (hect.): 1.1
 27 a. Is the entire polygon an upland? (Yes; No): No If No, 27 b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27 c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27 d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.352 ; (km): .57 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>2</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>1</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>1</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>19</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>43</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>19</u> / <u>24</u> x100 = <u>79%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>43</u> / <u>48</u> x100 = <u>90%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740011**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 08/19/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 33
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,115 ; (m): 1,254
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740011

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.105 ; (hect.): 0.4
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.047 ; (km): 0.8 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>33</u> / <u>33</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740012

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 10/15/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 31
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ if **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740012

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.546 ; (hect.): .22
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.134 ; (km): .22 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	<u>Actual Score</u>	<u>Possible Score</u>
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>3</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>1</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>18</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>38</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>18</u> / <u>24</u> x100 = <u>75%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology:	<u>20</u> / <u>24</u> x100 = <u>83%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>38</u> / <u>48</u> x100 = <u>79%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range 80-100 60-79 <60	Descriptive Category Proper Functioning Condition (Healthy) Functional At Risk (Healthy, but with Problems) Nonfunctional (Unhealthy)
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15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Degrading

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740013

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 08/28/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 34
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

Record ID No: 9740013

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 1.544 ; (hect.): .62
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 1.5 ; (hect.): 0.6 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.147 ; (km): .24 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 8 / 9 x100 = 89% Proper Functioning Condition (Healthy)

Soil / Hydrology: 24 / 24 x100 = 100% Proper Functioning Condition (Healthy)

Total Rating: 32 / 33 x100 = 97% Proper Functioning Condition (Healthy)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740014

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 08/20/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 35
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: S 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740014

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 3.088 ; (hect.): 1.25
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 3.1 ; (hect.): 1.3 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.295 ; (km): .47 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>22</u>	<u>24</u>
Overall Polygon Total:	<u>30</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating: <u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology: <u>22</u> / <u>24</u> x100 = <u>92%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating: <u>30</u> / <u>33</u> x100 = <u>91%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Degrading

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740015

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 08/20/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 38
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740015

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 6.176 ; (hect.): 2.5
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 6.2 ; (hect.): 2.5 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.589 ; (km): .95 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>32</u> / <u>33</u> x100 = <u>97%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740016**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/17/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 36
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,130 ; (m): 1,259
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740016

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.231 ; (hect.): 0.09
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.2 ; (hect.): 0.1 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.070 ; (km): 1.1 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>33</u> / <u>33</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740017**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/17/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 37
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: SW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740017

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.129 ; (hect.): 0.05
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.1 ; (hect.): 0.1 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.052 ; (km): 0.08 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>32</u> / <u>33</u> x100 = <u>97%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740018**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **incorrect GABS Number** _____
GABS Mgmt. Status: **incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 08/21/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 43
19. Location: T: 15N R: 13W Sec: 8
1/4 Sec: NE 1/4 1/4 Sec: SW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740018

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 4.795 ; (hect.): 1.94
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 4.8 ; (hect.): 1.9 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.439 ; (km): .71 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	<u>Actual Score</u>	<u>Possible Score</u>
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>3</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>19</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>0</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>2</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>14</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 19 / 24 x100 = 79% **Functional At Risk (Healthy, but with Problems)**

Soil / Hydrology: 14 / 24 x100 = 58% **Nonfunctional (Unhealthy)**

Total Rating: 33 / 48 x100 = 69% **Functional At Risk (Healthy, but with Problems)**

<u>Rating Percent Range</u>	<u>Descriptive Category</u>
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740019**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos

2. Funding Agency/Organization: _____

3a. BLM State Office: _____ 3b. BLM Field Office: _____

3c. BLM District: _____ 3d. BLM Resource Area: _____

3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____

If **Yes**, 3g: GABS Allot. No: _____

GABS ID: _____

GABS Allotment Name: Incorrect GABS Number

GABS Mgmt. Status: Incor

4. USFWS Refuge: _____

5. Reservation: _____

6. NPS Park/NHS: _____

7. BOR Project: _____

8. USFS National Forest: _____

9. Year: 1997 10. Date field data collected: 08/21/1997 11. Observers: Alice Santos

12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No

If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____

12c. Is this the latest inventory for this polygon? (Yes; No): _____

12d. ID No.(s) of other inventories of this polygon: _____

12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____

12g. Other years: _____

12h. ID No.(s) of other records sharing area with this polygon: _____

13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____

13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____

17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 44

19. Location: T: 15N R: 13W Sec: 8

1/4 Sec: NE 1/4 1/4 Sec: NE 20. Elev. (ft): 4,125 ; (m): 1,257

21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____

21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____

21e. Sub-basin perimeter (mi.): _____ ; (m): _____

22a. Water Quality District: _____ 22b. Waterbody number: _____

22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____

22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____

23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____

23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____

23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____

23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____

23e. Comments: _____

24. Quad map(s): _____

Record ID No: 9740019**SELECTED PHYSICAL SITE SUMMARY DATA**

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.552 ; (hect.): 0.22
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.6 ; (hect.): 0.2 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.135 ; (km): 0.22 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>2</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>1</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>1</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>19</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>2</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>16</u>	<u>24</u>
Overall Polygon Total:	<u>35</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>19</u> / <u>24</u> x100 = <u>79%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology:	<u>16</u> / <u>24</u> x100 = <u>67%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Total Rating:	<u>35</u> / <u>48</u> x100 = <u>73%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740020

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 08/28/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 25
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: NE 20. Elev. (ft): 4,135 ; (m): 1,260
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPT Upper: _____ WPT Lower: _____ WPT Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740020

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 4.793 ; (hect.): 1.94
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.438 ; (km): .7 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>0</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>6</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>30</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 6 / 9 x100 = 67% Functional At Risk (Healthy, but with Problems)

Soil / Hydrology: 24 / 24 x100 = 100% Proper Functioning Condition (Healthy)

Total Rating: 30 / 33 x100 = 91% Proper Functioning Condition (Healthy)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740021

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g. GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 09/13/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 9
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: NE 20. Elev. (ft): 4,175 ; (m): 1,273
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740021

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.264 ; (hect.): .11
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.3 ; (hect.): 0.1 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.075 ; (km): .12 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>33</u> / <u>33</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740022

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 09/17/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 10
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,175 ; (m): 1,273
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740022

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.442 ; (hect.): .18
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.130 ; (km): .21 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>32</u> / <u>33</u> x100 = <u>97%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740023**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/02/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 12
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,185 ; (m): 1,276
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740023

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.161 ; (hect.): 0.07
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.058 ; (km): 0.09 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>32</u> / <u>33</u> x100 = <u>97%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740024**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 09/17/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 2
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,215 ; (m): 1,285
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740024

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.257 ; (hect.): 1
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.3 ; (hect.): 0.1 27d. Percent of total polygon: 100%
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.080 ; (km): 13 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>2</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>28</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 8 / 9 x100 = 89% Proper Functioning Condition (Healthy)

Soil / Hydrology: 20 / 24 x100 = 83% Proper Functioning Condition (Healthy)

Total Rating: 28 / 33 x100 = 85% Proper Functioning Condition (Healthy)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740025

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
 If **Yes**, 3g: GABS Allot. No: _____
 GABS ID: _____
 GABS Allotment Name: Incorrect GABS Number
 GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 09/18/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
 If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 22
- 19. Location: T: 15N R: 13W Sec: 15
 1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,135 ; (m): 1,260
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

Record ID No: 9740025

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.243 ; (hect.): 1
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.072 ; (km): 12 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	<u>Actual Score</u>	<u>Possible Score</u>
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>7</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>22</u>	<u>24</u>
Overall Polygon Total:	<u>29</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 7 / 9 x100 = 78% Functional At Risk (Healthy, but with Problems)

Soil / Hydrology: 22 / 24 x100 = 92% Proper Functioning Condition (Healthy)

Total Rating: 29 / 33 x100 = 88% Proper Functioning Condition (Healthy)

<u>Rating Percent Range</u>	<u>Descriptive Category</u>
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740026**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g: GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 09/18/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: ID 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 21
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,150 ; (m): 1,265
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740026**SELECTED PHYSICAL SITE SUMMARY DATA**

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.337 ; (hect.): .14
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.092 ; (km): .15 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating: <u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology: <u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating: <u>33</u> / <u>33</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740027

ADMINISTRATIVE DATA

- 1. Field data collected by: Alice Santos
- 2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
- 4. USFWS Refuge: _____
- 5. Reservation: _____
- 6. NPS Park/NHS: _____
- 7. BOR Project: _____
- 8. USFS National Forest: _____
- 9. Year: 1997 10. Date field data collected: 10/02/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

- 14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
- 17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 23
- 19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,130 ; (m): 1,259
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
- 24. Quad map(s): _____

Record ID No: 9740027**SELECTED PHYSICAL SITE SUMMARY DATA**

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.618 ; (hect.): .25
 27 a. Is the entire polygon an upland? (Yes; No): No If No, 27 b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27 c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27 d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.162 ; (km): .26 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent.Of Polygon With Human-Caused Exposed Soil Surface	<u>2</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>18</u>	<u>24</u>
Overall Polygon Total:	<u>26</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating: <u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology: <u>18</u> / <u>24</u> x100 = <u>75%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Total Rating: <u>26</u> / <u>33</u> x100 = <u>79%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740028**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g: GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/02/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 24
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,135 ; (m): 1,260
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740028**SELECTED PHYSICAL SITE SUMMARY DATA**

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.187 ; (hect.): .08
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.061 ; (km): .1 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>1</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>7</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>31</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating: <u>7</u> / <u>9</u> x100 = <u>78%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology: <u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating: <u>31</u> / <u>33</u> x100 = <u>94%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740029**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 09/25/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 30
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: SW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,100 ; (m): 1,250
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740029

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.181 ; (hect.): 0.07
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.065 ; (km): 1 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>2</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>0</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>0</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>11</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>31</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 11 / 24 x100 = 46% Nonfunctional (Unhealthy)

Soil / Hydrology: 20 / 24 x100 = 83% Proper Functioning Condition (Healthy)

Total Rating: 31 / 48 x100 = 65% Functional At Risk (Healthy, but with Problems)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740030

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g: GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 09/25/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 28
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: SW 1/4 1/4 Sec: NE 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740030

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.514 ; (hect.): .21
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.127 ; (km): 2 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	<u>Actual Score</u>	<u>Possible Score</u>
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>28</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 8 / 9 x100 = 89% Proper Functioning Condition (Healthy)

Soil / Hydrology: 20 / 24 x100 = 83% Proper Functioning Condition (Healthy)

Total Rating: 28 / 33 x100 = 85% Proper Functioning Condition (Healthy)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740031**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g: GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 09/25/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No if **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 29
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: SW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740031

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.317 ; (hect.): 13
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.084 ; (km): 14 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	<u>Actual Score</u>	<u>Possible Score</u>
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>3</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>0</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>0</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>15</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>22</u>	<u>24</u>
Overall Polygon Total:	<u>37</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating: <u>15</u> / <u>24</u> x100 = <u>63%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology: <u>22</u> / <u>24</u> x100 = <u>92%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating: <u>37</u> / <u>48</u> x100 = <u>77%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) . Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740032

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g: GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 09/25/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 19
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,130 ; (m): 1,259
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740032

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.188 ; (hect.): 0.8
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.061 ; (km): 1 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form items holding data being rated.

	<u>Actual Score</u>	<u>Possible Score</u>
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>3</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>17</u>	<u>21</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>41</u>	<u>45</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>17</u> / <u>21</u> x100 = <u>81%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>41</u> / <u>45</u> x100 = <u>91%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740033**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/15/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 40
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: SW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,130 ; (m): 1,259
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740033

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.305 ; (hect.): 12
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.090 ; (km): 14 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>1</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>14</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>20</u>	<u>24</u>
Overall Polygon Total:	<u>34</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating: <u>14</u> / <u>24</u> x100 = <u>58%</u>	<u>Nonfunctional (Unhealthy)</u>
Soil / Hydrology: <u>20</u> / <u>24</u> x100 = <u>83%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating: <u>34</u> / <u>48</u> x100 = <u>71%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740034**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number** _____
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/15/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 41
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,130 ; (m): 1,259
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740034

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.144 ; (hect.): 0.06
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.055 ; (km): 0.09 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>3</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>1</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>19</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>18</u>	<u>24</u>
Overall Polygon Total:	<u>37</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.**Rating Calculation:**

(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating: <u>19</u> / <u>24</u> x100 = <u>79%</u>	Functional At Risk (Healthy, but with Problems)
Soil / Hydrology: <u>18</u> / <u>24</u> x100 = <u>75%</u>	Functional At Risk (Healthy, but with Problems)
Total Rating: <u>37</u> / <u>48</u> x100 = <u>77%</u>	Functional At Risk (Healthy, but with Problems)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740035**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/15/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 42
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,130 ; (m): 1,259
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740035**SELECTED PHYSICAL SITE SUMMARY DATA**

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.133 ; (hect.): 0.05
 27 a. Is the entire polygon an upland? (Yes; No): No If No, 27 b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27 c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27 d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.054 ; (km): 0.09 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>3</u>	<u>3</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>1</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>2</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>17</u>	<u>24</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>2</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>18</u>	<u>24</u>
Overall Polygon Total:	<u>35</u>	<u>48</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>17</u> / <u>24</u> x100 = <u>71%</u>	Functional At Risk (Healthy, but with Problems)
Soil / Hydrology:	<u>18</u> / <u>24</u> x100 = <u>75%</u>	Functional At Risk (Healthy, but with Problems)
Total Rating:	<u>35</u> / <u>48</u> x100 = <u>73%</u>	Functional At Risk (Healthy, but with Problems)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Degrading

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740036**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/17/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 39
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: SW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,100 ; (m): 1,250
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740036

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.397 ; (hect.): .16
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.092 ; (km): .15 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>22</u>	<u>24</u>
Overall Polygon Total:	<u>30</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>22</u> / <u>24</u> x100 = <u>92%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>30</u> / <u>33</u> x100 = <u>91%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740037

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/16/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 17
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740037

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.120 ; (hect.): 0.05
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.052 ; (km): 0.08 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Specier	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>18</u>	<u>24</u>
Overall Polygon Total:	<u>26</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

(Actual Score/Possible Score) X 100 = Rating Percent Descriptive Category

Vegetation Rating: 8 / 9 x100 = 89% Proper Functioning Condition (Healthy)

Soil / Hydrology: 18 / 24 x100 = 75% Functional At Risk (Healthy, but with Problems)

Total Rating: 26 / 33 x100 = 79% Functional At Risk (Healthy, but with Problems)

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740038**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
- If **Yes**, 3g: GABS Allot. No: _____
- GABS ID: _____
- GABS Allotment Name: Incorrect GABS Number
- GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/16/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
- If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:
- _____
- _____
- _____
- _____

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 18
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: SW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740038

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.157 ; (hect.): 0.06
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.060 ; (km): 1 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>1</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>7</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>2</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>4</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>2</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>14</u>	<u>24</u>
Overall Polygon Total:	<u>21</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>7</u> / <u>9</u> x100 = <u>78%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Soil / Hydrology:	<u>14</u> / <u>24</u> x100 = <u>58%</u>	<u>Nonfunctional (Unhealthy)</u>
Total Rating:	<u>21</u> / <u>33</u> x100 = <u>64%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740039**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/16/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 27
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740039

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.208 ; (hect.): 0.8
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): No
 29. Shore length (mi): 0.069 ; (km): 1.1 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>33</u> / <u>33</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740040**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/16/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 26
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: SW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,110 ; (m): 1,253
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740040

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.180 ; (hect.): 0.07
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.073 ; (km): 12 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>3</u>	<u>3</u>
3. Utilization Of Trees And Shrubs	<u>3</u>	<u>3</u>
4. Shrub Regeneration	<u>3</u>	<u>3</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>3</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>18</u>	<u>21</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>42</u>	<u>45</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>18</u> / <u>21</u> x100 = <u>86%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>42</u> / <u>45</u> x100 = <u>93%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740041

ADMINISTRATIVE DATA

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/14/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 5
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,155 ; (m): 1,266
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

Record ID No: 9740041

SELECTED PHYSICAL SITE SUMMARY DATA

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.168 ; (hect.): 0.07
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.059 ; (km): 0.09 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>4</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>22</u>	<u>24</u>
Overall Polygon Total:	<u>31</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>22</u> / <u>24</u> x100 = <u>92%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>31</u> / <u>33</u> x100 = <u>94%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740042**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/14/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 4
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: NW 20. Elev. (ft): 4,175 ; (m): 1,273
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATARecord ID No: 9740042

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.131 ; (hect.): 0.05
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.062 ; (km): 1 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>4</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>2</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbance:	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>18</u>	<u>24</u>
Overall Polygon Total:	<u>27</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.**Rating Calculation:**

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>18</u> / <u>24</u> x100 = <u>75%</u>	<u>Functional At Risk (Healthy, but with Problems)</u>
Total Rating:	<u>27</u> / <u>33</u> x100 = <u>82%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740043**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If **Yes**, 3g: GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: **Incorrect GABS Number**
GABS Mgmt. Status: **Incor**
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/14/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If **Yes**, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If **Yes**, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Bandy Ranch 18. Polygon No.: 8
19. Location: T: 15N R: 13W Sec: 15
- 1/4 Sec: NW 1/4 1/4 Sec: NE 20. Elev. (ft): 4,175 ; (m): 1,273
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If **Yes**, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740043

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.137 ; (hect.): 0.06
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.054 ; (km): 0.09 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>3</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>9</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>33</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>9</u> / <u>9</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>33</u> / <u>33</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown

RWRP LENTIC HEALTH EVALUATION
(Derived from RWRP Lentic Inventory Form)

Record ID No: 9740044**ADMINISTRATIVE DATA**

1. Field data collected by: Alice Santos
2. Funding Agency/Organization: _____
- 3a. BLM State Office: _____ 3b. BLM Field Office: _____
- 3c. BLM District: _____ 3d. BLM Resource Area: _____
- 3e. BLM Office Code: _____ 3f. Is the polygon in an active BLM grazing allotment? (Yes; No; NA): _____
If Yes, 3g. GABS Allot. No: _____
GABS ID: _____
GABS Allotment Name: Incorrect GABS Number
GABS Mgmt. Status: Incor
4. USFWS Refuge: _____
5. Reservation: _____
6. NPS Park/NHS: _____
7. BOR Project: _____
8. USFS National Forest: _____
9. Year: 1997 10. Date field data collected: 10/14/1997 11. Observers: Alice Santos
- 12a. At least some part of this polygon has been inventoried more than once (resampled)? (Yes; No): No
If Yes, 12b. This polygon coincides exactly with another inventoried polygon? (Yes; No): _____
- 12c. Is this the latest inventory for this polygon? (Yes; No): _____
- 12d. ID No.(s) of other inventories of this polygon: _____
- 12e. Other years: _____ 12f. This polygon shares common area with other inventoried polygon(s)? (Yes; No): _____
- 12g. Other years: _____
- 12h. ID No.(s) of other records sharing area with this polygon: _____
- 13a. Has a change in management occurred? (Yes; No): No If Yes, 13b. Year that changed occurred: _____
- 13c. Type of management change applied:

LOCATION DATA

14. State/Province: MT 15. County: Powell 16. Allotment/Range Unit: _____
17. Area name: UM/MSU Randy Ranch 18. Polygon No.: 11
19. Location: T: 15N R: 13W Sec: 15
1/4 Sec: NW 1/4 1/4 Sec: SE 20. Elev. (ft): 4,170 ; (m): 1,271
- 21a. Hydrologic unit code (HUC): _____ 21b. Sub-basin name (4th level HUC): _____
- 21c. Sub-basin (sq. mi.): _____ ; (sq. m): _____ 21d. Sub-basin (ac.): _____ ; (hect.): _____
- 21e. Sub-basin perimeter (mi.): _____ ; (m): _____
- 22a. Water Quality District: _____ 22b. Waterbody number: _____
- 22c. Is the waterbody a 303(d) listed impaired stream? (Yes; No): _____ If Yes, 22d. Year of listing? _____
- 22e. Waterbody TMDL priority: _____ 22f. TMDL development status: _____
- 23a. UTM coordinates of polygon UPPER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23b. UTM coordinates of polygon LOWER END: Easting: _____ ; Northing: _____ ; Zone: _____
- 23c. UTM coordinates of any other point of interest in the polygon: East: _____ ; North: _____ ; Zone: _____
- 23d. GPS Unit #: _____ WPt Upper: _____ WPt Lower: _____ WPt Other: _____
- 23e. Comments: _____
24. Quad map(s): _____

SELECTED PHYSICAL SITE SUMMARY DATA

Record ID No: 9740044

25. Wetland type: Pothole or Small Mountain Lake 26. Polygon size (acres): 0.218 ; (hect.): 0.09
 27a. Is the entire polygon an upland? (Yes; No): No If No, 27b. Does the polygon consist entirely of functional wetland types? (Yes; No): Yes 27c. Functional wetland (acres): 0.0 ; (hect.): 0.0 27d. Percent of total polygon: _____
 28. Does the polygon contain a defined shoreline? (Yes; No; NC): Yes
 29. Shore length (mi): 0.098 ; (km): 1.6 30. Number of shoreline miles the polygon represents: _____ ; (km): _____

LENTIC HEALTH SCORESHEET

Note: Numbers in parentheses refer to Lentic Inventory Form Items holding data being rated.

	Actual Score	Possible Score
1. Tree Regeneration	<u>0</u>	<u>0</u>
2. Woody Decadent And Dead Amounts	<u>0</u>	<u>0</u>
3. Utilization Of Trees And Shrubs	<u>0</u>	<u>0</u>
4. Shrub Regeneration	<u>0</u>	<u>0</u>
5. Total Canopy Cover Of Woody Species	<u>0</u>	<u>0</u>
6. Combined Canopy Cover Of Four Plant Lifeforms	<u>2</u>	<u>3</u>
7. Total Area Occupied By Noxious Weed Species	<u>3</u>	<u>3</u>
8. Total Area Occupied By Undesirable Herbaceous Species	<u>3</u>	<u>3</u>
Vegetation Subtotal:	<u>8</u>	<u>9</u>
9. Percent Of Polygon With Human-Caused Exposed Soil Surface	<u>6</u>	<u>6</u>
10. Degree of Artificial Drawdown of Water	<u>6</u>	<u>6</u>
11. Overflow Structure Stability	<u>0</u>	<u>0</u>
12. Percent Of Shoreline With A Deep, Binding Root Mass	<u>6</u>	<u>6</u>
13. Percent Of Polygon Hummocked and/or Pugged	<u>6</u>	<u>6</u>
14. Percent Of Shoreline Structurally Altered by Human-Caused Disturbances	<u>0</u>	<u>0</u>
Soil / Hydrology Subtotal:	<u>24</u>	<u>24</u>
Overall Polygon Total:	<u>32</u>	<u>33</u>

¹ This information is for future use and has not been collected in the inventories of 1989-1994.

Rating Calculation:

	(Actual Score/Possible Score) X 100 = Rating Percent	Descriptive Category
Vegetation Rating:	<u>8</u> / <u>9</u> x100 = <u>89%</u>	<u>Proper Functioning Condition (Healthy)</u>
Soil / Hydrology:	<u>24</u> / <u>24</u> x100 = <u>100%</u>	<u>Proper Functioning Condition (Healthy)</u>
Total Rating:	<u>32</u> / <u>33</u> x100 = <u>97%</u>	<u>Proper Functioning Condition (Healthy)</u>

Rating Percent Range	Descriptive Category
80-100	Proper Functioning Condition (Healthy)
60-79	Functional At Risk (Healthy, but with Problems)
<60	Nonfunctional (Unhealthy)

15. Trend Comments¹ (Improving; Degrading; Static; Status Unknown) : Status Unknown