

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ROUTING AND TRANSMITTAL SLIP

TO			ACTION	ROOM NO.
CODE	NAME	ORGANIZATION		
NV	931.3			

Indicate Action by Number

- | | |
|----------------------------|---------------------|
| 1. Necessary action | 6. Note and sumame |
| 2. Approval | 7. Note and return |
| 3. Signature | 8. Your information |
| 4. Prepare reply | 9. See me |
| 5. Your comment and return | 10. |

From Kenneth Walker	Date 08-15-86	Room No.
Office NV040		Phone

Remarks



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Ely District Office
Star Route 5, Box 1
Ely, Nevada 89301

IN REPLY REFER TO:

4700
(NV-043)

AUG 15 1986

Memorandum

To: State Director, Nevada (NV-931.3)

From: District Manager, Ely

Subject: Review of Draft WH&B Habitat Evaluation Procedures
User's Guide DD: 8/23/86

The Ely District Wild Horse Specialist has reviewed the subject User's Guide in accordance with Instruction Memorandum No. NV-86-507. We have no comments at this time. It appears to be adequate for evaluation of wild horse and burro habitat, but the system will need field testing to determine if the habitat can be rated with any accuracy.

Wayne M. Fowman
acting

MemorandumDEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

IN REPLY REFER TO:

4700
(NV-033)**To :** State Director, Nevada (NV-931.3)**Date:**

AUG 25 1974

FROM : District Manager, Carson City**SUBJECT :** Review of Draft WH&B Habitat Evaluation Procedures User's Guide

Review of the WH&B Habitat Evaluation Procedures User's Guide has produced mixed comments from the District personnel. Comments range from strong support to objection of incorporating such a system.

Carson City District's recommendation is to leave the draft as is for at least one year. Districts within the state should test and work with this system prior to evaluation. Perhaps during the yearly WH&B program review an agenda item to include should be a discussion of this system and the results of the testing.

If you have any questions, please contact Tim Reuwsaat.

Norman L Murray

Figure 1. Topography (V₁) Description

<u>Value</u>	<u>Description</u>
0.0	Level of slightly undulating (1-3% slope), 100% (Example: dry lake beds and their margins, blue clay, or slick rock); more than 1.6 km (1 mi) from steep and rocky terrain. (Alluvial Flat, Alluvial Plain, Sand Sheet, Beach Plain, Lake Plain, Axial-Stream Floodplain, Playa) ¹
0.2	Level or gently undulating (5-8% slope), 100% within 1.6 km (1 mi) of steep and rocky terrain. (Fan Piedmont and Mountain Valley Fans) ¹
0.4	Rolling hills (8-16% slope), such as alluvial fans, without washes or 4.6 m (15 ft.) wide and/or more than 1.6 km (1 mi) from steep and rocky terrain. (Alluvial Fans particularly Fan Collars and Fan Aprons) ¹
0.6	Rolling hills (18-30% slope) broken frequently by broad washes and within 1.6 km (1 mi) of steep and rocky terrain. (Ballenas and Erosional Fan Remnants) ¹
0.6	Mesa-type terrain.
0.6	Steep and rocky (60%+ slope), 100%; no washes. (Mountain Valley Fans) ¹
0.8	Steep and rocky terrain (60%+ slope) with washes, 50 to 90%; plus level or rolling hills, 10 to 50%. (Bounding Mountains) ²
1.0	Steep and rocky terrain (60%+ slopes), broken frequently by washes of varying widths, with at least one main wash about 15 m (50 ft) wide, and side washes at various angles for protection from the weather and for escape. (Bounding Mountains) ²

¹Major landform components described by (Peterson 1981)

²Landforms not yet completely described.

Water SI: The potential for water use is contingent upon several variables. Therefore, the Water SI is determined using the following formula. $(SIV_2 + SIV_3 + SIV_4 + SIV_5)/4 \times SIV_6$

1. Amount and Permanence (V₂): Availability of sufficient water at the critical times of year such as summer has been well documented. The SI for amount and permanence is determined using a word model (Figure 2) and its base values. The water source must be available for bighorn use, e.g., not improperly fenced, etc. As with Topography, situations which cannot be fitted to a particular description are given a value between the two closest descriptions.



United States Department of the Interior

4700
(NV-931.3)

BUREAU OF LAND MANAGEMENT
NEVADA STATE OFFICE
300 Booth Street
P.O. Box 12000
Reno, Nevada 89520

March 20, 1986

Instruction Memorandum No. NV-86-350
Expires: 9/30/87

To: District Managers, Nevada

From: State Director, Nevada

Subject: Wild Horse and Burro Habitat Evaluation Procedures DD:4/4/86

Enclosed please find a copy of draft procedures for evaluating WH&B habitat (see enclosure 1). Please review these draft procedures and submit any comments you may have to NV-931.3.

As discussed in the last paragraph on page one of these procedures, a review is also needed regarding plant communities for all SCS Major Land Resource Areas (MLRAs) in Nevada. These MLRAs have been assigned a base value (see enclosure 2) as described in paragraph 6 of page one, enclosure 1. Comments are needed on the assigned base values as well as the breakdown of plant communities versus ecological sites. For your information in formulating comments, the base value is on a scale of 0.1 to 1.0 predicated on the percent and presence of the preferred forage species in the Potential Natural Communities (PNC) of the applicable ecological sites. It should be kept in mind that plant communities are named according to vegetation aspects while ecological sites are determined from species composition by weight and potential.

Each district should feel free to comment on all the MLRAs. Some districts, however, will have more knowledge on certain MLRAs than others. These are as follows:

<u>District</u>	<u>MLRAs</u>
Elko	25 & 28
Winnemucca	23, 24, 25, & 27
Carson City	26, 27, & 29
Ely	28
Las Vegas	29 & 30
Battle Mountain	24, 28, & 29

WILD HORSE AND BURRO HABITAT EVALUATION PROCEDURES
INITIAL PLANNING

On January 13-14, 1986 a meeting was held in the Winnemucca District Office to discuss Habitat Evaluation Procedures, and to devise parameters for a Habitat Suitability Index for the Wild Horse/Burro program in the State of Nevada.

Those present at the meeting were:

Don Armentrout, Winnemucca
Rob Smith, Winnemucca
Rodger Bryan, Winnemucca
Dick Wheeler, Winnemucca
Bob Brown, Ely
Tim Reuwsaat, Carson City
Rick Brigham, Carson City
Milt Frei, NSO

Habitat Evaluation Procedures (HEP) was defined as a system by which you can evaluate impacts of a program or project on a species and habitat. A Habitat Suitability Index (HSI) model is based on a relationship between habitat and carrying capacity of an area. Each habitat unit is assigned a rating, using either a word model or linear model for value. Once an HSI is developed, when a change in a habitat unit occurs, an equal unit change in the carrying capacity may be demonstrated.

Each word model or linear model may have modifiers which change the value of the rating either through geometric mean, arithmetic mean, sum of products or other mathematical formulas. The rating can also be based on maximum value, i.e. the overall rating is based on the highest valued variable, or minimum value, i.e. the overall rating is based on the lowest valued variable.

The following are the variables and modifiers discussed, and the models by which the ratings will be made:

I. Food

- A. Cover type base value - Grass
1. Percent Preferred Species Comp.

The Winnemucca Office will be taking the lead on lumping the ecological sites in each Major Land Resource Area and determining the percentage of preferred species, and then assigning a value to this percentage from 0.0 to 1.0. This value will be modified by the seral stage of the site, unless the preferred species is not the climax species.

It was discussed whether to use each seral stage separately or to average on a plant community basis. The plant community average was chosen.

The Nevada State Office will be distributing the plant community breakdown to each district. Each district will send their comments to Milt Frei who will get back to the Winnemucca Office with the information received.

Space

IV. ~~Physical Barriers~~

1. Man-made or natural barriers
2. Disturbance

1. Man-made or natural barriers will be rated using a word model as follows:

- 1.0 No restriction
- 0.75 Restriction of normal distribution and movement within the ~~habitat~~ *HA*
is low.
- 0.50 Restriction of normal distribution and movement within the ~~habitat~~ *HA*
is moderate.
- 0.25 Restriction of normal distribution and movement within the ~~habitat~~ *HA*
is high.
- 0.0 ~~Restriction of~~ *N*ormal distribution and movement within the habitat *HA*
is eliminated.

2. Disturbance will be defined as buildings, roads, recreation, domestic livestock grazing, prospecting, mining (oil or mineral), industrial or commercial (including urban) development, farming or ranching, etc. It will be rated by word model as follows:

- 1.0 No disturbance
- 0.8 Relatively no disturbance - management activity only activity or where less than a hundred people use each year, or where occasional grazing, prospecting, etc. may occur.
- 0.6 Low disturbance - area which perhaps only about 500 people use each year. Also included would be small-scale mining or other commercial uses.
- 0.4 Moderate disturbance - areas with roadways, used by people for recreational or commercial purposes on a daily basis which may occur repeatedly but not necessarily year-round. Includes ORV, wood cutting, etc.
- 0.2 High disturbance - areas used by hundreds of people each week, or concentrated economic development with a constant use by a few people, such as ore trucks moving many times a day.
- 0.0 Severe disturbance - eliminates availability of habitat or removal of habitat.

After each area has commented on the cover type information developed by the Winnemucca District, Milt Frei will return to Winnemucca to go over the findings. Each district will then proceed to develop a test HSI for their own areas prior to distribution to the whole state.

There may be a need for another meeting of all persons involved in the model development. Each District represented will bring sample data for a test run of the model.

The software for the Wang PC will be distributed to all districts once the formula for using the HSI has been developed by Don Armentrout and Rick Brigham, and test models have been run.

Enclosure 1-3



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

4700
IN REPLY (NV-053)
REFER TO:

Las Vegas District Office
P.O. Box 26569
Las Vegas, Nevada 89126

03 APR 1986

Memorandum

To: State Director, Nevada (NV-931.3)
From: District Manager, Las Vegas
Subject: Review of Wild Horse and Burro Habitat Evaluation Procedures

The following comments are made concerning the habitat evaluation procedures.

III. Cover

a. Land Forms

Land forms seem to be out of place under "Cover". Perhaps this should be a separate heading.

Perhaps the land form rating should be reworded slightly, to explain "rolling hills, such as alluvial fans", the phrase "rolling hills, such as" should be deleted, and the term "alluvial fans" be used alone.

Also the last part of land form: 0.0 level "or" (?) slightly undulating is misleading. If the area is not slickrock, horses like this type of terrain for foraging and because nothing obstructs the animals' vision.

We have a problem with the Ecological Site Classification in MLRA's 29 and 30. Many pinyon/juniper sites in the Las Vegas District do not receive 12-14 inches annual precipitation. Ecological site descriptions have not been completed for several P/J sites and many of the site descriptions in other range sites are incomplete or erroneous.

In MLRA 30, none of the P/J range site descriptions have the precipitation zone identified. Also, few creosote bush/- or blackbrush/- sites receive as much as eight inches of annual precipitation.

We believe more coordination with the SCS personnel who have developed the range sites is needed before these writeups are useable.

Ben F. Collins

1986 APR -3 11 3 00
NEAR
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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
CARSON CITY DISTRICT OFFICE
1535 Hot Springs Rd., Ste. 300
Carson City, Nevada 89701

IN REPLY REFER TO:

4700
(NV-033)

MAR 31 1986

MEMORANDUM

TO: State Director, NV (NV-931.3)

FROM: District Manager, Carson City

SUBJECT: Wild Horse Habitat Evaluation Rating

A review by District personnel resulted in several comments. First, this District feels that this approach should not be adopted until the Habitat Evaluation Rating System is thoroughly tested and shown to be cost effective. The most important requirement is will the system aid the manager in making decisions. Wild Horse Areas are defined by law as where horses inhabited the public lands at the passage of the act. It is questionable if the manager needs a relative evaluation of these herd areas. Certainly the manager does not need an evaluation of wild horse habitat outside the 1971 areas, whereas in wildlife management, it may be necessary to evaluate potential habitat.

This District feels that in order to develop the information to input into the rating system, impacts of a proposed action will already be known. Inputting the information into a computer to obtain an already known result is counterproductive.

The base values assigned to the plant communities of the Major Land Resource Area (MLRA) are not in proper order. The highest value should be assigned to the range site (and plant community) which has the highest estimated pounds of production of grass species. For example, the breakdown for MLRA 23 should be approximately as follows:

Meadows and Aspen Meadows	1.0
Aspen Slopes and Riparian	.9
Mountain Big Sagebrush/Bunchgrass	.8
Bitterbrush/Bunchgrass)	
Silver Sagebrush/Bunchgrass)	.5
Juniper Savanna)	
Greasewood/Bunchgrass)	
Mahogany Thickets	.4
Churning Clay)	
Basin Big Sagebrush/Bunchgrass)	.3
Wyoming Big Sagebrush/Bunchgrass)	
Low Sagebrush)	

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MAY 3 1986

Shadscale Saltbrush/Bunchgrass)
Aspen Thickets)

0

We also recommend that the Plant Community names be dropped and the groupings of range sites be ranked by base value. Extra names confuse the issue especially when referring to Wyoming big sagebrush vs. Mountain big sagebrush vs. Basin big sagebrush, where the actual subspecies are very difficult to differentiate. Our comments apply to all MLRAs as well as 26, 27 and 29.

In summary, it is doubtful that the procedure will aid the BLM. If testing of the procedure occurs, it is advisable that at least one manager be included in the evaluation.

Norman L Murray
acting



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

3900 E. Idaho Street
P.O. Box 831
Elko, Nevada 89801

IN REPLY REFER TO:

4700 (NV-013)

APR 2 1986

MEMORANDUM

TO : State Director, Nevada (NV-931.3)

FROM : District Manager, Elko

SUBJECT: Wild Horse and Burro Habitat Evaluation Procedures DD: 4/4/86

In response to Instruction Memo. No. NV-86-350, we have no comments on the draft procedures at this time but may comment later, after field testing.

The only changes we would have on MLRAs are as follows:

MLRA 25	Idaho fescue/Mountain Brome	1.0
	Mountain big sage/Bunchgrass	1.0
MLRA 28	Mountain big sage/Bunchgrass	1.0
	Winterfat/Bunchgrass	1.0

Godfrey Harris

1986 APR -7 11:30 AM
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Base Value

Plant Communities with Applicable Ecological Sites MLRA23

- 1.0 Wyoming big sagebrush/Bunchgrass
 023X006N Loamy 8-10" p.z.
 023X020N Loamy 10-12" p.z.
 023X032N Stony South Slope 10-12 p.z.
- 0.9 Mountain big sagebrush/Bunchgrass
 023X007N Loamy 14-16" p.z.
 023X015N Stony Loam 12-16" p.z.
 023X016N South Slope 12-14" p.z.
 023X019N North Slope 16-20" p.z.
 023X022N Loamy Slope 12-14" p.z.
 023X041N Loamy 12-14" p.z.
- 0.8 Low sagebrush/Bunchgrass
 023X008N Mountain Ridges 12-16" p.z.
 023X014N Shallow Loam 12-16" p.z.
 023X017N Stony Claypan 12-16" p.z.
 023X021N Claypan 10-12" p.z.
 023X031N Stony Claypan 10-12" p.z.
- 0.8 Shadscale saltbrush/Bunchgrass
 023X004N Loamy 5-8" p.z.
- 0.7 Basin big sagebrush/Bunchgrass
 023X005N Dry Floodplain 8-10" p.z.
 023X009N Loamy Bottom 8-10" p.z.
 023X011N Sandy 8-12" p.z.
 023X012N Semi-Desert Loam 6-8" p.z.
 023X018N Stony South Slope 12-16" p.z.
 023X033N Clayey 12-16" p.z.
 023X040N Granitic Fan 8-12" p.z.
- 0.7 Bitterbrush/Bunchgrass
 023X030N Eroded South Slope 10-12" p.z.
- 0.7 Bolander silver sagebrush/Bunchgrass
 023X003N Clay Basin 12-14" p.z.
- 0.6 Meadows
 023X013N Semi-Wet Meadow 6-14" p.z.
 023X025N Wet Meadow 10-20" p.z.
- 0.6 Western juniper/Big sagebrush/Bearded bluebunch wheatgrass
 023X024N Juniper Savanna 12-16" p.z.
- 0.6 Riparian
 023X034N Streambank 8-12" p.z.

Base Value

Plant Communities with Applicable Ecological Sites MLRA23

0.5

Black greasewood/Bunchgrass

023X002N Sodic Flat 6-12" p.z.

023X010N Saline Bottom 8-10" p.z.

0.4

Rubber rabbitbrush/Bunchgrass

023X001N Churning Clay 12-16" p.z.

0.3

Quaking aspen/grass

023X028N Aspen Slopes 12-16" p.z.

023X029N Aspen Meadows 12-18" p.z.

0.2

Curleaf mountain mahogany/Mountain big
sagebrush/Bunchgrass

023X026N Mahogany Thickets 16-20" p.z.

0.1

Aspen thickets

023X027N Aspen Thickets 14-18" p.z.

Base Value

Plant Communities with Applicable Ecological Sites MLRA24

1.0

Wyoming big sagebrush/Bunchgrass

- 024X005N Loamy 8-10" p.z.
- 024X020N Droughty Loam 8-10" p.z.
- 024X026N Stony Slope 6-10" p.z.
- 024X045N Eroded Slope 6-10" p.z.
- 024X047N Shallow Loam 8-10" p.z.

0.9

Mountain big sagebrush/Bunchgrass

- 024X021N Loamy Slope 12-14" p.z.
- 024X023N North Slope 14+" p.z.
- 024X029N South Slope 12-16" p.z.
- 024X032N Loamy Slope 14+" p.z.
- 024X034N Upland Browse 14+" p.z.

0.9

Three tip big sagebrush/Bunchgrass

- 024X046N Gravelly Loam 12-16" p.z.

0.9

Black sagebrush/Bunchgrass

- 024X016N Mountain Ridge 14-20" p.z.
- 024X030N Shallow Calcareous Loam 8-10" p.z.
- 024X031N Shallow Calcareous Loam 10-14" p.z.
- 024X042N Steep Gravelly Loam 14-18" p.z.

1.0
0.9

Winterfat/Bunchgrass

- 024X004N Silty 4-8" p.z.
- 024X014N Droughty Loam 4-8" p.z.

0.8

Low sagebrush/Bunchgrass

- 024X018N Claypan 10-12" p.z.
- 024X027N Claypan 12-16" p.z.

0.8

Shadscale saltbush/Bunchgrass

- 024X002N Loamy 5-8" p.z.
- 024X003N Sodic Terrace 6-8" p.z.
- 024X025N Loamy Slope 5-8" p.z.

0.8

Fourwing saltbush/Bunchgrass

- 024X048N Saline Fan 6-8" p.z.

0.7

Basin big sagebrush/Bunchgrass

- 024X001N Dunes 6-10" p.z.
- 024X006N Dry Floodplain 6-10" p.z.
- 024X017N Sandy 6-10" p.z.
- 024X028N South Slope 8-12" p.z.
- 024X033N Steep North Slope 10-12" p.z.
- 024X035N Shallow Gravelly Loam 10-14" p.z.
- 024X041N Wash 6-10" p.z.

Base Value Plant Communities with Applicable Ecological Sites MLRA24

0.7 Riparian
 024X009N Saline Meadow 6-10" p.z.

0.7 Torrey quailbush/Bunchgrass
 024X015N Deep Sodic Fan 6-10" p.z.

0.7 Nuttall saltbush/Bunchgrass
 024X010N Sodic Floodplain 6-10" p.z.
 024X012N Saline Terrace 6-8" p.z.

0.6 Meadow, permanently wet
 024X043N Wet Meadow 6-8" p.z.

0.6 Utah juniper/Black sagebrush
 024X053N

0.6 Singleleaf pinyon/Mountain big sagebrush
 024X053N

0.5 Utah juniper/Big sagebrush
 024X052N

0.5 Singleleaf pinyon/Utah juniper/Black sagebrush
 024X051N

0.5 Black greasewood/Bunchgrass
 024X007N Saline Bottom 6-10" p.z.
 024X008N Sodic Flat 8-10" p.z.
 024X011N Sodic Flat 6-8" p.z.
 024X022N Sodic Terrace 8-10" p.z.

0.4 Singleleaf pinyon/Utah juniper/Big sagebrush
 024X049N
 024X050N

0.4 Alkali rabbitbrush/Bunchgrass
 024X044N Wet Sodic Flat 6-8" p.z.

<u>Base Value</u>	<u>Plant Communities with Applicable Ecological Sites MLRA25</u>
0.7	<u>Snowberry/Bunchgrass</u> 025X004N/025X911IN Loamy Slope 16+" p.z.
0.7	<u>Basin big sagebrush/Bunchgrass</u> 025X003N Loamy Bottom 8-14" p.z. 025X013N Churning Clay 8-12" p.z. 025X014N Loamy 10-12" p.z.
0.7	<u>Curleaff mountain mahogany/Mountain big sagebrush/Bunchgrass</u> 028B042N Mahogany Thickets 16-22" p.z. 028B043N Mahogany Savanna 16-22" p.z.
0.7	<u>Bolander silver sagebrush/Bunchgrass</u> 025X048N Clay Basin 8-10" p.z.
0.7	<u>Mat muhly/Nevada bluegrass</u> 025X049N Wet Clay Basin 8-10" p.z.
0.6	<u>Meadows</u> 025X006N Dry Meadow 10-16" p.z. 025X005N Wet Meadow 10-16" p.z.
0.6	<u>Utah juniper/Black sagebrush</u> 025X060N
0.6	<u>Singleleaf pinyon/Mountain big sagebrush</u> 025X061N
0.6	<u>Riparian</u> 025X001N Moist Floodplain 6-10" p.z.
0.5	<u>Utah juniper/Wyoming big sagebrush</u> 025X059N
0.5	<u>Singleleaf pinyon/Utah juniper/Black sagebrush</u> 025X063N
0.4	<u>Singleleaf pinyon/Utah juniper/Mountain big sagebrush</u> 025X062N
0.4	<u>Inland saltgrass/Mat muhly</u> 025X008N Wet Clay Bottom 8-12" p.z.
0.3	<u>Snowbrush thicket</u> 025X052N/025X904INU Ceanothus Thicket 16+" p.z.
0.3	<u>Riparian Aspen</u> 025X064N Riparian Aspen
0.2	<u>Aspen Thicket</u> 025X002N/025X901INU Aspen Thicket 16+" p.z.
0.2	<u>Cottonwood/Willow</u> 025X053N/025X910INU Riparian Cottonwood

ENC/2-28

Base Value Plant Communities with Applicable Ecological Sites MLRA25

1.0 Wyoming big sagebrush/Bunchgrass
 025X015N South Slope 8-12" p.z.
 025X019N Loamy 8-10" p.z.

1.0 Bearded bluebunch wheatgrass/Thurber's needlegrass
 025X050N Stony Bottom 8-10" p.z.

~~1.0-0.9~~ Idaho fescue/Mountain brome
 024X047N/025X909INU Clayey 14-18" p.z.

~~1.0-0.9~~ Mountain big sagebrush/Bunchgrass
 025X009N South Slope 12-14" p.z.
 025X010N Steep North Slope 16+" p.z.
 025X012N Loamy Slope 10-16" p.z.
 025X016N South Slope 14-18" p.z.
 025X021N Shallow Gravelly Loam 8-12" p.z.
 025X027N/025X902IN Loamy 12-16" p.z.
 025X029N Deep Loamy 16+" p.z.
 025X042N Shallow Gravelly Loam 14-18" p.z.
 025X046N Fractured Stony Loam 12-16" p.z.
 025X056N Loamy 16+" p.z.
 025X058N Bouldery Loam 10-16" p.z.

0.9 Black sagebrush/Bunchgrass
 025X024N Mountain Ridge 16+" p.z.
 025X025N Chalky Knoll 8-10" p.z.
 025X026N Channery Hill 8-10" p.z.
 025X055N Gravelly Slope 12-16" p.z.
 025X057N Shallow Gravelly Ridge 10-16 p.z.

0.8 Lupine/Needlegrass
 025X028N Snow Pocket 16+" p.z.

0.8 Low sagebrush/Bunchgrass
 025X017N/025X906IN Claypan 12-16" p.z.
 025X018N Claypan 10-12" p.z.
 025X022N Cobbly Claypan 8-12" p.z.
 025X051N Eroded Claypan 12-16" p.z.

0.8 Early low sagebrush/Bunchgrass
 025X018N Claypan 10-12" p.z.
 025X051N Eroded Claypan 12-16" p.z.
 025X054N/025X914IN Clayey 12-15" p.z.

0.8 Rubber rabbitbrush/Mat muhly
 025X011N Lake Terrace 8-12" p.z.

0.7 Bitterbrush/Bunchgrass
 025X007N/025X907NU Upland Browse 12-16" p.z.

Base Value

Plant Communities with Applicable Ecological Sites MLRA26

- 1.0 Wyoming big sagebrush/Bunchgrass
026X010N Loamy 10-12" p.z.
026X011N South Slope 8-12" p.z.
026X015N Shallow Loam 10-12" p.z.
026X016N Loamy 8-10" p.z.
026X018N Shallow Granitic-Upland 10-12" p.z.
026X019N Churning Clay 10-12" p.z.
026X020N Sandy 8-10" p.z.
026X022N Stony Shallow Loam 8-10" p.z.
026X024N Loamy Outwash 6-8" p.z.
026X026N Granitic Upland 10-12" p.z.
026X029N Eroded Slopes 8-12" p.z.
- 0.9 Mountain big sagebrush/Bunchgrass
026X005N Loamy 12-14" p.z.
026X006N Granitic Upland 14-16" p.z.
026X007N Steep North Slope 14-20" p.z.
026X008N Granitic Fan 10-12" p.z.
- 0.8 Low sagebrush/Bunchgrass
026X023N Claypan 10-12" p.z.
026X025N Claypan 8-10" p.z.
026X028N Mountain Ridges 12-16" p.z.
- 0.7 Antelope bitterbrush/Bunchgrass
026X014N Dunes 10-12" p.z.
- 0.7 Douglas rabbitbrush/Bunchgrass
026X027N Churning Clay 8-10" p.z.
- 0.7 Curleaf mountain mahogany/Mountain big sagebrush
026X009N Mahogany Slopes 14-18" p.z.
- 0.7 Black greasewood/Bunchgrass
026X002N Wet Sodic Bottom
026X004N Saline Bottom
026X012N Sodic Terrace 8-10" p.z.
026X013N Sodic Floodplain 8-10" p.z.
026X021N Sodic Flat
- 0.6 Meadow, permanently wet
026X003N Wet Meadow
- 0.6 Riparian
026X001N Moist Floodplain
- 0.5 Western juniper/Wyoming big sagebrush
026X017N Juniper Savanna 10-12" p.z.

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Base Value Plant Communities with Applicable Ecological Sites MLRA27

- 1.0 Wyoming big sagebrush/Bunchgrass
027X007N Loamy Slope 8-10" p.z.
027X008N Loamy 8-10" p.z.
027X011N South Slope 8-10" p.z.
027X045N Sandy 8-10" p.z.
027X065N Droughty Slope 8-10" p.z.
027X067N Droughty Loam 8-10" p.z.
027X072N Granitic Slopes 8-12" p.z.
027X054N Loamy Slope 10-12" p.z.
- 0.9 Mountain big sagebrush/Bunchgrass
027X058N Loamy 10-12" p.z.
027X073N Granitic Slopes 12-14" p.z.
- 0.9 Winterfat/Bunchgrass
027X014N Silty 6-8" p.z.
- 0.8 Junk sagebrush/Bunchgrass
027X051N Eroded Slope 8-10" p.z.
027X070N Channery Hills 8-10" p.z.
- 0.8 Low sagebrush/Bunchgrass
027X020N Claypan 8-10" p.z.
027X046N Claypan 10-12" p.z.
027X049N Claypan 8-10" p.z. (s)
027X068N Shallow Granitic Upland 8-10" p.z.
- 0.8 Shadscale saltbush/Bunchgrass
027X013N Loamy 4-8" p.z.
027X017N South Slope 4-8" p.z.
027X019N Shallow Stony Loam 4-8" p.z.
027X028N Loamy Slope 6-8" p.z.
027X071N Shallow Silty 4-8" p.z.
- 0.8 Shadscale saltbush/Bailey greasewood/Bunchgrass
027X015N Very Stony Loam 4-6" p.z.
027X018N Gravelly Loam 4-6" p.z.
027X027N Shallow Slope 4-8" p.z.
027X030N Gravelly Loam 6-8" p.z.
027X043N Gravelly Loam 3-6" p.z.
- 0.8 Fourwing saltbush/Bunchgrass
027X009N Sandy 5-8" p.z.
027X023N Dunes 4-8" p.z.
027X053N Dunes 8-10" p.z.
027X060N Sandy 3-5" p.z.

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Base Value Plant Communities with Applicable Ecological Sites MLRA27

0.7 Black sagebrush/Bunchgrass
 027X032N Shallow Calcareous Loam 8-10" p.z.
 027X048N Chalky Knolls 8-10" p.z.
 027X061N Shallow Calcareous Loam 6-8" p.z.
 027X066N Breaks 6-12" p.z..

0.7 Anderson wolfberry/Bunchgrass
 027X047N Shallow Granitic Upland 4-8" p.z.

0.6 Meadow, permanently wet
 027X004N Wet Meadow 4-14" p.z.

0.6 Riparian
 027X002N Moist Floodplain 4-8" p.z.

0.5 Bailey greasewood/Rubber rabbitbrush/Bunchgrass
 027X022N Wash 4-8" p.z.

0.5 Black greasewood/Bunchgrass
 027X005N Wet Sodic Bottom 4-8" p.z.
 027X006N Saline Bottom 4-8" p.z.
 027X012N Sodic Sands 4-8" p.z.
 027X016N Sodic Dunes 4-8" p.z.
 027X024N Sodic Terrace 4-8" p.z.
 027X025N Sodic Flat 4-8" p.z.
 027X036N Sodic Flat 3-6" p.z.
 027X041N Deep Sodic Fan 4-8" p.z.
 027X044N Saline Flat 5-8" p.z.

0.4 Basin big sagebrush/Bunchgrass
 027X029N Wash 8-10" p.z.

Base Value Plant Communities with Applicable Ecological Sites MLRA28

0.9	<u>Mountain big sagebrush/Bunchgrass</u> 028B015N Steep Loamy 12-16" p.z. 028B027N South Slope 12-16" p.z. 028B029N Loamy 16-22" p.z. 028B030N Loamy 12-16" p.z. 028B049N North Slope 12-16" p.z.
0.9	<u>Winterfat/Bunchgrass</u> 028B013N Silty 8-10" p.z.
0.8	<u>Low sagebrush/Bunchgrass</u> 028B037N Claypan 12-16" p.z. 028B038N Mountain Ridge 16-22" p.z. 028B045N Claypan 10-12" p.z. 028B054N Steep Claypan 12-16" p.z.
0.8	<u>Shadscale saltbush/Bunchgrass</u> 028B017N Loamy 5-8" p.z.
0.8	<u>Fourwing saltbush/Bunchgrass</u> 028B014N Sandy 5-8" p.z. 028B023N Clay Basin 5-12" p.z.
0.7	<u>Meadow, permanently wet</u> 028B001N Wet Meadow 5-12" p.z. 028B022N Wet Meadow 12-25" p.z.
0.7	<u>Wyoming big sagebrush/Bunchgrass</u> 028B005N Sandy 8-12" p.z. 028B007N Loamy 10-12" p.z. 028B010N Loamy 8-10" p.z. 028B012N Steep Loamy 8-12" p.z. 028B052N Droughty Loam 10-12" p.z. 028B056N Sodic Loam 8-10" p.z.
0.7	<u>Riparian</u> 028B002N Saline Meadow 5-12" p.z.
0.7	<u>Mountain mahogany/Bunchgrass</u> 028B043N Mahogany Savanna 16-22" p.z. 028B042N Mahogany Thickets 16-22" p.z. 028B066N Droughty Slope 12-14" p.z.
0.7	<u>Chokecherry/Bunchgrass</u> 029B026N Upland Browse 16-22" p.z.

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<u>Base Value</u>	<u>Plant Communities with Applicable Ecological Sites MLRA28</u>
0.7	<u>Nuttall saltbush/Western wheatgrass</u> 028B065N Saline Terrace 10-12" p.z.
0.6	<u>Horsebrush/Bunchgrass</u> 028B068N Dune 10-12" p.z.
0.6	<u>Black greasewood/Bunchgrass</u> 028B004N Saline Bottom 5-12" p.z. 028B020N Sodic Flat 5-12" p.z. 028B021N Sodic Dunes 5-12" p.z. 028B057N Alkali Flat 8-10" p.z. 028B058N Sodic Terrace 8-10" p.z.
0.5	<u>Black sagebrush/Bunchgrass</u> 028B011N Shallow Calcareous Loam 8-12" p.z. 028B016N Shallow Calcareous Slope 8-12" p.z. 028B034N Mountain Ridge 12-16" p.z. 028B069N Eroded Slopes 10-14" p.z.
0.5	<u>Utah juniper/Black sagebrush</u> 028B059N
0.5	<u>White fir/Limber pine/White bark pine/Mountain big sagebrush</u> 028B063N
0.5	<u>Quaking aspen/Mountain big sagebrush</u> 028B064N
0.4	<u>Basin big sagebrush/Bunchgrass</u> 028B003N Loamy Bottom 5-12" p.z. 028B006N Wash 12-25" p.z. 028B009N Wash 5-12" p.z. 028B024N Loamy Bottom 12-25" p.z. 028B055N Clay Dunes 8-10" p.z.
0.4	<u>Utah juniper/Singleleaf pinyon/Black sagebrush</u> 028B060N
0.4	<u>Utah juniper/Singleleaf pinyon/Wyoming big sagebrush</u> 028B061N
0.4	<u>Utah juniper/Singleleaf pinyon/Mountain big sagebrush</u> 028B062N
0.3	<u>Quaking aspen/Grass</u> 028B025 Riparian Aspen
0.3	<u>Cottonwood/Grass</u> 028B033N Riparian Cottonwood

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Base Value Plant Communities with Applicable Ecological Sites MLRA29

1.0

Wyoming big sagebrush/Bunchgrass

- 029X006N Loamy 8-10" p.z.
- 029X010N Steep Loamy 8-12" p.z.
- 029X029N Loamy 10-12" p.z.
- 029X038N Cobbly Loam 8-12" p.z.
- 029X049N Sandy Loam 8-12" p.z.
- 029X057N Steep Loamy 12-16" p.z.
- 029X064N Cobbly Hill 8-12" p.z.

0.9

Fourwing saltbush/Winterfat/Bunchgrass

- 029X012N Sandy 5-8" p.z.
- 029X015N Silty 8-12" p.z.
- 029X046N Sandy Loam 5-8" p.z.

~~0.9~~ 1.0

Winterfat/Bunchgrass

- 029X020N Silty 5-8" p.z.

0.8

Blackbrush/Bunchgrass

- 029X019N Blackbrush Hill 8-12" p.z.

~~0.8~~ 1.0

Mountain big sagebrush/Bunchgrass

- 029X030N Loamy 12-16" p.z.
- 029X050N Loamy Upland 16-22" p.z.
- 029X051N Loamy Hill 16-22" p.z.

0.8

Shadscale saltbush/Bailey greasewood/Bunchgrass

- 029X017N Loamy 5-8" p.z.
- 029X022N Sodic Hill 5-8" p.z.
- 029X032N Sodic Upland 3-5" p.z.
- 029X033N Sodic Hill 3-5" p.z.
- 029X035N Loamy 3-5" p.z.
- 029X039N Gravelly Loam 3-5" p.z.

0.8

Shadscale saltbush/Bunchgrass

- 029X031N Sodic Hill 8-12" p.z.

0.8

Fourwing saltbush/Bunchgrass

- 029X034N Sandy 3-5" p.z.

0.8

Spiny hopsage/Bunchgrass

- 029X016N Loamy Upland 5-8" p.z.
- 029X021N Loamy Hill 5-8" p.z.

0.7

Basin big sagebrush/Bunchgrass

- 029X003N Loamy Bottom 3-12 p.z.
- 029X005N Wash 12-25" p.z.
- 029X009N Wash 5-12" p.z.
- 029X011N Sandy 8-12" p.z.

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<u>Base Value</u>	<u>Plant Communities with Applicable Ecological Sites MLRA29</u>
0.7	<u>Low sagebrush/Bunchgrass</u> 029X052N Claypan 16-22" p.z. 029X053N Mountain Ridge 16-22" p.z.
0.7	<u>Black sagebrush/Bunchgrass</u> 029X008N Shallow Calcareous Loam 8-12" p.z. 029X014N Shallow Calcareous Hill 8-12" p.z.
0.7	<u>Riparian</u> 029X025N Streambank 3-12" p.z. 029X026N Streambank 12-25" p.z.
0.7	<u>Joshua tree/Bunchgrass</u> 029X007N Joshua Upland 8-12" p.z.
0.7	<u>Curleaff mountain mahogany/Bearded bluebunch wheatgrass</u> 029X027N Mahogany Thicket 16-20" p.z.
0.7	<u>Littleleaf mountain mahogany/Nevada greasewood</u> 029X040N Mahogany Thicket 12-18" p.z.
0.7	<u>Fourwing saltbush/Rubber rabbitbrush/Bunchgrass</u> 029X041N Wash 3-5" p.z.
0.7	<u>Spiny menodora/Bailey greasewood/Bunchgrass</u> 029X036N Cobbly Loam 5-8" p.z. 029X037N Shallow Stony Loam 5-8" p.z.
0.6	<u>Meadows</u> 029X002N Saline Meadow 3-12" p.z. 029X044N Wetland 3-12" p.z. 029X001N Wet Meadow 3-12" p.z.
0.6	<u>Blackbrush/Bunchgrass/Yucca</u> 029X013N Blackbrush Slope 8-12" p.z.
0.6	<u>Quaking aspen/Mountain big sagebrush</u> 029X072N Aspen Woodland
0.5	<u>Mountain mahogany/Ponderosa pine</u> 029X071N
0.5	<u>Black greasewood/Bunchgrass</u> 029X004N Saline Bottom 3-12" p.z. 029X024N Sodic Terrace 3-12" p.z. 029X063N Dry Sodic Terrace 3-12" p.z.
0.4	<u>Singleleaf pinyon/Utah juniper/Big sagebrush</u> 029X065N Loamy Hill 12-14" p.z. 029X066N Loamy Slope 12-16" p.z.

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Base Value

Plant Communities with Applicable Ecological Sites MLRA29

0.4

Singleleaf pinyon/Utah juniper/Low sagebrush

029X067N Shallow Calcareous Slope 14-18" p.z.

029X069N Shallow Calcareous Slope 12-14" p.z.

029X068N Claypan 12-16" p.z.

0.4

Singleleaf pinyon/Utah juniper/Blackbrush

029X070N Blackbrush Hill 12-16" p.z.

0.4

White fir/Limber pine/Bristlecone pine

029X073N

<u>Base Value</u>	<u>Plant Communities with Applicable Ecological Sites MLRA30</u>
1.0	<u>Creosotebush/Bunchgrass/Mid Elevation (3300'-6200')</u> 030X009N Limy Upland 8-12" p.z. 030X011N Limy Hill 8-12" p.z. 030X012N Joshua Upland 8-12" p.z. 030X041N Sandy Upland 8-12" p.z. 030X042N Clay Plain 8-12" p.z.
0.9	<u>White burrobush/Bunchgrass</u> 030X013N Granitic Upland 8-12" p.z.
0.9	<u>White bursage/Brittlebush/Bunchgrass</u> 030X043N Granitic Hill 8-12" p.z.
0.8	<u>White bursage/White burrobush</u> 030X007N Granitic Upland 5-8" p.z. 030X008N Granitic Hill 5-8" p.z.
0.8	<u>Fourwing saltbush/Winterfat/Bunchgrass</u> 030X035N Sandy Upland 5-8" p.z.
0.7	<u>Blackbrush/Creosotebush/Bunchgrass</u> 030X015N Blackbrush Hill 8-12" p.z.
0.7	<u>Spiny hopsage/Fourwing saltbush/Bunchgrass</u> 030X052N Loamy Upland 5-8" p.z.
0.7	<u>Creosotebush/Bunchgrass/Low Elevation (1000'-5000')</u> 030X001N Limy Hill 5-8" p.z. 030X004N Limy Sandy Upland 5-8" p.z. 030X005N Limy Upland 5-8" p.z. 030X017N Limy Hill 3-5" p.z. 030X019N Limy Upland 3-5" p.z. 030X027N Limy Dunes 3-8" p.z. 030X028N Wash 3-12" p.z. 030X038N Limy Gyp Upland 5-8" p.z. 030X002N Limy Sodic Hill 5-8" p.z. 030X006N Limy Sodic Upland 5-8" p.z. 030X030N Limy Sodic Upland 3-5" p.z. 030X047N Barren Sodic Upland 3-8" p.z. 030X048N Lake Carbonate Deposits 3-5" p.z. 030X056N Limy Sodic Hill 3-5" p.z. 030X032N Dry Floodplain 3-12" p.z. 030X033N Sodic Sandy Upland 3-5" p.z. 030X037N Limy Sandy Upland 3-5" p.z. 030X020N Loamy Bottom 3-12" p.z. 030X039N Clay Plain 5-8" p.z. 030X046N Dry Outwash Plain 3-12" p.z.

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<u>Base Value</u>	<u>Plant Communities with Applicable Ecological Sites MLRA30</u>
0.7	<u>Big saltbush/Bunchgrass</u> 030X024N Saline Bottom 3-12" p.z.
0.6	<u>Meadows</u> 030X055N Wetland 3-12" p.z. 030X022N Wet Meadow 3-12" p.z. 030X023N Saline Meadow 3-12" p.z.
0.6	<u>Riparian</u> 030X021N Streambank 3-12" p.z.
0.6	<u>Shadscale saltbush/Shrub/Mid Elevation (3300'-6200')</u> 030X044N Sodic Hill 5-8" p.z. 030X050N Sodic Upland 3-5" p.z. 030X051N Sodic Upland 5-8" p.z.
0.6	<u>Parish goldeneye/White brittlebush</u> 030X016N Loamy Hill 3-5" p.z. 030X018N Granitic Upland 3-5" p.z.
0.5	<u>Blackbrush/Nevada ephedra</u> 030X014N Blackbrush Slope 8-12" p.z.
0.5	<u>Screwbean mesquite/Shadscale</u> 030X045N Coppice Dunes 3-8" p.z.
0.5	<u>Ponderosa pine/Mahogany/Gambel oak</u> 030X065N
0.4	<u>Blackbrush/Singleleaf pinyon/Utah juniper</u> 030X064N
0.4	<u>Singleleaf pinyon/Utah juniper/Wyoming big sagebrush</u> 030X062N
0.4	<u>Singleleaf pinyon/Utah juniper/Black sagebrush</u> 030X063N
0.4	<u>Desertholly/Shrub</u> 030X025N Sodic Flat 3-12" p.a. 030X026N Gyp Upland 3-8" p.z. 030X031N Limy Gyp Upland 3-5" p.z. 030X036N Clay Plain 3-5" p.z.
0.4	<u>Shadscale saltbush/Shrub</u> 030X040N Sodic Terrace 3-12" p.z. 030X060N Sodic Hill 3-5" p.z. 030X061N
0.4	<u>Limber pine/White fir/Bristlcone</u> 030X066N

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Base Value

Plant Communities with Applicable Ecological Sites MLRA30

0.3	<u>Subalpine Bunchgrass</u> 030X067N Alpine Tundra
0.3	<u>Singleleaf pinyon/ Utah juniper/Mesquite/Bunchgrass</u> 030X029N Wash 12-15" p.z.
0.3	<u>Black greasewood/Shadscale</u> 030X057N Dry Sodic Terrace 3-12" p.z.
0.2	<u>Nevada dalea/Shadscale</u> 030X053N Dunes 3-8" p.z.

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