

# **Brunchow Hill Allotment #5251 Standards and Guidelines Evaluation**

## **1.0 Introduction**

The Allotment Assessment was conducted in accordance with the direction set forth in the Washington Office Instruction Memorandum No. 98-91 and Arizona No. 99-012 for implementation of Standards for Rangeland Health and Guidelines for Grazing Administration. The purpose of the standards and guidelines is to improve the health of the public rangelands. The standards and guidelines are intended to help the Bureau, rangeland users and others focus on a common understanding of acceptable resource conditions and work together to achieve that vision. The Arizona State Director approved the Decision Record for implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration Environmental Assessment in April 1997. This decision became effective upon approval of the Arizona standards and guidelines by the Secretary of Interior in April 1997. The Decision Record allowed for full implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration in all Arizona Bureau of Land Management (BLM) Land Use Plans.

## **Definition of Standards and Guidelines**

Standards of rangeland health are expressions of levels of physical and biological conditions or degree of function required for healthy, sustainable rangelands and defines minimum resource conditions that must be achieved and maintained. Determination of rangeland health is based upon conformance with the standards. Application of the standard to the range site considers the potential of the site without regard for the types or levels of use or management actions or decisions.

Guidelines, on the other hand, do consider type and level of grazing use. Guidelines for grazing management are types of methods and practices determined to be appropriate to ensure the standards can be met or that significant progress can be made toward meeting the standard. Guidelines are tools that help managers and permittees achieve standards. Guidelines are specific to livestock grazing. Guidelines are best management practices such as grazing systems that could be used to achieve rangeland health standards.

Although the process of developing standards and guidelines applies to grazing administration, present rangeland health is the result of the interaction of many factors in addition to grazing livestock. Other contributing factors may include, but are not limited to, past land uses, land use restrictions, recreation, wildlife, rights-of-way, wild horses and burros, mining, fire, weather, and insects and disease (Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, 1997).

With the commitment of BLM to ecosystem and interdisciplinary resource management, the standards for rangeland health as developed in this current process will be incorporated into management goals and objectives. The standards and guidelines for rangeland health for grazing administration, however, are not the only considerations in resolving resource issues (Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, 1997).

## **2.0 General Description of Evaluation Area**

The Brunchow Hill allotment is located in Cochise County, Arizona and is approximately 5 miles southwest of Tombstone, Arizona and approximately 6 miles northeast of Sierra Vista. The current livestock operation is 7 cattle year-long at 100% public land use (1,038 acres of public land, 171 acres state land, and 712 acres of private land). All of the ranch's watersheds drain into the San Pedro River. The San Pedro River is located on the western end of the allotment.

Elevation on the Brunchow Hill allotment is approximately 4,541 ft. The Brunchow Hills are located just south of the allotment. The rest of the allotment made up of mostly limy upland, granitic upland and sandy wash. Map 1 depicts the location and land status of the Brunchow Hill allotment. GPS coordinates- Nad 27: 12R0580318 x3499841.

## **3.0 Grazing Use**

Grazing use on the Brunchow Hill allotment is in accordance with the terms and conditions of the permit.

A summary of type and level of grazing management is provided in the table below.

Table 1. Grazing Use on the Brunchow Hill Allotment #5251.

<b>Active Grazing Use</b>	<b>7 cattle</b>
<b>Season of Use</b>	<b>Yearlong</b>
<b>Kind and Class of Livestock</b>	<b>Cattle</b>
<b>Percent Public Land</b>	<b>100%</b>

Mandatory terms and conditions:

5251 Brunchow Hill 7 cows 3/1-2/28 100% PL 84 AUMs

Other terms and conditions:

You are required to submit a report of the actual grazing use made on this allotment for the previous grazing period, March 1 to February 28. Failure to submit such a report by March 15 of this year may result in suspension or cancellation of your grazing permit.

Grazing use is authorized in accordance with the Allotment Management Plan.

## **4.0 Evaluation Area Profile**

### **4.1 Land Status**

The Brunchow Hill allotment is identified as an I (Improve) category allotment.

### Improve (I) Category criteria

- Present range condition is unsatisfactory and/or needs improvement.
- Allotments have moderate to high resource production potential and are producing at low to moderate levels.
- Serious resource-use conflict and/or controversy exists.
- Opportunities exist for positive economic return from public investments.
- Present management appears unsatisfactory and/or needs improvement.

Allotments in the “I” category require either a change in management practices to improve conditions and achieve a relatively high resource potential or mitigation of serious resource conflicts.

The management objectives for “I” allotments are to improve current resource conditions or resolve conflicts, Therefore, “I” allotments will have first priority for range improvement funding, AMP development, monitoring and use supervision.

Range condition, trend and precipitation will be monitored on all “I” allotments. Utilization and actual livestock use will be monitored on the allotments that receive livestock grazing use. Other studies to monitor water and wildlife habitat will also be conducted.

Refer to Table 2 for land acreage in the Brunchow Hill allotment.

Table 2. Land status and acreage of the Brunchow Hill allotment.

<b>Type of Acreage</b>	<b>Acres</b>	<b>Sections</b>
Public Land	1,038	1.56
Private Controlled	712	1.1
State Controlled	171	0.27
Total	1882	2.93

### 4.2 Soils and Ecological Sites

The Natural Resource Conservation Service characterizes land resource regions by particular patterns of soils, climate, water resources and land uses. These large regions are then grouped into Major Land Resource Areas (MLRAs). The majority of the Brunchow Hill Allotment is MLRA 41-3 (12-16 inches/per year). MLRAs are then broken down further into ecological sites, which are associated units of soil and vegetation with quantifiable characteristics. The ecological sites occurring on the Brunchow Hill allotment are: Limy Upland 41-3, Loamy Swale 41-3, Loamy Bottom 41-3, Granitic Upland 41-3, Granitic Hills 41-3 and Sandy Wash 41-3.

### 4.3 Wildlife Resources/Special Status Species

### Wildlife:

The allotment is adjacent to the San Pedro Riparian National Conservation Area, and provides important habitat to many wildlife species due to the allotment's proximity to the San Pedro River. Both mule deer and Coues' white-tailed deer may occur at least seasonally on the allotment. Chihuahuan desert scrub provides habitat for javelina, as well as many reptile and amphibian species. Avian species which utilize the area include Gambel's quail and mourning dove, as well as neotropical migrants such as loggerhead shrike and various sparrow species.

### Threatened and Endangered:

The historic ranges of the federally endangered jaguar (*Panthera onca*) and ocelot (*Leopardus pardalis*) may have occurred on the allotment. Roosting and/or foraging habitat for the federally endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) may occur on or near the allotment. A lesser long-nosed bat specimen was found on 11 June 1988 in a Fairbank building (approximately seven miles from the allotment), and deposited in the University of Arizona Mammal Collection (specimen #RMS 123).

Suitable habitat for the federally threatened Chiricahua leopard frog (*Lithobates chircahuensis*), spikedace (*Meda fulgida*), loach minnow (*Tiaroga cobitis*), desert pupfish (*Cyprinodon macularius*), Gila chub (*Gila intermedia*), and Gila topminnow (*Poeciliopsis occidentalis occidentalis*) historically existed on the San Pedro River, but these species have not been documented on the river for decades.

The federally endangered southwestern willow flycatcher (*Empidonas traillii extimus*) and candidate species yellow-billed cuckoo (*Coccyzus americanus*) use the nearby San Pedro River as a migratory corridor and have been documented within a few miles of the allotment. The most recent documentation of southwestern willow flycatcher has been in 2008 (Heather Swanson, BLM) near Green Kingfisher Pond approximately five miles south of the allotment. Yellow-billed cuckoo were observed on 21 June 2008 within a mile of the allotment (Marcia Radke, BLM).

Critical habitat for Huachuca water umbel (*Lilaeopsis schaffneriana recurva*) occurs within the allotment on permanent stretches of the San Pedro River. Populations of Huachuca water umbel occurred within the allotment from 1995 – 1999, and in 2001 (EEC 2001). Huachuca water umbel has been documented within the allotment as recently as 10/11/02 by BLM wildlife biologist Mark Fredlake (field notes). Huachuca water umbel was not detected within the allotment in 2007 (EEC 2007) or in 2008 (Marcia Radke, BLM, personal observation). It is unknown if occurrences of Huachuca water umbel within this allotment have occurred on private property inholdings or on the BLM San Pedro Riparian NCA portions. There are no standing interior cross-fences that delineate private/public land boundaries crossing this San Pedro River segment on the allotment. The U.S. Fish and Wildlife Service Biological Opinion (2-21-96-F-160) addresses the impacts of the Safford and Tucson Field Office's grazing programs on listed species.

### Special Status Species:

Special status species which may occur on the allotment include burrowing owl and Texas

horned lizard, both BLM sensitive species. A bat colony currently roosts in the Boquillas barn approximately five miles from the allotment, and bats may use the allotment for foraging habitat.

#### 4.4 Special Management Areas

	Yes	Name	Date Established	No
Wild & Scenic Rivers				X
Wilderness				X
Unique Waters				X
ACECs	X	San Pedro River	1989	
Other	X	San Pedro NCA	1989	

The Brunchow Hill Allotment is included in The San Pedro National Conservation Area. In 1989 BLM completed a land management plan for the 47,668 acres of public land along the upper San Pedro River. The San Pedro River Riparian Management Plan and Environmental Impact Statement (BLM 1989) provides direction for management of the natural and cultural resources of the property. During the preparation of the San Pedro plan, Congress designated these lands and adjacent public lands (54,189 acres) as the San Pedro Riparian National Conservation Area. Management direction for the adjacent lands was not determined in the San Pedro plan, but will be made in the approved Resource Management Plan, consistent with the Legislation and the San Pedro plan. The Management decisions and mitigations of the San Pedro River Riparian Management Plan and Environmental Impact Statement are incorporated into the Safford District Resource Management Plan.

#### 4.5 Recreation Resources

There are no developed recreation facilities in the allotment; however, dispersed recreation does occur. Dispersed recreation primarily involves small and big game hunting, target shooting and off-highway vehicle (OHV) operation. Vehicle access to the allotment is limited. Roads are in stable condition. Over-all there is very little sign of recreation use or subsequent impacts. There are no recreation related concerns at this time.

#### 4.6 Visual Resources

Safford RMP designated public lands within the Brunchow Hill area as Visual Resource Management (VRM) class III. The visual resource objective for this class is to partially retain the existing character of the landscape. The level of activity may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

#### 4.7 Cultural Resources

Issuance of the permit constitutes a Federal Undertaking under Section 106 of the National Historic Preservation Act (NHPA). The Area of Potential Effect (APE) has been determined to be the public lands within the grazing allotment.

Actions have been taken to identify cultural resources located in the APE, evaluate the eligibility of cultural resources for listing in the National Register of Historic Places (NRHP), determine the effect of the undertaking on eligible cultural resources, and design mitigation measures of alternatives where appropriate. These actions are in compliance with the BLM Cultural Resources Programmatic Agreement, the Arizona BLM – SHPO Protocol, the 1980 Programmatic Memorandum of Agreement between BLM Advisory Council on Historic Preservation, the National Conference of State Historic Preservation Officers, and the BLM 8100 Manual series.

The State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and Indian tribes having historical ties to Arizona public lands were consulted during the preparations of the Upper Gila/San Simon Grazing Environmental Impact Statement (9/86) and the Safford Resource Management Plan (9/78). Indian tribes were consulted at the beginning of the permit renewal process. There were no areas of Native American concern, Traditional Cultural Properties (TCP), or Sacred Sites identified during consultations.

Allotment case files, AMP files, range project files, Water Source Inventory files, and Cultural Resource files were reviewed to determine areas of livestock congregation and whether these areas have been previously inventoried for cultural resources. Because no historic properties were identified in areas of livestock congregation, no mitigation is recommended as a BLM responsibility or as a term or condition of the permit, to protect cultural values identified above.

As required by the Native American Graves Protection and Repatriation Act regulations at 43 CFR 10.4(g), the following should be added to the grazing lease/permit as a term and condition:

If in connection with allotment operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the permittee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized Officer of the discovery. The permittee shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume.

\* Properties refer to archaeological sites, Traditional Cultural Properties, and Sacred Sites.

#### 4.8 Noxious Weeds/Invasive Species

No noxious weeds are known to occur on the allotment. However, invasive species such as Lehmann lovegrass (*Eragrostis lehmanniana*), mesquite (*Prosopis velutina*) and acacia (*Acacia spp.*) do occur on the allotment.

#### 4.9 Key Areas/Key Species

Key areas are indicator areas that reflect what is happening on a larger area as a result of on-the-ground management actions. A key area should be a representative sample of a large stratum, such as an ecological site, watershed area, pasture, wildlife habitat area, or herd management area. Key species are generally an important component of a plant community. Key species serve

as indicators of change and may or may not be forage species. Refer to the monitoring section of this packet for locations of key areas on the allotment. Key species were identified at each key area. Refer to section 5.0 for monitoring results as related to key species and key areas

#### 4.10 Allotment Objectives

##### 4.10.1 Arizona Standards for Rangeland Health and Guidelines for Grazing Administration

Standard 1: Upland Sites

Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform.

Standard 2: Riparian- Wetland Sites

Maintain or improve riparian/wetland areas to facilitate proper functioning condition.

Standard 3: Desired Resource Condition

Maintain or improve productive and diverse upland and riparian-wetland plant communities of native species.

### **5.0 Management Evaluation**

<b>Method</b>	<b>Yes</b>	<b>Date</b>	<b>No</b>
Rangeland Health Assessment	X	12-2-08	
Pace Frequency			X
Dry Weight Rank			X
Point Cover			X
Line Intercept			X
Photos	X	12-2-08	
Utilization			X
Actual Use	X	1998-2008	
Climate	X	1971-2000	

#### 5.1 Precipitation

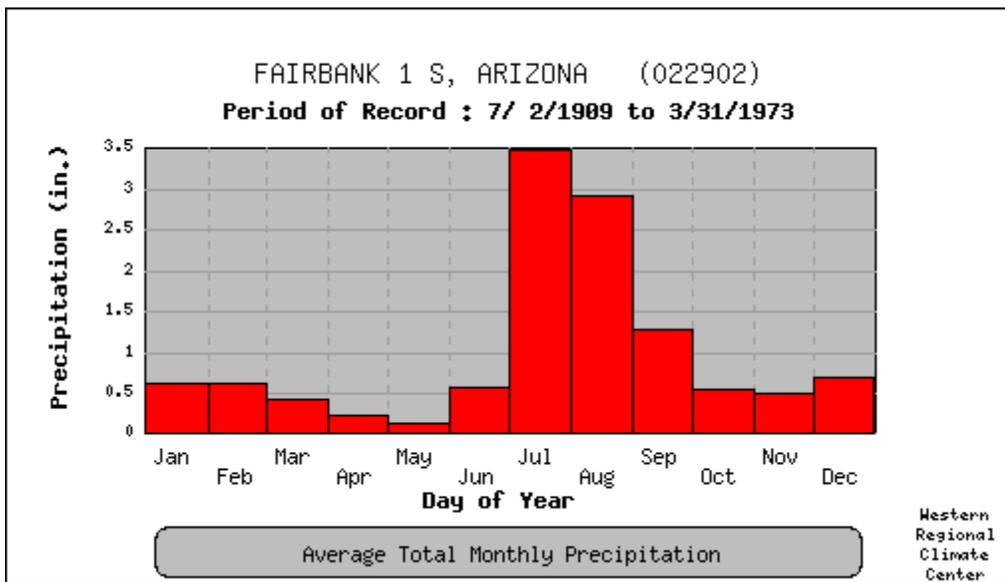
As of April 2006, the southeastern portion of Arizona has been in a serious drought for 7 to 10 years, dependent upon the locality. Most of the precipitation stations have experienced up to seven years of below average moisture. The last four years produced exceptionally limited amounts of precipitation at many stations. Precipitation data is collected from BLM, National Oceanic and Atmospheric Agency and rancher rain gauge stations within the BLM Administrative Area. The data presented in Table 3 and Table 4 came from the Western Regional Climate Center rain gauge station which is nearest to the allotment. (Fairbank 1 S station number 022902).

Table 3. Western Regional Climate Center Rain Gauge Data

1971-2000 Monthly Climate Summary

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Total Precipitation (in.)	0.30	0.66	0.79	0.41	0.25	0.78	2.16	4.67	1.55	1.79	0.40	0.72	14.48

Table 4. Western Regional Climate Center Rain Gauge Data.



## 5.2 Rangeland Monitoring

### 5.2.1 Actual Use

Actual use data for livestock was determined through Actual Use Reports, Form 4130-5, when available from past billing statements. Refer to Table 5 for actual use from the previous 10-years.

Table 5. Actual use on the Brunchow Hill allotment.

	Preference (AUMs)	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
<b>Brunchow Hill</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>	<b>84</b>

### 5.2.2 Upland Health Assessment

Upland health assessments were completed at one key area on the Brunchow Hill Allotment on December 2, 2008. A key area was used for the Upland Health Assessment, as it represents ecological sites over the majority of the allotment. This method involves observing a set of physical and biological attributes at a site to determine upland health. These observed attributes are placed in one of five categories depending on their degree of presence or absence on the site (i.e. None to Slight, Slight to Moderate, Moderate, Moderate to Extreme, and Extreme). These attributes include items such as: plant pedestals, flow patterns, soil and litter movement by wind or water, presence of rills or active gullies. A final upland health determination is made by summing all of the attributes. Refer to Table 6 for a summary of the assessments on the Brunchow Hill allotment. Methods for the upland health assessments are described in “Interpreting Indicators of Rangeland Health, Technical Reference 1734-6, 2000.”

Table 6. Summary of upland health assessments at each key area.

Rangeland Health Attribute	Departure From Ecological Site Description				
	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Soil/Site Stability			1	1	8
Hydrologic Function			2	1	7
Biotic Integrity		2	1	2	4

### 5.2.3 Riparian

The riparian corridor in the SPRNCA was divided into relatively homogeneously reaches on the basis of similarity in two key physical controls on riparian-vegetation structure: streamflow hydrology (spatial intermittency) and geomorphology (channel sinuosity and flood-plain width). Fourteen reaches were delineated, spanning a 62-km length of the San Pedro River in the SPRNCA (fig.1).

To further evaluate the riparian component of each of the fourteen established reaches,

Stromberg and others developed a Riparian Condition Index using a suite of nine field-measured vegetation traits (bioindicators) that are sensitive to changes in streamflow permanence and/or ground-water levels on the San Pedro River (Figure 1) (Stromberg et. al., 2005). The four bioindicators that measure cover of herbaceous vegetation in the streamside zone will respond most quickly to changes in the degree of streamflow permanence, given the short life span and sensitivity to water changes of wetland plants. These four bioindicators can be used independently of the overall condition model to monitor short-term changes in vegetation condition. The other five bioindicators measure woody vegetation structure and composition and will change more slowly over time; indicators such as cottonwood-willow stem-size class richness could decline over a period of years, as survivorship thresholds for sensitive age classes of these trees are exceeded, whereas the relative abundance of shrublands could change on a decadal scale, in response to compositional shifts of the dominant woody species.

Site Condition scores were grouped to categorized each site into 1 of 3 riparian condition classes. Condition scores of 1.0 to 1.5 (class 1) indicate ecological conditions reflecting reduced water availability (or stressors producing effects similar to reduced water availability). Scores between 1.51 and 2.5 (class 2) indicate intermediate conditions, whereas scores of 2.51 to 3.0 (class 3) indicate no water stress conditions. Each condition class is associated with ranges for vegetation structure and associated levels of functional capacity and reflects a certain range of hydrologic conditions with respect to streamflow permanence and ground-water depth and fluctuation (fig. 2). Condition class 3 is representative of thirty-nine percent of the SPRNCA riparian corridor while condition class 2 comprises fifty-five percent and condition class 3 equals six percent (Stromberg et. al., 2005).

The Brunckow Hill allotment intersects stream reach 7 (class 3) of the San Pedro River (within SPRNCA). Class 3 reaches had perennial or near-perennial streamflow (>99 percent streamflow permanence) and shallow, stable alluvial ground water. Ground water is accessible to shallow-rooted phreatophytic trees such as cottonwood (*Populus fremontii*) and Goodding willow (*Salix gooddingii*) throughout the flood plain; mean depths were typically less than 2m throughout the flood plain and annual fluctuation less than 0.5m. Flood-plain vegetation is characterized by tall, dense, multi-aged cottonwood-willow forests and woodlands with intermixed areas of riparian grass-forbs and only small patches of tamarisk shrubland. Deep-rooted pioneer species such as tamarisk (*Tamarix chinensis*) are subdominant in the forests. The stream channel is lined by dense and diverse herbaceous cover, including an abundance of emergent macrophytes, such as bulrush (*Schoenoplectus acutus*), and other obligate wetland and facultative wetland species, such as Torrey rush and scouring rush (*Juncus spp.*) (Stromberg et. al., 2005).

This summary of the present distribution of the condition classes in the SPRNCA provides a baseline for tracking long-term changes in riparian structure and composition resulting from changes in water availability. Stability or upward changes in the condition scores can provide an index of whether water-conservation and management measures are effective in preventing riparian degradation and (or) improving conditions, whereas downward changes may suggest that further intervention is warranted (Stromberg et. al., 2005).

Condition class scores will change in response to any increase or decrease in river water availability, whether from current anthropogenic activities (such as changes in ground-water

pumping or water recharge rates), ongoing watershed responses to current and past land-use activities (for example, changes in infiltration or runoff rates in response to upland vegetation change), or climate change. Arizona has been in a drought for a half-decade. Drought likely will cause short-term shifts in the condition-class scores (Stromberg et. al., 2005).

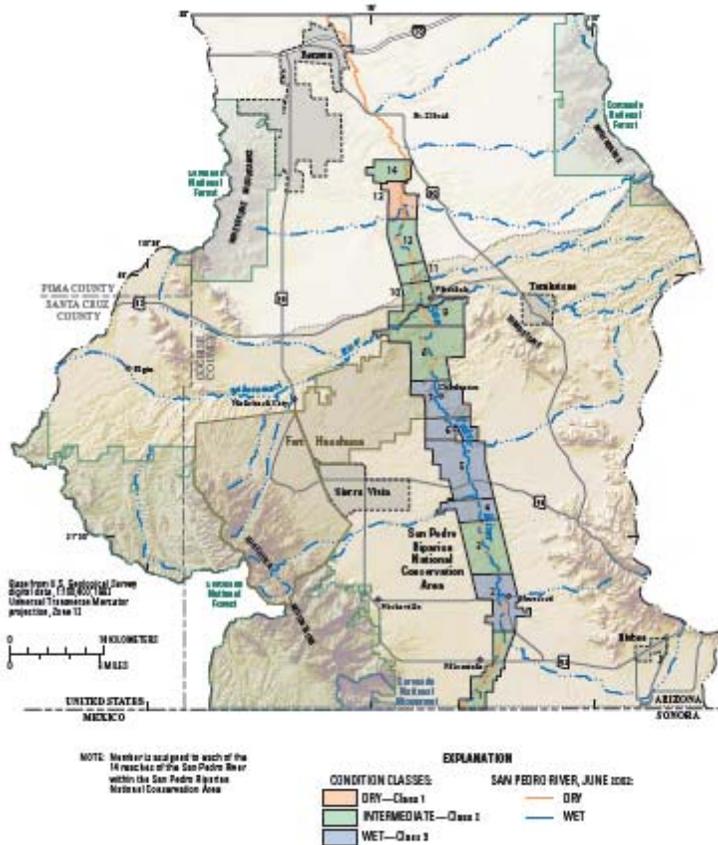


Figure 1- Riparian ecological condition classes for 14 reaches and streamflow presence for June 2002 within the San Pedro Riparian National Conservation Area, Upper San Pedro Basin, Arizona (Stromberg et. al., 2005).

Reach 7 of the San Pedro River within the SPRNCA has been subject to periodic BLM Proper Functioning Condition (PFC) assessments starting in June 1995 and most recently in April 2006. Proper functioning condition is a qualitative method for assessing the condition of riparian-wetland areas based on quantitative science (BLM TR 1737-15, 1998). Bureau of Land Management PFC assessments in 1995 and 2006 both rate this portion of the San Pedro River as Functional At Risk with a downward trend. Justifications for this rating include reduced baseflows in the San Pedro River (2005 represented the first NO FLOW event ever recorded at Charleston Gage which has ~100 years of streamflow records), lack of cottonwood/willow recruitment, apparent excess sediment deposition, OHV tress pass and livestock use. No further justification was recorded.

**6.0 Conclusions**

Based on the analyses and supporting documentation referenced herein, resource conditions on the Brunchow Hill Allotment are as follows:

**Standard 1. Upland Sites:** There are no concerns about soils that should be considered before permit issuance. Upland soils exhibit infiltration, permeability, and erosion rates typical for this soil type, climate and land form. The Upland Health Assessment data shows soil/site stability, and hydrologic functions meet expectations when compared to reference area conditions. The biotic integrity function is slightly impaired due to higher than expected numbers of mesquite, whitethorn, and some invasion of the exotic Lehmann lovegrass. Therefore, standard 1 is being met for this allotment.

**Standard 2. Riparian-Wetland Sites:** Based on the indicators (bank stability, groundwater recharge, encroachment of upland species) Standard 2 is being met on the Brunchow Hill Allotment.

**Standard 3. Desired Resource Conditions:** Desired Resource Condition - There are no vegetative resource concerns that should be considered before permit issuance. The Upland Health Assessment indicates the soil and site stability, hydrologic, and biotic integrity functions are meeting expectations for the site. Therefore, Standard 3 is being met for this allotment.

## **7.0 Recommendations**

Issue 10-year grazing permit with the following terms and conditions:

Mandatory terms and conditions:

**5251 Brunchow Hill 7 cows 3/1-2/28 100% PL 84 AUMs**

Other terms and conditions:

Lessee is required to submit a report of the actual grazing use made on this allotment for the previous grazing period, March 1 to February 28. Failure to submit such a report by March 15 of this year may result in suspension or cancellation of the grazing permit.

If in connection with allotment operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the permittee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized Officer of the discovery. The permittee shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume.

## **8.0 Consultation**

Prepared By/Staff Review:

Signature

Eric Baker, Rangeland Management Specialist  
Marcia Radke, Wildlife Biologist  
Nathan Dieterich, Hydrologist  
Heather Swanson, Natural Resource Specialist

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**9.0 Selected Management Action**

Implement the grazing and other management actions identified in 7.0 Recommendations.

**Authorized Officer Concurrence:**

- I concur with the conclusions and recommendations as written.
- I do not concur.
- I concur, but with the following modifications.

\_\_\_\_\_  
Cindy Alvarez  
Assistant Field Manager

\_\_\_\_\_  
Date

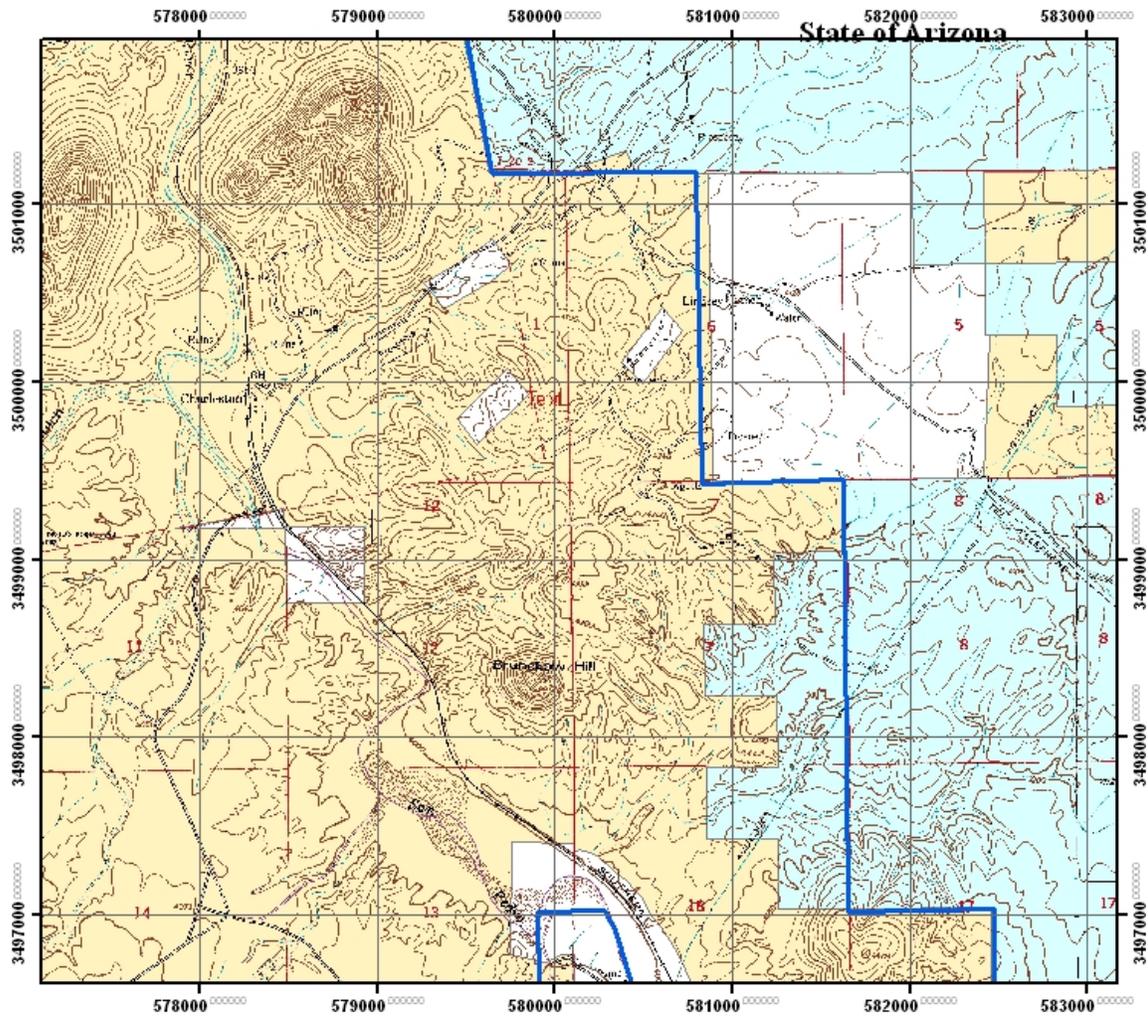
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Bureau of Land Management. 1989. San Pedro River Riparian Management Plan and Environmental Impact Statement. Safford, AZ

Engineering and Environmental Consultants, Inc. 2004. Huachuca water umbel Fort Huachuca monitoring and San Pedro Riparian NCA inventory reports. Sierra Vista, AZ

Engineering and Environmental Consultants, Inc. 2007. Huachuca water umbel Fort Huachuca monitoring and San Pedro Riparian NCA inventory reports. Sierra Vista, AZ

Map 1



**Legend**

- |                           |   |                                |  |
|---------------------------|---|--------------------------------|--|
| Private Lands             | Bureau of Land Management (BLM)           | BLM Wilderness Area            | BLM National Monument                    |
| State Lands               | National Forest Lands (USFS)              | Forest Service Wilderness Area | National Conservation Area               |
| State Wildlife Area       | National Park Service (NPS)               | NPS Wilderness Area            | Military Reservations/Corps of Engineers |
| City, State, County Parks | US FWS Service, National Wildlife Refuges | US FWS Service Wilderness Area | Bureau of Reclamation (BOR)              |
| County Lands              | Indian Lands or Reservations              |                                |  |



**5251 Brunchow Hill Allotment**

1:32,407



United States Department of the Interior  
Bureau of Land Management  
Gila District Office  
Safford Field Office



**CAUTION:**  
Land ownership data is derived from less accurate data than the 1:24,000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have positional errors due to source data.

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