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Funding for WRDS and the creation of this electronic document was provided by the Wyoming Water Development Commission (<a href="http://www.us">http://www.us</a>)

# FINAL REPORT BELLE FOURCHE RIVER WATERSHED STUDY BASIN WIDE WATERSHED MANAGEMENT PLAN

Topical Report RSI-2501 Volume 2

prepared for

Wyoming Water Development District 6920 Yellowtail Road Cheyenne, Wyoming 82002

March 2015



### **APPENDIX A**

### PREDOMINANT ECOLOGICAL SITE DESCRIPTIONS

ESD1\_Loamy (Ly) 10–14-Inch Northern Plains Precipitation Zone\_R058BY122WY
ESD2\_Loamy (Ly) 15–19-Inch Black Hills Precipitation Zone\_R061XY122WY
ESD3\_Shallow Loamy (SwLy) 15–19-Inch Precipitation Zone Black Hills\_R061XY162WY
ESD4\_Loamy (Ly) 15–17-Inch Northern Plains Precipitation Zone\_R058BY222WY
ESD5\_Sandy (Sy) 10–14-Inch Northern Plains Precipitation Zone\_R058BY150WY

United States Department of Agriculture Natural Resources Conservation Service Ecological Site Description

## Section I: Ecological Site Characteristics

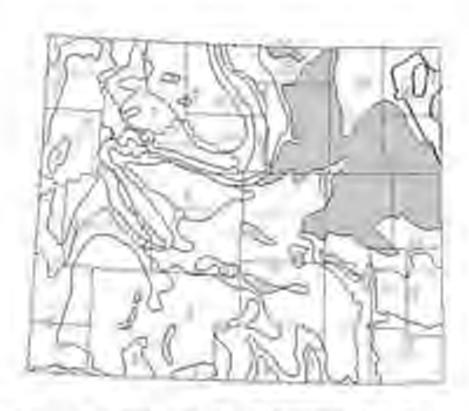
**Ecological Site Identification and Concept** 

Site name: Loamy (Ly) 10-14" Northern Plains Precipitation Zone

Site type: Rangeland Site ID: R058BY122WY

Major land resource area (MLRA): 0588-Northern Rolling High Pleins, Southern Part.

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## **Physiographic Features**

This site occurs on gently undulating rolling land.

Landform: (1) Hill

(2) Alluvial fan

(3) Ridge

MinimumMaximumElevation (feet):38005100Slope (percent):030

Flooding

Frequency: None None

**Ponding** 

Depth (inches): 0 0 Frequency: None None

Runoff class: Negligible High

Aspect: No Influence on this site

## **Climatic Features**

Annual precipitation ranges from 10-14 inches per year. Wide fluctuations may occur in yearly precipitation and result in more drought years than those with more than normal

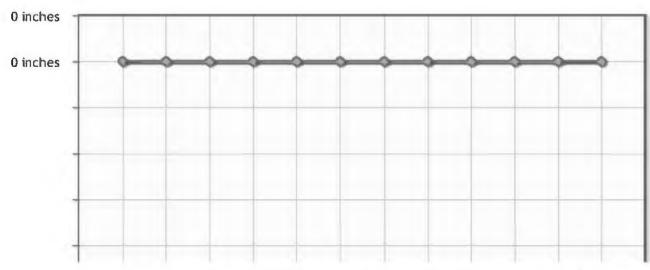
precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air. which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring. Wind speed averages about 8 mph, ranging from 10 mph during the spring to 7 mph during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph. Growth of native cool season plants begins about April 1 and continues to about July 1. Native warm season plants begin growth about May 15 and continue to about August 15. Green up of cool season plants may occur in September and October of most years. The following information is from the "Clearmont 5 SW" climate station: Frostfree period (32 F): 76 - 132 days: (5 yrs. out of 10, these days will occur between May 30 -September 11) Freeze-free period 28 F): 110 - 145 days; (5 yrs. out of 10, these days will occur between May 16 - September 21) Mean annual precipitation: 12.4 inches Mean annual air temperature: 43.2 F (28.4 F Avg. Min. – 57.9 F Avg. Max.) For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include: "Dull Center"

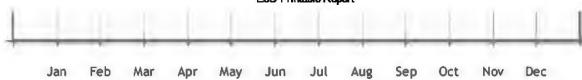
### <u>Averaged</u>

Frost-free period (days): 104
Freeze-free period (days): 127
Mean annual precipitation (inches): 14.00

## Monthly Precipitation (Inches):

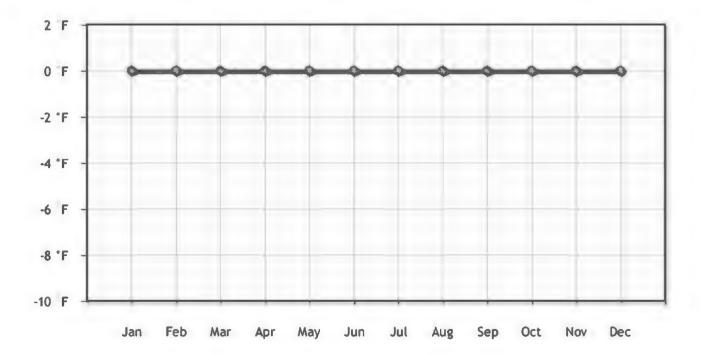
<u>Jul</u> <u>Oct</u> <u>Jan</u> <u>Feb</u> Mar <u>Apr</u> <u>May</u> <u>Jun</u> Aua Sep Nov <u>Dec</u> High 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Low 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00





## Monthly Temperature (°F):

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	Sep	<u>Oct</u>	Nov	<u>Dec</u>
High	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



## **Influencing Water Features**

Stream Type: None

## Representative Soil Features

The soils of this site are deep to moderately deep (greater than 20" to bedrock), well drained & moderately permeable. Layers of the soil most influential to the plant community varies from 3 to 6 inches thick. These layers consist of the A horizon with very fine sandy loam, loam, or silt loam texture and may also include the upper few inches of the B horizon with sandy clay loam, silty clay loam or clay loam texture.

Major Soil Series correlated to this site includes: Bidman, Cambria, Cushman, Forkwood, Kishona, Parmleed, Theedle and Zigweid.

Other Soil Series correlated to this site in MLRA 58B include: Absted, Arvada, Ascalon, Big Horn, Bowbac, Briggsdale, Cambria Variant, Cedak Dry, Clarkelen, Connerton, Docpar, El Rancho, Emigha, Emigrant, Forkwood Variant, Fort Collins, Garrett, Glendo, Harlan, Harlan Dry, Haverdad, Hiland, Jonpol, Kadoka, Keota, Keyner, Kim, Kirtley, Larim, Larimer, Lawver, Lohsman, Maysdorf, Neville, Noden, Nuncho, Platmak, Platmak Dry, Pugsley, Recluse, Recluse Dry, Redbow, Reddale, Renohill, Roughlock, Senlar, Spearman, Stoneham, Teckla, Thirtynine, Ulm, Ulm Dry, Wages, Wolf, Wolf Variant, Wolf Dry, and Wyotite.

Surface texture: (1) Loam

(2)Gravelly Sandy loam

(3)Cobbly Very fine sandy loam

Subsurface texture group: Loamy

	<u>Minimum</u>	<u>Maximum</u>
Surface fragments <=3" (% cover):	0	0
Surface fragments >3" (% cover):	0	10
Subsurface fragments <=3" (% volume):	0	15
Subsurface fragments >3" (% volume):	0	10
Drainage class: Moderately well drained to well drained		
Permeability class: Moderately slow to moderate		

	<u>Minimum</u>	<u>Maximum</u>
Depth (inches):	20	60
Available water capacity (inches):	3.00	6.30
Electrical conductivity (mmhos/cm):	0	4
Sodium adsorption ratio:	0	5
Calcium carbonate equivalent (percent):	0	10

6.6

8.4

## **Plant Communities**

## **Ecological Dynamics of the Site**

As this site deteriorates because of a combination of frequent and severe grazing, species such as blue grama and big sagebrush will increase. Cool-season grasses such as green needlegrass, needleandthread, and rhizomatous wheatgrasses will decrease in frequency and production.

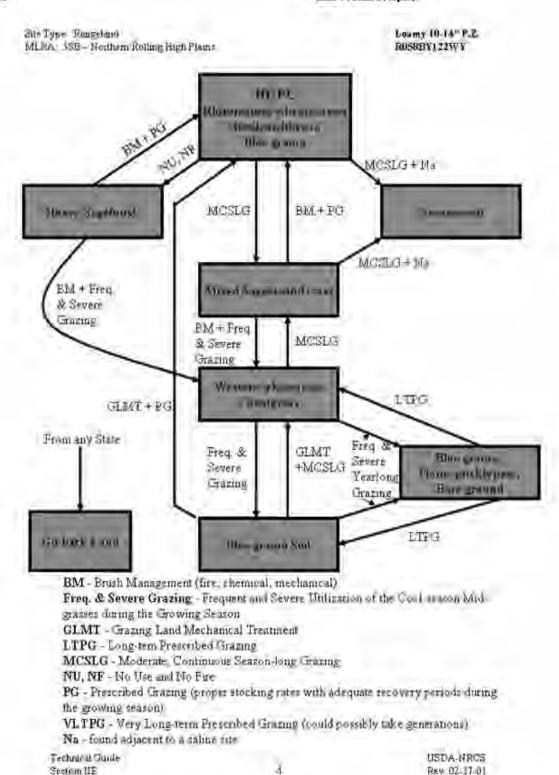
Big sagebrush may become dominant on some areas with an absence of fire. Wildfires are actively controlled in recent times so chemical control using herbicides has replaced the historic role of fire on this site. Recently, prescribed burning has regained some popularity.

Due to the amount and pattern of the precipitation, the big sagebrush component typically is not resilient once it has been removed if a healthy and vigorous stand of grass exists and is maintained. The exception to this is where the herbaceous component is severely degraded at the time of treatment, growing conditions are unfavorable after treatment, and/or recovery periods are inadequate.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.

## **State-and-Transition Diagram**



## Rhizomatous wheatgrasses/Needleandthread/Blue Grama Plant Community

This plant community is the interpretive plant community for this site and is considered to be the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community can be found on areas that are properly managed with grazing and/or prescribed burning,

and sometimes on areas receiving occasional short periods of rest. The potential vegetation is about 75% grasses or grass-like plants, 15% forbs, and 10% woody plants. This state is dominated by cool season mid-grasses.

The major grasses include western wheatgrass, needleandthread, and green needlegrass. Other grasses occurring in this state include Cusick's and Sandberg's bluegrass, bluebunch wheatgrass, and blue grama. A variety of forbs and half-shrubs also occur, as shown in the preceding table. Big sagebrush is a conspicuous element of this state, occurs in a mosaic pattern, and makes up 5 to 10% of the annual production. Plant diversity is high.

The total annual production (air-dry weight) of this state is about 1,200 lbs./acre, but it can range from about 700 lbs./acre in unfavorable years to about 1,500 lbs./acre in above average years.

This plant community is extremely stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- No use and no fire for 20 years or more will convert this plant community to the Heavy Sagebrush Plant Community.
- Moderate, continuous season-long grazing will convert the plant community to the Mixed Sagebrush/Grass Plant Community.
- Moderate continuous season-long grazing, where greasewood occurs adjacent to the site, will convert the plant community to the Greasewood Plant Community.
- When cropped annually and then abandoned without reseeding, the site is converted to the Go-back Land Plant Community.

## Rhizomatous wheatgrasses/Needleandthread/Blue Grama Plant Community Plant Species Composition

Grass	s/Grasslike	Annual Production (pounds per acre)			
Group Group name 1	<u>Common name</u>	Symbol	Scientific name	<u>Low</u> 175	<u>High</u> 375
	streambank wheatgrass, thickspike wheatgrass	ELLAL	Elymus lanceolatus ssp. lanceolatus	175	375
	western wheatgrass	PASM	Pascopyrum smithii	175	375
2	green needlegrass	NAVI4	Nassella viridula	105 105	225 225

3				175	375
	needle and thread, needleandthread	HECO26	<u>Hesperostipa</u> <u>comata</u>	175	375
4				70	150
	Cusick's bluegrass, Cusick bluegrass	POCU3	<u>Poa cusickii</u>	70	150
5				105	225
	blue grama	BOGR2	Bouteloua gracilis	105	225
6				175	375
	Indian ricegrass	ACHY	Achnatherum hymenoides	35	75
	hairy grama	BOHI2	Bouteloua hirsuta	35	75
	needleleaf sedge	CADU6	Carex duriuscula	35	75
	threadleaf sedge	CAFI	Carex filifolia	35	75
	plains reedgrass	CAMO	Calamagrostis	35	75
			<u>montanensis</u>		
	prairie Junegrass Sandberg bluegrass, big	KOMA	Koeleria macrantha	35	75
	bluegrass, Canby bluegrass, alkali bluegrass	POSE	<u>Poa secunda</u>	35	75
	bluebunch wheatgrass	PSSP6	<u>Pseudoroegneria</u> spicata	35	75
	-				
Forb	-			Annual Prod (pounds per	
Forb  Group  Group name  7	Common name	<u>Symbol</u>	Scientific name		
<u>Group</u> <u>Group</u> <u>name</u>	Common name yarrow	<u>Symbol</u> ACHIL	Scientific name	(pounds per	r acre) High
<u>Group</u> <u>Group</u> <u>name</u>				(pounds per Low 105	High 225
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose	ACHIL	<u>Achillea</u>	(pounds per Low 105 35	High 225 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion	ACHIL ALTE	Achillea Allium textile	(pounds per Low 105 35 35	High 225 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes	ACHIL ALTE ANRO2	Achillea Allium textile Antennaria rosea Aster	Low 105 35 35 35 35	High 225 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch	ACHIL ALTE ANRO2 ASTER ASTRA	Achillea Allium textile Antennaria rosea Aster Astragalus	Low 105 35 35 35 35 35	High 225 75 75 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch tapertip hawksbeard	ACHIL ALTE ANRO2 ASTER ASTRA CRAC2	Achillea Allium textile Antennaria rosea Aster Astragalus Crepis acuminata	Low 105 35 35 35 35 35 35	High 225 75 75 75 75 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch tapertip hawksbeard white prairie clover violet prairie clover,	ACHIL ALTE ANRO2 ASTER ASTRA	Achillea Allium textile Antennaria rosea Aster Astragalus	Low 105 35 35 35 35 35	High 225 75 75 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch tapertip hawksbeard white prairie clover	ACHIL ALTE ANRO2 ASTER ASTRA CRAC2 DACA7	Achillea Allium textile Antennaria rosea Aster Astragalus Crepis acuminata Dalea candida	Low 105 35 35 35 35 35 35 35 35	High 225 75 75 75 75 75 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch tapertip hawksbeard white prairie clover violet prairie clover, purple prairie clover sulphur-flower	ACHIL ALTE ANRO2 ASTER ASTRA CRAC2 DACA7 DAPU5	Achillea Allium textile Antennaria rosea Aster Astragalus Crepis acuminata Dalea candida Dalea purpurea Eriogonum	Low 105 35 35 35 35 35 35 35 35 35	High 225 75 75 75 75 75 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch tapertip hawksbeard white prairie clover violet prairie clover, purple prairie clover sulphur-flower buckwheat scarlet beeblossom, scarlet gaura stemless mock goldenweed	ACHIL ALTE ANRO2 ASTER ASTRA CRAC2 DACA7 DAPU5 ERUM	Achillea Allium textile Antennaria rosea Aster Astragalus Crepis acuminata Dalea candida Dalea purpurea Eriogonum umbellatum	Low 105 35 35 35 35 35 35 35 35 35	High 225 75 75 75 75 75 75 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch tapertip hawksbeard white prairie clover violet prairie clover, purple prairie clover sulphur-flower buckwheat scarlet beeblossom, scarlet gaura stemless mock	ACHIL ALTE ANRO2 ASTER ASTRA CRAC2 DACA7 DAPU5 ERUM GACO5	Achillea Allium textile Antennaria rosea Aster Astragalus Crepis acuminata Dalea candida Dalea purpurea Eriogonum umbellatum Gaura coccinea	Low 105 35 35 35 35 35 35 35 35 35 35	High 225 75 75 75 75 75 75 75 75 75
<u>Group</u> <u>Group</u> <u>name</u>	yarrow textile onion rosy pussytoes, rose pussytoes aster milkvetch tapertip hawksbeard white prairie clover violet prairie clover, purple prairie clover sulphur-flower buckwheat scarlet beeblossom, scarlet gaura stemless mock goldenweed desertparsley,	ACHIL ALTE ANRO2 ASTER ASTRA CRAC2 DACA7 DAPU5 ERUM GACO5 HAAC	Achillea Allium textile Antennaria rosea Aster Astragalus Crepis acuminata Dalea candida Dalea purpurea Eriogonum umbellatum Gaura coccinea Haplopappus acaulis(syn)	Low 105 35 35 35 35 35 35 35 35 35 35	High 225 75 75 75 75 75 75 75 75 75 75

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	scrubea		escuentum		
	upright prairie coneflower, prairie coneflower	RACOS	Ralibida columnilara	35	76
	American vetch	VIAM	Vicia americana	35	75
Shrub/VI	re-				roduction per acre)
Стомо Стомо пато в	Common name	Symbol	Scientific name	Low 70	High 150
	blg sagebrush	ARTR2	Ariumtala triciuntala	70	150
9				35	75

KRLA2

## Plant Growth Curve

Growth curve

WY1401

winterlat

number:

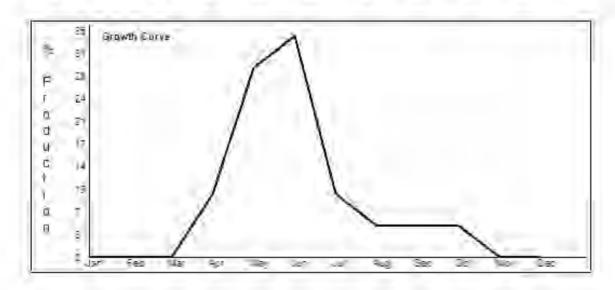
10-14NP upland sites

Growth curve name:

Growth curve description:

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
D	0	0	10	90	35	10	5	5	5	0	0



## Mixed Sagebrush/Grass Plant Community

Historically, this plant community evolved under grazing by bison and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock in the absence of fire or brush management. Wyoming big sagebrush is a significant component of this plant community. Cool-season grasses make up the majority of the understory with the balance made up of short warm-season grasses, annual cool-season grasses, and miscellaneous forbs.

Dominant grasses include needleandthread, western wheatgrass, and green needlegrass. Grasses of secondary importance include blue grama, prairie junegrass, and Sandberg bluegrass. Forbs commonly found in this plant community include plains wallflower, hairy goldaster, slimflower scurfpea, and scarlet globemallow. Sagebrush canopy ranges from 20% to 30%. Fringed sagewort is commonly found. Plains pricklypear can also occur.

When compared to the Historic Climax Plant Community, sagebrush and blue grama have increased. Production of cool-season grasses, particularly green needlegrass, has been reduced. The sagebrush canopy protects the cool-season mid-grasses, but this protection makes them unavailable for grazing. Cheatgrass (downy brome) has invaded the site. The overstory of sagebrush and understory of grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as mule deer and antelope.

The total annual production (air-dry weight) of this state is about 900 pounds per acre, but it can range from about 700 lbs./acre in unfavorable years to about 1,200 lbs./acre in above average years.

This plant community is resistant to change. A significant reduction of big sagebrush can only be accomplished through fire or brush management. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

Transitions or pathways leading to other plant communities are as follows:

- Brush management (chemical, fire, or mechanical), followed by prescribed grazing, will convert this plant community to the Rhizomatous wheatgrasses, Needleandthread, Blue grama Plant Community. The probability of this occurring is high. When prescribed fire is used, sufficient fine fuels will need to be present. This may require deferment from grazing prior to treatment. Post management is critical to ensure success. This can range from two or more years of rest to partial growing season deferment, depending on the condition of the understory at the time of treatment and the growing conditions following treatment. In the case of an intense wildfire that occurs when desirable plants are not completely dormant, the length of time required to reach the Rhizomatous wheatgrasses, Needleandthread, Blue grama Plant Community may be increased.
- Brush management, followed by frequent and severe grazing, will convert the plant

community to the Western Wheatgrass/Cheatgrass Plant Community. The probability of this occurring is high. If bare areas exist after treatment, along with no recovery periods from grazing, cheatgrass will invade and plants not as resistant to grazing as western wheatgrass will be reduced.

Moderate continuous season-long grazing, where gressewood occurs adjacent to this
atate, will convert the plant community to the Gressewood Plant Community.

### Plant Growth Curve

Growth curve

WY1401

number.

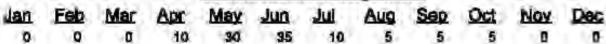
Growth curve

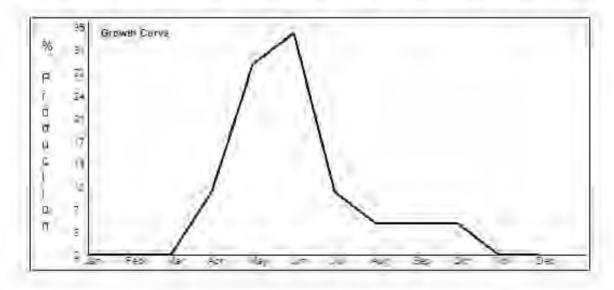
10-14NP upland sites

name:

Growth curve description:

Percent Production by Month





## Heavy Sagebrush Plant Community

This plant community is the result of long-term protection from grazing and fire. Sagebrush eventually dominates this plant community with canopy cover often exceeding 60%. At first, excessive litter builds up, shading out some of the grasses and forbs. Other plants become decadent with low vigor. Bunch grasses often develop dead centers. Eventually, the interspaces between plants increase in size leaving more soil surface exposed. Organic matter oxidizes in the air rather than being incorporated into the soil.

The dominant plants tend to be somewhat similar to those found in the Historic Climax Plant Community. Weedy species, cool-season grasses, and sedges have increased. Blue grama has decreased. Rodent activity has resulted in an increase in soil disturbance. Cactus and sageworts often increase. Noxious weeds such as Dalmatian toadflax, leafy spurge, or Canada thistle may invade the site if a seed source is present. Plant diversity is moderate to high.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 600 lbs./acre in unfavorable years to about 1,000 lbs./acre in above average years.

This plant community is not resistant to change and is more vulnerable to severe disturbance than the HCPC. The introduction of grazing or fire quickly changes the plant community.

Soil erosion is accelerated because of increased bare ground. Water flow patterns and pedestaling are obvious. Infiltration is reduced and runoff is increased.

Transitions or pathways leading to other plant communities are as follows:

- Brush management, followed by prescribed grazing, will return this plant community to at or near the Rhizomatous Wheatgrasses, Needleandthread, Blue Grama Plant Community.
- Brush management, followed by frequent and severe grazing, will convert the plant community to the Western Wheatgrass/Cheatgrass Plant Community. The probability of this occurring is high because of the amount of bare ground exposed to cheatgrass invasion.

#### Plant Growth Curve

Growth curve

number:

WY1401

Growth curve

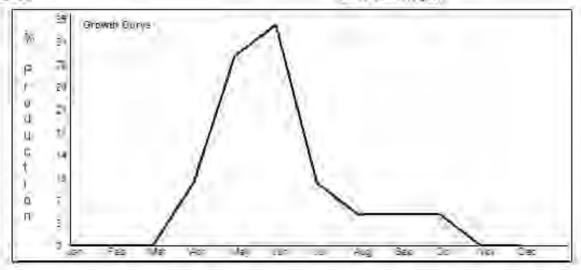
name:

10-14NP upland sites

Growth curve description:

#### Percent Production by Month

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	10	30	35	10	5	5	5	0	n



## Western Wheatgrass/Cheatgrass Plant Community

This plant community is created when the Mixed Sagebrush/Grass Plant Community or the Heavy Sagebrush Plant Community is subjected to fire or brush management not followed by prescribed grazing. Rhizomatous wheatgrasses and annuals will eventually dominate the site.

Compared to the HCPC, cheatgrass has invaded with western wheatgrass and thickspike wheatgrass maintaining at a similar or slightly higher level. Virtually all other cool-season mid-grasses are severely decreased. Blue grama is the same or slightly less than found in the HCPC. Plant diversity is low.

The total annual production (air-dry weight) of this state is about 600 pounds per acre, but it can range from about 450 lbs./acre in unfavorable years to about 750 lbs./acre in above average years.

This plant community is relatively stable with the rhizomatous wheatgrasses being somewhat resistant to overgrazing and the cheatgrass effectively competing against the establishment of perennial cool-sesson grasses.

An increase in bare ground reduces water infiltration and increases soil erosion. The watershed is usually functioning. The biotic integrity is reduced by the lack of diversity in the plant community.

Transitions or pathways leading to other plant communities are as follows:

- Moderate continuous season-long grazing will eventually return this plant community to the Mixed Sagebrush/Grass Plant Community.
- Frequent and severe grazing will convert this plant community to Blue Grama Sod Plant Community.
- Frequent and severe yearlong grazing will convert this plant community to Blue grama,
   Plains Pricklypear, Bare Ground Plant Community.

 Long-term, prescribed grazing will eventually return this plant community to at or near the Rhizomatous Wheatgrasses, Needleandthread, Blue Grama Plant Community.

BSD Printable Report

#### Plant Growth Curve

Growth curve number:

WY1401

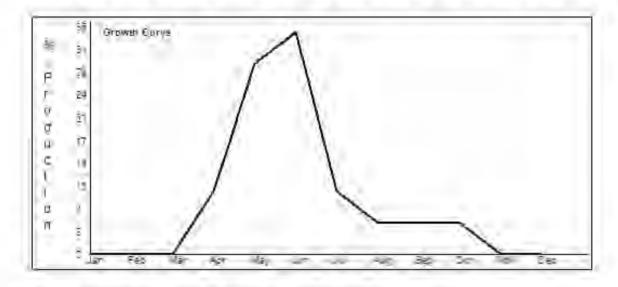
Growth curve

10-14NP upland alles

name:

Growth curve description:

Percent Production by Month											
<u>Jan</u>	Feb	Mar	Apr	May	Jun	Jul	Aug	Seg	Oct	Nov	Dec
0	0	a	10	30	95	10	5	5	5	0	0



## Blue Grama Sod Plant Community

This plant community is the result of frequent and severe grazing during the growing season of the cool-season mid-grasses. A dense sod of blue grama dominates it. Pricklypear cactus can become dense enough so that livestock cannot graze forage growing within the cactus clumps.

When compared to the Historic Climax Plant Community, blue grams and threadlesf sedge have increased. All cool-season mid-grasses and forbs have been greatly reduced. Plant diversity is extremely low.

The total annual production (air-dry weight) of this state is about 600 pounds per acre, but it can range from about 450 lbs./acre in unfavorable years to about 750 lbs./acre in above average years.

This sod bound plant community is very resistant to water infiltration. While this sod protects the site itself, off-site areas are affected by excessive runoff that can cause gully erosion. This sod is very resistant to change and may require a grazing land mechanical treatment, such as chiseling, to return the cool-season grass component.

Transitions or pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling, etc.) and pricklypear cactus control (if needed), followed by prescribed grazing, will return this plant community to near Historic Climax Plant Community condition.
- Grazing land mechanical treatment, followed by moderate continuous season-long grazing, will convert this plant community to the Western Wheetgrass/Cheatgrass Plant Community.
- Frequent and severe yearlong grazing will eventually convert this state to the Blue Grama,
   Plains Pricklypear, Bare Ground Plant Community.

#### Plant Growth Curve

Growth curve

WY1401

number.

name:

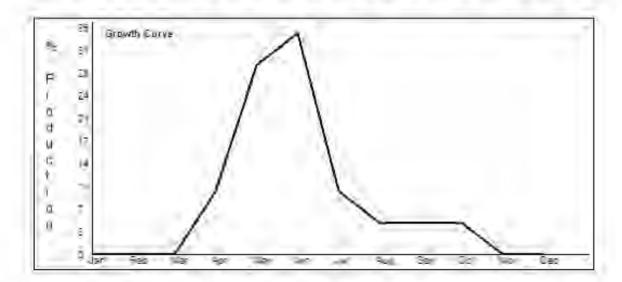
Growth curve

10-14NP upland sites

Growth curve description:

## Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
										0	



## Greasewood Plant Community

This plant community can occur where states are subjected to continuous season-long grazing at moderate stocking rates and where greasewood occurs adjacent to the site. It is dominated by an overstory of greasewood and possibly big sagebrush. Rhizomatous wheatgrasses, cheatgrass, and inland saltgrass make up the understory. Salts in the surface will increase due to the shedding of the salt-filled leaves of the greasewood. Plant diversity is high.

The total annual production (air-dry weight) of this state is about 700 pounds per acre, but it can range from about 525 lbs./acre in unfavorable years to about 875 lbs./acre in above average years.

This plant community is resistant to change. A significant reduction of greasewood can only be accomplished through repeated brush control treatments. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

The site is protected from erosion as long as ground cover is maintained. The biotic integrity of this state is somewhat intact because of the woody overstory and perennial grass understory. The watershed is functioning as long as a grass cover is maintained.

• Recovery to near Historic Climax Plant Community condition is difficult due to the resistance of greasewood to herbicides and accumulated effects of salts on the soil.

#### Plant Growth Curve

Growth curve

number:

WY1401

Growth curve

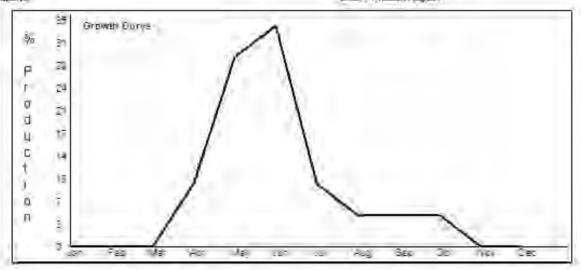
name:

10-14NP upland sites

Growth curve description:

#### Percent Production by Month

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	10	30	35	10	5	5	5	0	0



## Blue Grama Sod/Plains Pricklypear/Bare Ground Plant Community

This plant community is the result of frequent and severe yearlong grazing over the long-term. Perennial plants are decreased. Cheatgrass, annual weeds, and bare ground are increased. Plains pricklypear may have increased, rendering much of the forege unusable by livestock.

This plant community is highly variable depending on the severity, frequency, and duration of the grazing and also the condition of the plant community when this level of grazing began. Virtually all plants not resistant to overgrazing may have been eliminated. Dominant plants may include blue grame, threeawns, annuals, and, to a lesser degree, rhizomatous wheatgrasses. Perennial plant diversity is low.

The total annual production (air-dry weight) of this state is about 500 pounds per acre, but it can range from about 375 lbs./acre in unfavorable years to about 625 lbs./acre in above average years.

This state is unhealthy and subject to increased erosion. Runoff is high on this state due to the sod nature of blue grama and bare ground.

Transitions or pathways leading to other plant communities are as follows:

- Long-term prescribed grazing will convert this plant community initially to the Blue Grama Sod Plant Community, when this state is dominated by blue grama sod at the time of treatment.
- Long-term prescribed grazing will convert this plant community to the Western Wheatgrass
  /Cheatgrass Plant Community, when this state has large amounts of cheatgrass, annual
  weeds, and bare ground at the time of treatment. Control of plains pricklypear cactus may be
  necessary.

Reseeding areas with native plant species and proper grazing management may be necessary to accelerate recovery where few desirable plants remain.

#### Plant Growth Curve

Growth curve number:

WY1401

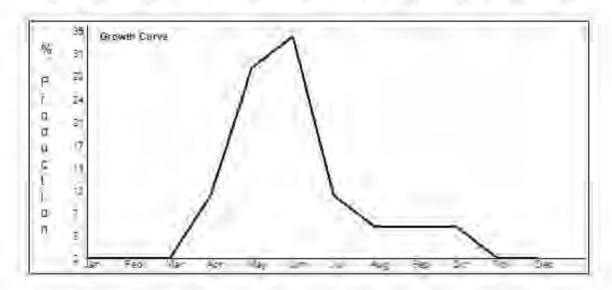
Growth curve

10-14NP upland slies

name:

Growth curve description:

				Perce	nt Prod	luction	by Mor	ath	-		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	30	35	10	5	5	5	0	0



## Go-back Land

This plant community occurs on land that has been cropped annually in the past and then abandoned without reseeding. Natural succession has resulted in a plant community dominated by varying combinations of red threeawn, cheatgrass, blue grams, Sandberg bluegrass, and some rhizomatous wheatgrasses. Forage production is low and grasses such as red threeawn and cheatgrass are not used efficiently by livestock.

The total annual production (air-dry weight) of this state is about 600 pounds per acre, but it can range from about 500 lbs./acre in unfavorable years to about 900 lbs./acre in above average years.

The potential for accelerated erosion can be highly variable depending on amount of bare ground present. Biological diversity is low.

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing may be used to increase desirable native cool-sesson grass production.
   It is usually difficult to return to near Historic Climax Plant Community condition in a timely manner because of past soil loss.
- Grazing land mechanical treatment (i.e., chiesling) may improve forage production where significant rhizomatous wheatgrass is present to respond.

Where there is a lack of perennial grasses, reseeding to tame or native species may be necessary to return these lands to production in the form of pastureland. These pastures are normally seeded to created wheatgrass, pubescent wheatgrass, or Russian wildrys. They require considerable investment to establish and have a variable life expectancy. They do produce up to 50% more than native range, but their value as forage is somewhat limited due to the single species usually seeded. In some cases, the single species or certain groups of species (e.g., wheatgrasses) may be more vulnerable to infestation by associated insects and/or diseases (e.g., black grass bugs).

### Plant Growth Curve

Growth curve

WY1401

number.

10-14NP upland sites

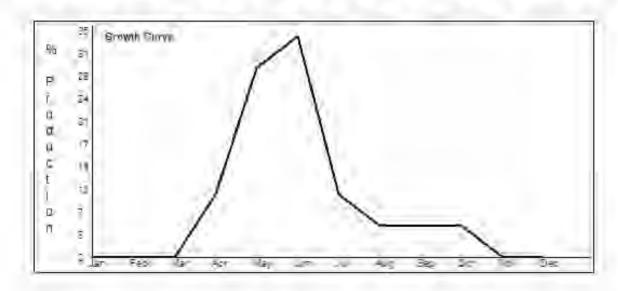
Growth curve name:

Growth curve

description:

## Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Аца	Sep	Oct	Nov	Dec
										0	



# Section II: Ecological Site Interpretations

## **Animal Community**

Animal Community – Wildlife Interpretations

Rhizomatous Wheatgrasses, Needleandthread, Blue Grama Plant Community (HCPC): The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Mixed Sagebrush/Grass Plant Community: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule deer and antelope may use this state for foraging and cover year-round, as would cottontail and jack rabbits. It provides important winter, nesting, brood-rearing, and foraging habitat for sage grouse. Brewer's sparrows' nest in big sagebrush plants, and hosts of other nesting birds utilize stands in the 20-30% cover range.

Heavy Sagebrush Plant Community: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. This community provides excellent escape and thermal cover for large ungulates, as well as nesting and brood rearing habitat for sage grouse.

Western Wheatgrass/Cheatgrass Plant Community: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

Blue Grama Sod and Go-back Land Plant Communities: These communities provide limited foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover and if the Historic Climax Plant Community or the Western Wheatgrass/Cheatgrass Plant Community is limiting. Generally, these are not target plant communities for wildlife habitat management.

Greasewood Plant Community: This plant community exhibits a low level of plant species diversity due to the accumulation of salts in the soil. It may provide some thermal and escape cover for deer and antelope if no other woody community is nearby, but in most

cases it is not a desirable plant community to select as a wildlife habitat management objective.

Blue Grama, Plains Pricklypear, Bare Ground Plant Community: Benefits to other wildlife are largely due to the subterranean structure created by the prairie dogs, not the sparse vegetation found on this plant community.

Introduced Pasture: These communities are highly variable depending on the species planted. Refer to Forage Suitability Groups for more information.

#### Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community Production Carrying Capacity\*
(lb./ac) (AUM/ac)
Rhizomatous WG, Needleandthread, Blue Grama 700-1500 .4
Heavy Sagebrush 800-1400 .3
Blue Grama Sod 400-1000 .2
Mixed Sagebrush/Grass 700-1200 .33
Western Wheatgrass/Cheatgrass 600-1200 .2
Blue grama, Plains Pricklypear, Bare ground 300-800 .1
Greasewood 525-875 .3
Go-back Land 500-900 .2

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

## Plant Preference by Animal Kind

Animal kind: All antelope

Common name Scientific name Plant part J F M A M J J A S O N D

<sup>\* -</sup> Continuous, season-long grazing by cattle under average growing conditions.

_	0.10		LOB I IIII LLOBO I ROPO	•											
	yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Indian danasa	Achnatherum	Laguag	N I	N I	N I	_	_	_	N.I.	N I	N.I.	_	_	_
	Indian ricegrass	<u>hymenoides</u>	Leaves	_	N	_	-		_		_	N	_		D
	textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	big bluestem	Andropogon gerardii	Entire plant	D	D	D	D	D	D	D	D	D	D	_	D
	sand bluestem	Andropogon hallii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	rosy pussytoes,	A													
	rose pussytoes	Antennaria rosea	Entire plant	U	_	U	_	_	_	_	_	U	_	_	_
	silver sagebrush	<u>Artemisia cana</u>	Leaves	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	prairie sagewort,	A (													
	fringed sagewort	<u>Artemisia frigida</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	birdfoot	Artomioio nodotifido	Entire plant	11											
	sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Fendler threeawn, red	Aristida purpurea var.													
	threeawn	<u>longiseta</u>	Entire plant	U	П	П	п	п	11	11	П	U	11	11	U
		Artemisia tridentata	Entire plant	D	_	_	_	_	_	_	_	D	_	_	D
	big sagebrush	Artemisia triuentata	Entire plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
	twogrooved milkvetch	Astragalus bisulcatus	Entire plant	Т	Т	Т	Т	т	т	т	Т	Т	т	т	т
	THIN VOICE	riotragarae bicarcatae	Entiro piant	•	•	•	•	•	•	•	•	•	•	•	•
	aster	<u>Aster</u>	Entire plant	U	U	U	U	U	U		U	U	U	U	U
	milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	Р	Р	Р	Р	Р	Р	D	D	D
	fourwing saltbush	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Gardner's														
	saltbush	<u>Atriplex gardneri</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	sideoats grama	Bouteloua curtipendula	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	blue grama	<u>Bouteloua gracilis</u>	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
	hairy grama	<u>Bouteloua hirsuta</u>	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
		<u>Buchloe</u>													
	buffalograss	<u>dactyloides(syn)</u>	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
	bluejoint,	<b>0</b>													
	bluejoint	<u>Calamagrostis</u>	Entire plant		U	U									
	reedgrass	<u>canadensis</u>	Entire plant	U	U	_						U			
	_	Carex duriuscula	Entire plant	<u> </u>	U -	U		U	U	U		U	_	_	U
	threadleaf sedge		Leaves	Р	Р	Р	Р	Р	Р	Р	Р	-	Р	•	Р
	inland sedge	<u>Carex interior</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	_	U
	prairie sandreed	Calamovilfa longifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
		<u>Calamagrostis</u>		_	_	_	_	_	_		_	_	_	_	_
	plains reedgrass	montanensis	Leaves	ט	Ŋ	Ŋ	D	D	D	D	D	D	D	D	D
	spike sedge	<u>Carex nardina</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	_	U
	<del>_</del>	Carex nebrascensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	yellow														

2010		EOD I IIII LLOIG I KOPOI	•											
rabbitbrush,														
green rabbitbrush, low rabbitbrush, Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	Cicuta	Entire plant	Т	т	Т	Т	т	Т	Т	Т	Т	т	т	т
poison hemlock	Conium maculatum	Entire plant		Ť	Ť	T	Ť	T	-	Ť	_	Ť	T	Ť
tapertip				-		-		-		-	-	-	-	_
hawksbeard	Crepis acuminata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
white prairie			_	_	_	_	_	_	_	_	_	_	_	_
clover	<u>Dalea candida</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
violet prairie clover, purple														
prairie clover	Dalea purpurea	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
•	<u>Deschampsia</u>	•												
tufted hairgrass	caespitosa(syn)	Entire plant	D	_	_	D	_	_	D	_	_	D	D	_
inland saltgrass	<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
bearded wheatgrass	Elymus caninus	Leaves	ח	ח	D	D	D	D	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	Leaves	D	D	D	_	D	D	D	D	_	D	D	_
,														
silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
streambank wheatgrass,														
thickspike	Elymus lanceolatus													
wheatgrass	ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
slender wheatgrass	Elymus trachycaulus	Entire plant	ח	D	D	D	D	D	D	D	D	D	D	D
horsetail	Equisetum	Entire plant											U	
rubber		•												
rabbitbrush	Ericameria nauseosa	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower buckwheat	<u>Eriogonum</u> <u>umbellatum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
scarlet beeblossom,														
scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	<u>Glycyrrhiza lepidota</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock goldenweed	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and thread,														

2010		LOD I IIII MADIO I ROPOI	•											
needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain														
juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Krascheninnikovia</u>		_	_	_	_				_	_	_	_	_
winterfat	<u>lanata</u>	Entire plant	•	Р	•	•	•	Р	•	•	•	•	Р	•
basin wildrye	<u>Leymus cinereus</u>	Entire plant	D	D	D	ט	ט	D	D	ט	D	D	D	D
desertparsley, biscuitroot	Lomatium	Entire plant	D	ח	D	ח	ח	D	ח	ח	ח	ח	D	П
bluebells	Mertensia	Entire plant	D					D					D	
plains muhly,	<u>Muhlenbergia</u>	Littile plant	ט	ט	ט	ט	ט	ט	D	ט	ט	ט	ט	ט
stoneyhills muhly		Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Muhlenbergia</u>			_		_				_	_	_		
mat muhly	<u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green														
needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western	5 ""			_	_			_	_		_	_	_	_
wheatgrass	Pascopyrum smithii	Entire plant	D	D	ט	ט	ט	D	ט	ט	ט	ט	D	D
large Indian breadroot,														
breadroot, breadroot	Pediomelum													
scurfpea	<u>esculentum</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
nondoroso nino	Dinua nandarasa	Entire plant	U									U		U
ponderosa pine Sandberg	Pinus ponderosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
bluegrass	Poa canbyi(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's	<u> </u>		-		•			•				•	-	•
bluegrass,														
Cusick bluegrass	<u>Poa cusickii</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains	Populus deltoides ssp.		_	_	_	_	_	_	_	_	_	_	_	_
cottonwood	<u>monilifera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg														
bluegrass, big bluegrass, Canby	,													
bluegrass, alkali														
bluegrass	<u>Poa secunda</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg	Poa secunda ssp.													
bluegrass	<u>juncifolia(syn)</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch	Pseudoroegneria													
wheatgrass	<u>spicata</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's	<b>5</b>		_	_	_	_	_		_	_	_	_	_	_
alkaligrass	Puccinellia nuttalliana	Entire plant	۲	۲	٢	٢	٢	۲	۲	٢	۲	۲	۲	۲
upright prairie coneflower,														
"	W.B. (B.)	n.o	_	_	_		-	_		_				

2010		LOD I IIII LODO I ROPOI	••										
prairie													
coneflower	Ratibida columnifera	Entire plant	PΡ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
skunkbush													
sumac	Rhus trilobata	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
	Rosa woodsii var.											_	_
Woods' rose	<u>woodsii</u>	Entire plant											
willow	<u>Salix</u>	Entire plant	UU	U	U	U	U	U	U	U	U	U	U
	<u>Sarcobatus</u>			_	_	_	_	_	_	_	_	_	_
greasewood	<u>vermiculatus</u>	Entire plant	ם ם	D	D	D	D	D	D	D	D	D	D
Patter belonged and	<u>Schizachyrium</u>	Entire along		_	_	_	_	_	_	_	_	_	_
little bluestem	<u>scoparium</u>	Entire plant	D D										
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D D	_	_	D	_	D	D	_	_	D	_
alkali sacaton	<u>Sporobolus airoides</u>	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
	<u>Sporobolus</u>	Esta alast											
sand dropseed	<u>cryptandrus</u>	Entire plant		_	_	_	_	_	_	_	_	_	_
alkali cordgrass	Spartina gracilis	Entire plant	UU										
Pursh seepweed	Suaeda calceoliformis	Entire plant	U U	U	U	U	U	U	U	U	U	U	U
western	<u>Symphoricarpos</u>	Esta alast											
snowberry	occidentalis	Entire plant	UU	U	U	U	U	U	U	U	U	U	U
proirie	Thermopsis												
prairie thermopsis	<u>rhombifolia var.</u> <u>annulocarpa(syn)</u>	Entire plant	11 11	11	п	11	11	П	п	п	11	11	ш
шетпорыз	<u>amaiocarpa(sym)</u>	Little plant	0 0	J	J	J	J	Ü	J	J	J	J	J
arrowgrass	<u>Triglochin</u>	Entire plant	ТТ	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	UU	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	UU	U	U	U	U	U	U	U	U	U	U
American vetch	Vicia americana	Entire plant	РΡ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca,		•											
small soapweed		Entire plant	D D	D	D	D	D	D	D	D	D	D	D
Animal kind: All	cattle												
Common name	Scientific name	<u>Plant part</u>	<u>J</u> <u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	A	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	UU	U	U	U	U	U	U	U	U	U	U
Animal kind: all	cattle												
Common name	Scientific name	Plant part	<u>J</u> <u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
	<b>A</b> 1 (1)												
Indian ricograca	Achnatherum	Entire plant	ם ם	D	D	D	D	D	D	D	D	D	D
Indian ricegrass	<u>hymenoides</u>	Entire plant	ГГ	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
Animal kind: All	cattle												
Common name	Scientific name	Plant part	<u>J</u> <u>F</u>	<u>M</u>	Α	M	J	J	Α	S	O	N	D
textile onion	Allium textile	Entire plant											
big bluestem	Andropogon gerardii	Entire plant	PΡ										
<b>O</b>		- 1	-										

12	010		CSD Filliable Report	L											
	sand bluestem	Andropogon hallii	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Fendler	Ariatida nurrura a var													
	threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	u	U	U	U	U	U	U	U	U	IJ	IJ	U
	big sagebrush	Artemisia tridentata	Entire plant	U	_	_	_	U	_	U	U	U	U	_	U
	aster	Aster	Entire plant	Ū	Ū	Ū	Ū	Ū	Ū	Ū	U	U	Ū	Ū	Ū
	milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	fourwing saltbush	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Gardner's														
	saltbush	Atriplex gardneri	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	sideoats grama	Bouteloua curtipendula	-	P	P	P	P	P	P	P	P	P	P	P	P
	blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	hairy grama	<u>Bouteloua hirsuta</u> <u>Buchloe</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	buffalograss	<u>dactyloides(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	bluejoint,														
	bluejoint	<u>Calamagrostis</u>		_		_	_	_	_	_	_	_	_	_	_
	reedgrass	<u>canadensis</u>	Entire plant	P 	P 	P 	P 	P 	•	P 	P 	P 	P 	•	•
	needleleaf sedge		Entire plant	_	_	U	_	_	U	_	_	_	U	_	U
	threadleaf sedge		Entire plant	D	D	ט	D	D	D	D	D	D	D	D	ט
	inland sedge	Carex interior	Entire plant	D	D	ח	D	D	D	D	D	D	D	D	D
	prairie sandreed	<u>Calamovilfa longifolia</u> <u>Calamagrostis</u>	Entire plant	Р	Р	Р	Р	Р	Р	Ρ	Ρ	Р	Ρ	Р	Р
	plains reedgrass	<u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	spike sedge	<u>Carex nardina</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Nebraska sedge	Carex nebrascensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	yellow rabbitbrush,														
	green rabbitbrush, low rabbitbrush,														
	Douglas	<u>Chrysothamnus</u>													
	rabbitbrush	<u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	water hemlock	<u>Cicuta</u>	Entire plant	Τ	T	T	Τ	Τ	Τ	T	T	T	T	Τ	T
	poison hemlock tapertip	Conium maculatum	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т

12	010		ESD Filliable Report	L											
	hawksbeard	Crepis acuminata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	white prairie clover	<u>Dalea candida</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	violet prairie		•												
	clover, purple	Doloo nurnuroo	Entire plant	Р	Р	Р	Р	В	Р	В	В	Р	Ь	Р	D
	prairie clover	<u>Dalea purpurea</u> <u>Deschampsia</u>	Entire plant	٢	_	_	_	<b>r</b>	٢	٢	٢	_	_	_	7
	tufted hairgrass	<u>caespitosa(syn)</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	inland saltgrass	<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	bearded	-,		_	_	_	_	_		_	_	_			_
	wheatgrass	Elymus caninus	Entire plant	P P	P P	P P	P P	P P	Р	P P	P P	P P	P P	P P	Р
	Canada wildrye silverberry	Elymus canadensis Elaeagnus commutata	Entire plant Entire plant	•	U	•	•	•	•	•	•	U	•	•	•
	squirreltail,	<u>Liacagilus commutata</u>	Littile plant	U	U	U	U	U	U	U	U	U	U	U	U
	bottlebrush	Elymus elymoides ssp.													
	squirreltail	<u>elymoides</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	streambank wheatgrass,														
	thickspike	Elymus lanceolatus													
	wheatgrass	ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	slender wheatgrass	Elymus trachycaulus	Entire plant	Р	Р	Þ	Þ	P	P	Þ	Þ	Р	P	P	Þ
	horsetail	<u>Equisetum</u>	Entire plant	-	•							U			
	rubber	<u> </u>	pia												
	rabbitbrush	Ericameria nauseosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	sulphur-flower	<u>Eriogonum</u>													
	buckwheat	<u>umbellatum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	scarlet beeblossom,														
	scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	American licorice	Glycyrrhiza lepidota	Entire plant									U			
	stemless mock	<u>Haplopappus</u>													
	goldenweed	<u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	needle and thread,														
	-	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Baltic rush	Juncus balticus(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Rocky Mountain														
	juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U		U		_	U	•	U
	prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	winterfat	<u>Krascheninnikovia</u> <u>lanata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	basin wildrye	<u>Leymus cinereus</u>	Entire plant	P	Р	Р	Р	Р	•	Р	Р	Р	Р	Р	•
	•	-	-												

			-											
desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebells	Mertensia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
plains muhly, stoneyhills muhly	•	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green			_	_	_	_	_	_	_	_	_	_	_	_
needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian	<u> </u>		_		_	_								
breadroot,														
breadroot	Pediomelum esculentum	Entire plant	D	D	D	D	D	D	D	D	D	D	ח	Ь
scurfpea ponderosa pine	Pinus ponderosa	Entire plant		_	_				_	_		U	וו	U
Sandberg	<u>r mus ponuerosa</u>	Little plant	U	U	U	U	U	Ü	Ü	Ü	U	U	U	J
bluegrass	Poa canbyi(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's														
bluegrass,	Dee eveleld		_	_	_	_	_	_	_	_	_	_	_	_
Cusick bluegrass		Entire plant	۲	۲	۲	٢	۲	۲	۲	۲	۲	Р	۲	۲
plains cottonwood	Populus deltoides ssp. monilifera	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big bluegrass, Canby bluegrass, alkali		Entire plant	<b>D</b>	<b>D</b>	ח	<b>D</b>	D	D	D	D	D	D	D	<b>D</b>
bluegrass	<u>Poa secunda</u>	Entire plant	D	ט	ט	D	ט	ט	ט	ט	ט	ט	ט	ט
Animal kind: all o	cattle													
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
Sandberg	Poa secunda ssp.						_							
bluegrass	juncifolia(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All	cattle													
Common name	Scientific name	Plant part	<u>J</u>	<u>E</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
bluebunch	<u>Pseudoroegneria</u>													
wheatgrass	<u>spicata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's	5 ' " " " " " " " " " " " " " " " " " "				_									
alkaligrass	Puccinellia nuttalliana	Entire plant	۲	٢	Р	Р	۲	۲	۲	۲	Р	Р	٢	Р
upright prairie coneflower,														
prairie														
coneflower	Ratibida columnifera	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush														

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sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Woods' rose	Rosa woodsii var. woodsii	Entire plant	ח	D	ח	ח	ח	ח	ח	ח	D	ח	D	ח
willow	<u>Salix</u>	Entire plant										Р	_	_
WIIIOW		Entire plant	Г	Г	Г	Г	Г		Г	Г	Г	Г	Г	Г
greasewood	<u>Sarcobatus</u> <u>vermiculatus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
little bluestem	Schizachyrium	Entire plant	D	D	D	D	D	D	D	D	D	Р	D	D
alkali sacaton	<u>scoparium</u>	•	Р									Р		
aikaii sacaton	Sporobolus airoides	Entire plant	_	_	_	_	_		٢	_	_	_		_
sand dropseed	<u>Sporobolus</u> <u>cryptandrus</u>	Entire plant	ח	П	Ь	П	П	П	П	П	Ь	D	П	П
sand diopseed	<u>cryptanurus</u>	Littile plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
Animal kind: all	cattle													
Common name	Scientific name	Plant part	<u>J</u>	<u>E</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
alkali cordgrass	Spartina gracilis	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
· ·														
Animal kind: All	cattle													
Common name	Scientific name	Plant part	J	<u>E</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western	<u>Symphoricarpos</u>													
snowberry	<u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Thermopsis</u>													
prairie	rhombifolia var.													
thermopsis	annulocarpa(syn)	Entire plant	_	_	_	_	_	_	_	_	_	U	_	_
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	T
narrowleaf cattail	Typha angustifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
broadleaf cattail	Typha latifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
American vetch	Vicia americana	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca,		•												
small soapweed		Fruits/Seeds	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All	deer													
Common name	Scientific name	Plant part	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
big bluestem	Andropogon gerardii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sand bluestem	Andropogon hallii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rosy pussytoes,														
rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
tarragon, green	<u> </u>													
sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort,			_	•	•		•	•	_	•		•	•	_
fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	Ų	U	U	U	U	U	U	U
5		<b>F</b>	_	-	-	-	-	-	-	-	-	-	-	

birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Wyoming big sagebrush	Artemisia tridentata ssp. wyomingensis	Entire plant	Р	Р	Р	Р	Р	Р	D	D	D	D	D	D
twogrooved	Antono malica biasilantica		_	_	_	_	_	_	_	_	_	_	_	_
milkvetch	Astragalus bisulcatus	Entire plant	•	T		1		T	-	T	-	T		
aster	<u>Aster</u>	Entire plant	_	U	U	U	U	U	U	U	_	_	_	U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	_	D
•	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Gardner's saltbush	Atriplex gardneri	Entire plant	Р	Р	Р	Р	Р	Р	D	Р	D	Р	Р	D
sideoats grama	Bouteloua curtipendula	-	D	D	L L	L L	D	D	D	D	D	D	•	D
blue grama	•	Entire plant	ם	D	D	D	D	D	D	D	D	D	_	D
J	Bouteloua gracilis Bouteloua hirsuta	Entire plant	_	D	D		D	D	D	D			D	_
hairy grama	Buchloe	Entire plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
buffalograss	<u>dactyloides(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint,	<u> </u>		_	_	_	_	_	_	_	_	_	_	_	_
bluejoint	<u>Calamagrostis</u>													
reedgrass	<u>canadensis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
inland sedge	Carex interior	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sandreed	Calamovilfa longifolia Calamagrostis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
plains reedgrass	<u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Nebraska sedge	Carex nebrascensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
yellow rabbitbrush, green rabbitbrush, low rabbitbrush,														
Douglas	<u>Chrysothamnus</u>													
rabbitbrush	<u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	Τ	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip hawksbeard	Crepis acuminata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
white prairie clover	<u>Dalea candida</u>	Entire plant	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р

			-											
violet prairie clover, purple prairie clover	Dalea purpurea	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Deschampsia</u>													
tufted hairgrass	caespitosa(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
inland saltgrass bearded	<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
wheatgrass	Elymus caninus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
silverberry	Elaeagnus commutata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
squirreltail,	<u>Liacagnas commutata</u>	Little plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	
bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
streambank														
wheatgrass,	Character lengage letter													
thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Entire plant	ח	D	ח	ח	ח	ח	ח	ח	ח	ח	П	ח
slender	<u>ssp. iariceolatus</u>	Little plant	ט	ט	ט	J	ט	ט	ט	ט	J	ט	ט	ט
wheatgrass	Elymus trachycaulus	Entire plant	ח	D	ח	ח	ח	D	ח	ח	D	ח	D	D
horsetail	Equisetum	Entire plant		U					_	_	U		_	U
rubber	<u> Lquisoturii</u>	Little plant	J	J	Ü	J	J	J	U	J	J	J	J	J
rabbei	Ericameria nauseosa	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower	<u>Eriogonum</u>	Zinaro piara				_				_	_			
buckwheat	<u>umbellatum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
scarlet														
beeblossom,														
scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>													
goldenweed	<u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and														
thread,	Haanayaatina aayaata	Catica alast	Б	Ь	П	Б	_	П	_	Ь	Б	_	Б	_
	Hesperostipa comata	Entire plant	-	-	-	-		-	-	-	Р	_	-	۲
iris	<u>Iris</u>	Entire plant		U			U	_	_	_	U	_	_	
Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain	lumba a mua a a a muda muna		_	_	_	_	_	_	_	_	_	_	_	_
juniper	Juniperus scopulorum	Entire plant				D			D				D	
prairie Junegrass	Koeleria macrantha	Entire plant	ט	D	D	ט	D	D	D	D	D	D	D	D
intoufat	<u>Krascheninnikovia</u>	Catica alast	_	Р	Ь	Б	Ь	_	Ь	_	Б	Ь	_	_
winterfat	<u>lanata</u>	Entire plant	٢	٢	٢	٢	٢	٢	٢	٢	٢	٢	٢	٢
basin wildrye	<u>Leymus cinereus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
desertparsley,			_	_	_	_	_	_	_	_	_	_	_	_
biscuitroot	<u>Lomatium</u>	Entire plant	D	_	D	D	D	D	D	D	D	D	_	D
bluebells	<u>Mertensia</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

/2015		ESD Filliable Repor	·										
plains muhly, stoneyhills muhly	<u>Muhlenbergia</u> <u>cuspidata</u>	Entire plant	U	υı	J U	U	U	U	U	U	U	U	U
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	υı	J U	U	U	U	U	U	U	U	U
green needlegrass	Nassella viridula	Entire plant	Р	Ρŀ	> P	Р	Р	Р	Р	Р	Р	Р	Р
western wheatgrass	Pascopyrum smithii	Entire plant	D	D [	ם כ	D	D	D	D	D	D	D	D
large Indian breadroot, breadroot	Pediomelum												
scurfpea	<u>esculentum</u>	Entire plant	D	D [	ם כ	D	D	D	D	D	D	D	D
ponderosa pine	Pinus ponderosa	Entire plant			JU							_	_
Sandberg	<u>r muo pomaorosa</u>	Entiro piant		0 (	5 0	J	J	J	J			J	J
bluegrass	Poa canbyi(syn)	Entire plant	Р	P	> P	Ρ	Р	Р	Р	Р	Р	Р	Р
Cusick's													
bluegrass, Cusick bluegrass	Poo cusickii	Entire plant	D	D [	э Р	D	Ь	D	D	D	Ь	D	D
plains		Little plant								Г			Г
cottonwood	<u>Populus deltoides ssp.</u> <u>monilifera</u>	Entire plant	D	D I	D D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big bluegrass, Canby													
bluegrass, alkali			_			_	_	_	_	_	_	_	
bluegrass	<u>Poa secunda</u>	Entire plant	D	D I	D D	D	D	D	D	D	D	D	D
Sandberg bluegrass	<u>Poa secunda ssp.</u> <u>juncifolia(syn)</u>	Entire plant	Р	Ρŀ	> P	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch wheatgrass	<u>Pseudoroegneria</u> <u>spicata</u>	Entire plant	D	D [	ם כ	D	D	D	D	D	D	D	D
Nuttall's	D : " " "		_	ъ.		_	_	_	_	_	_	_	_
alkaligrass upright prairie	Puccinellia nuttalliana	Entire plant	Р	PI	<b>7</b> P	Р	Р	Р	Р	Р	Р	Р	Р
coneflower,													
prairie coneflower	Ratibida columnifera	Entire plant	Р	Ρŀ	> P	Р	Р	Р	Р	Р	Р	Р	Р
prairie coneflower	<u>Ratibida</u>	Entire plant	D	D [	) P	Р	Р	D	D	D	D	D	D
skunkbush sumac	Rhus trilobata	Entire plant	D	D [	ם כ	D	D	D	D	D	D	D	D
	Rosa woodsii var.	•											
Woods' rose	woodsii	Entire plant	D	D [	ם כ	ח	D	D	ח	D	D	D	D
willow	<u>Salix</u>	Entire plant			э Р							P	P
TVIII C TV	<u>Sarcobatus</u>	Little plant	1		1	•	1	'	1	•	'	•	•
greasewood	vermiculatus Schizachyrium	Entire plant	D	D [	ם כ	D	D	D	D	D	D	D	D

			-											
little bluestem	<u>scoparium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali sacaton	Sporobolus airoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Sporobolus</u>													
sand dropseed	<u>cryptandrus</u>	Entire plant											U	
alkali cordgrass	<u>Spartina gracilis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Thermopsis</u>													
prairie thormossis	rhombifolia var.	Entire plant	11	11			11						U	
thermopsis	annulocarpa(syn)	Entire plant	Т	T	Т	Т	T	Т	Т		T	Т	<b>Т</b>	T
arrowgrass narrowleaf cattail	Triglochin	•	-	1	-	' '	1	_	U		-	-		U
broadleaf cattail	Typha angustifolia	Entire plant		_	U	_	_		_	_	_	_	U	_
	Typha latifolia	Entire plant	_	_	_	_	_	_	Р	_	Р	_	Р	_
American vetch	<u>Vicia americana</u>	Entire plant	۲	۲	۲	۲	۲	۲	<b>P</b>	۲	۲	۲	<b>P</b>	7
soapweed yucca, small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All	horses													
Common name	Scientific name	Plant part	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Achnatherum</u>		_	_	_	_	_	_	_	_	_	_	_	_
Indian ricegrass	<u>hymenoides</u>	Entire plant	P	P	_	-	-	-	P	-	P	-	•	P
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D		D
big bluestem	<u>Andropogon gerardii</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	-	Р
sand bluestem	<u>Andropogon hallii</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
rosy pussytoes,														
rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Artemisia cana ssp.			_	_	_			_	_			_	_
silver sagebrush	<u>cana</u>	Entire plant	ט	ט	ט	ט	ט	ט	D	ט	ט	D	D	D
tarragon, green	And a salate of a second second	Father alout												
sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artomicio frigido	Entire plant	1.1	11	11	11	11	11		11	11	11	U	11
birdfoot	Arternisia irigida	Little plant	U	U	U	U	U	U	U	U	U	U	U	U
sagebrush	Artemisia pedatifida	Entire plant	IJ	IJ	U	IJ	U	u	U	U	IJ	IJ	u	U
Fendler	raterine poddinad	ziiiio piaiii	Ū			Ū		•			Ū	Ū	•	•
threeawn, red	Aristida purpurea var.													
threeawn	<u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	U	U	U	N	Ν	Ν	N	N	N	U	U	U
aster	<u>Aster</u>	Entire plant							U					U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D		D			D	D		D

12	013		ESD Filliable Repor												
		Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Gardner's saltbush	Atriplay gardnari	Entire plant	D	D	D	U	U	U	U	U	U	D	ח	Ь
		Atriplex gardneri	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	sideoats grama	Bouteloua curtipendula	•	_	_	<u>'</u>	_	_	_	-	_	-	•	_	_
	blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	hairy grama	Bouteloua hirsuta Buchloe	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	buffalograss	<u>dactyloides(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	bluejoint,														
	bluejoint	<u>Calamagrostis</u>													
	reedgrass	<u>canadensis</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	inland sedge	Carex interior	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	prairie sandreed	Calamovilfa longifolia	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		<u>Calamagrostis</u>													
	plains reedgrass	<u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	spike sedge	Carex nardina	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Nebraska sedge	Carex nebrascensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	yellow rabbitbrush, green rabbitbrush, low rabbitbrush, Douglas	Chrysothamnus													
	rabbitbrush	viscidiflorus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
	poison hemlock	Conium maculatum	Entire plant	T	Т	Т	Т	T	T	Т	Т	Т	Т	Т	Т
	•	- Comain magaratam		•	•	•		•	•	•	•		•	•	•
	tapertip hawksbeard white prairie	Crepis acuminata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	clover	Dalea candida	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	violet prairie														
	clover, purple	5.4				_								_	
	prairie clover	<u>Dalea purpurea</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	4 <b>4</b> 4	<u>Deschampsia</u>	Entire plant	Б	Р	_	_	_	_	Р	Р	_	_	Р	_
	tufted hairgrass	caespitosa(syn)	Entire plant	Р	•	Р	P	Р	Р	•	•	P	P	•	Р
	inland saltgrass	<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	bearded	Elymus coninus	Entire plant	D	D	D	D	D	D	D	D	Р	D	D	D
	wheatgrass	<u>Elymus caninus</u>	Entire plant	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
	Canada wildrye	Elymus canadensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	squirreltail, bottlebrush	Elymus elymoides ssp.													

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	squirreltail	<u>elymoides</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	streambank wheatgrass,														
	thickspike	Elymus lanceolatus													
	wheatgrass	ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	slender														
	wheatgrass	Elymus trachycaulus	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	horsetail	<u>Equisetum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	rubber	_, .													
	rabbitbrush	Ericameria nauseosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	sulphur-flower buckwheat	<u>Eriogonum</u> <u>umbellatum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	scarlet														
	beeblossom,	0	Fatina alaat												
	scarlet gaura	Gaura coccinea	Entire plant										U		
	American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	stemless mock goldenweed	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	needle and														
	thread,			_	_	_	_	_	_	_	_	_	_	_	_
	needleandthread	Hesperostipa comata	Entire plant	•	-	Р							P		
	iris	<u>Iris</u>	Entire plant	_	U	_	_	_	_	_	_	_	U	_	_
	Baltic rush	Juncus balticus(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Rocky Mountain	luninarua aaanularum	Entire plant						11				U		11
	juniper	Juniperus scopulorum	Entire plant	_	_	_	_	_	_	_	_	_	_	_	_
	praine Junegrass	Koeleria macrantha	Entire plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	D	ט	ט
	winterfat	<u>Krascheninnikovia</u> <u>lanata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	basin wildrye	Leymus cinereus	Entire plant												
	•	<u>Loymus sinorous</u>	Little plant		•	•	•	•	•	•	•	•	•	•	•
	desertparsley, biscuitroot	Lamatium	Entire plant												
	bluebells	Lomatium Mortanaia	Entire plant		D	D		D	D	D			U D		
		Muhlanharaia	Entire plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
	plains muhly, stoneyhills muhly	Muhlenbergia cuspidata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	otoriogramo manay	<u>Muhlenbergia</u>			_			_	_	_			_	_	_
	mat muhly	<u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	green		•												
	needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	western														
	wheatgrass	<u>Pascopyrum smithii</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	large Indian														
	breadroot, breadroot	<u>Pediomelum</u>													
	scurfpea	<u>esculentum</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	ponderosa pine	Pinus ponderosa	Entire plant										U	_	_
	policiosa pino	ao portaoroda	o plant	_	_	_	_	_	_		_	_	_	_	_

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Sandberg bluegrass	Poa canbyi(syn)	Entire plant	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р
Cusick's bluegrass, Cusick bluegrass	<u>Poa cusickii</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains cottonwood	Populus deltoides ssp. monilifera	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big bluegrass, Canby bluegrass, alkali	,													
bluegrass	<u>Poa secunda</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all	horses													
Common name	Scientific name	Plant part	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
Sandberg bluegrass	<u>Poa secunda ssp.</u> <u>juncifolia(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All	horses													
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
bluebunch wheatgrass	<u>Pseudoroegneria</u> <u>spicata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's alkaligrass upright prairie	Puccinellia nuttalliana	Entire plant	Р	Ρ	Р	Р	Р	Ρ	Ρ	Р	Р	Р	Р	Р
coneflower, prairie														
coneflower	Ratibida columnifera	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Rosa woodsii var.	•												
Woods' rose	<u>woodsii</u>	Entire plant	_	U	_	_	U	_	_	_	_	_	U	
willow	<u>Salix</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all														
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	A	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
greasewood	<u>Sarcobatus</u> <u>vermiculatus</u>	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
Animal kind: All	horses													
Common name	Scientific name Schizachyrium	Plant part	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
little bluestem	scoparium	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue-eyed grass alkali sacaton	<u>Sisyrinchium</u> <u>Sporobolus airoides</u>	Entire plant Entire plant	D P	D P	D P	D P	D	D P	D P	D P	D P	D	D P	D
ainaii Saudluii	<u>opurubulus all'ulues</u>	Enuie plant		_	_	_	_	_	_	_	_	_	_	Г

sand dropseed	<u>Sporobolus</u> <u>cryptandrus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all	horses													
Common name	Scientific name	Plant part	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
alkali cordgrass	Spartina gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All	horses													
Common name	Scientific name	Plant part	J	F	<u>M</u>	Α	<u>M</u>	J	J	Α	<u>S</u>	0	<u>N</u>	D
Pursh seepweed	Suaeda calceoliformis	Entire plant	Ū	U	U	U	U	U	U	U	U	U	U	U
western	Symphoricarpos	•												
snowberry	<u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Thermopsis</u>													
prairie thermopsis	<u>rhombifolia var.</u> <u>annulocarpa(syn)</u>	Entire plant	U	11	U	U	U	11	11	11	11	11	U	
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail		Entire plant	D.	ח	ח	D	D.	D	D	D	D	D	D	D
broadleaf cattail	Typha latifolia	Entire plant	ם	D	ם	D	D	D	D	D	D	D	D	D
American vetch	Vicia americana	Entire plant	Р	Р	_	Р	Р	Р		Р	_		Р	_
soapweed yucca		Little plant	•	•	•	•	•	•	'	•	•	•	•	•
small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
•		•												
Animal kind: All	sheep													
Common name	Scientific name	Plant part	<u>J</u>	<u>E</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Achnatherum</u>		_	_	_	_	_	_	_	_	_	_	_	_
Indian ricegrass	<u>hymenoides</u>	Entire plant	-	-	-	-	-	-	-	•		-	Р	-
textile onion	Allium textile	Entire plant		D							D		_	_
big bluestem	Andropogon gerardii	Entire plant	Р	_	Р	=							Р	
sand bluestem	<u>Andropogon hallii</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes,	A m 4 m m m m m m m m m m m m m m m m m	Entire plant												
rose pussytoes	Antennaria rosea	Entire plant											U	
silver sagebrush	<u>Artemisia cana</u>	Entire plant	D	D	D	ט	ט	D	D	D	D	D	D	ט
tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort,														
fringed sagewort					11	Ш	U	U	U	U	U	U	U	U
birdfoot	<u>Artemisia frigida</u>	Entire plant	U	U	U	0	•		_	_				
	_	•												
sagebrush	Artemisia frigida  Artemisia pedatifida	Entire plant Entire plant									U		U	U
sagebrush Fendler	Artemisia pedatifida	•									U		U	U
sagebrush	Artemisia pedatifida  Aristida purpurea var.	•	U	U	U	U	U	U	U	U		U	U	
sagebrush Fendler threeawn, red threeawn	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U		U
sagebrush Fendler threeawn, red	Artemisia pedatifida  Aristida purpurea var. longiseta	Entire plant Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

_	3.0		LOD I IIII MADIO I KOPOI												
	sagebrush	ssp. wyomingensis	Entire plant	Р	Р	Р	D	D	D	D	D	D	Р	Р	Р
	twogrooved						_	_		_	_	_	_		_
	milkvetch	Astragalus bisulcatus	Entire plant		N		Τ	Τ	T	T	T	Τ	Τ	T	Τ
	aster	<u>Aster</u>	Entire plant	U	U	U	U	U	U	U	_	_	U	_	U
	milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	•	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Gardner's saltbush	Atriploy gordnori	Entire plant	Р	Р	Р	Р	Р	Р	Р	В	Р	Р	Р	Р
		Atriplex gardneri	Entire plant	_	_	<b>P</b>	_	_	_	_	_	_	•	_	_
	blue grama	Bouteloua gracilis	Entire plant	D	D	ח	D	D	D	D	D	D	D	D	D
	hairy grama	Bouteloua hirsuta Buchloe	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	buffalograss	<u>dactyloides(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	bluejoint,	<u> </u>			_	_	_	_	_	_	_		_	_	_
	bluejoint	<u>Calamagrostis</u>													
	reedgrass	<u>canadensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	inland sedge	Carex interior	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	prairie sandreed	Calamovilfa longifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
		<u>Calamagrostis</u>			_	_	_								
	plains reedgrass	<u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	spike sedge	<u>Carex nardina</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Nebraska sedge	Carex nebrascensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	yellow														
	rabbitbrush, green														
	rabbitbrush, low														
	rabbitbrush,														
	Douglas	<u>Chrysothamnus</u>		_	_	_	_	_	_	_	_	_	_	_	_
	rabbitbrush	<u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
	poison hemlock	Conium maculatum	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
	tapertip	One wie a comminate	Cutina alaut	Б	_	_	_	_	_	_	_	_	_	_	_
	hawksbeard	<u>Crepis acuminata</u>	Entire plant	۲	۲	۲	۲	۲	۲	۲	۲	Р	۲	۲	۲
	white prairie clover	Dalea candida	Entire plant	Р	P	P	Р	Р	Р	Р	P	Р	Р	Р	P
	violet prairie	<u>Dalea candida</u>	Little plant	'	•	'	'	'	•	•	•	•	•	•	•
	clover, purple														
	prairie clover	Dalea purpurea	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		<u>Deschampsia</u>													
	tufted hairgrass	caespitosa(syn)	Entire plant	Р	P	Р	Р	P	Р	P	Р	Р	Р	P	P
	inland saltgrass	Distichlis spicato	Entire plant	•	•	•	-	-	-	-	-	U	•	•	U
	bearded	<u>Distichlis spicata</u>	Little plant	J	J	J	J	J	J	J	J	J	J	J	J
	wheatgrass	Elymus caninus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
			Piccin	_	_	_	_	_	_	_	_	_	_	_	_

12	013		ESD Filliable Report	L											
	Canada wildrye	Elymus canadensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	streambank wheatgrass, thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	slender wheatgrass	Elymus trachycaulus	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	horsetail	<u>Equisetum</u>	Entire plant	U	U	U	-	-	U	U	U	U	U	U	U
	rubber	<u></u>													_
	rabbitbrush	Ericameria nauseosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	sulphur-flower buckwheat	<u>Eriogonum</u> <u>umbellatum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	scarlet beeblossom,	Coura coccinco	Entire plant						U						
	scarlet gaura	Gaura coccinea	Entire plant Entire plant						U						
	broom	<u>Glycyrrhiza lepidota</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	snakeweed	Gutierrezia sarothrae	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	stemless mock goldenweed	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	needle and thread,														
		Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Rocky Mountain juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
		<u>Krascheninnikovia</u>		_				_			_				
	winterfat	<u>lanata</u>	Entire plant												
	basin wildrye	<u>Leymus cinereus</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant						D						
	bluebells	<u>Mertensia</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	plains muhly, stoneyhills muhly	<u>Muhlenbergia</u> <u>cuspidata</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	mat muhly green	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

2010		LOD I IIII LODO I KOPO	•										
needlegrass	Nassella viridula	Entire plant	PP	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western wheatgrass	Pascopyrum smithii	Entire plant	D D	ח	D	П	П	П	П	ח	ח	ח	D
large Indian	<u>r ascopyrum smum</u>	Little plant			0			ט		ט	ט	ט	0
breadroot,													
breadroot	<u>Pediomelum</u>	Futing along	<b>D D</b>		_	_	_	_	_	_	_	_	_
scurfpea	esculentum  Dinus pandarasa	Entire plant Entire plant	D D U U	_	_	_	D U	_	_	U	D	_	U
ponderosa pine Sandberg	<u>Pinus ponderosa</u>	Entire plant	0 0	U	U	U	U	U	U	U	U	U	U
bluegrass	Poa canbyi(syn)	Entire plant	PΡ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's		·											
bluegrass,	Dog ovojekij	Entire plant	PΡ		Ь	_	Ь	Ь	Ь	Ь	_	_	Ь
Cusick bluegrass plains	Populus deltoides ssp.	Entire plant	PP	-	٢	۲	٢	٢	٢	۲	٢	۲	Ρ
cottonwood	monilifera	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
Sandberg		•											
bluegrass, big	_												
bluegrass, Canby bluegrass, alkali													
bluegrass	<u>Poa secunda</u>	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
Sandberg	Poa secunda ssp.			_	_	_	_	_	_	_	_	_	_
bluegrass	juncifolia(syn)	Entire plant	PP	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch wheatgrass	<u>Pseudoroegneria</u> <u>spicata</u>	Entire plant	РΡ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's	<u>oproata</u>	Entiro piant		•	•	•	•	•	•	•	•	•	•
alkaligrass	Puccinellia nuttalliana	Entire plant	PP	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
upright prairie													
coneflower, prairie													
coneflower	Ratibida columnifera	Entire plant	PP	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
skunkbush													
sumac	Rhus trilobata	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
				_	_	_	_	_	_	_	_	_	_
Woods' rose	<u>Rosa woodsii var.</u> woodsii	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
willow	<u>Salix</u>	Entire plant	PΡ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Sarcobatus</u>	·											
greasewood	<u>vermiculatus</u>	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	Entire plant	РΡ	Р	Р	P	Р	Р	P	Р	P	Р	Þ
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	P P	•	-	•	-	•	-	•	•	•	-
bido oyod gidoo	<u>Sporobolus</u>	Entiro piant	•	•	•	•	•	•	•	•	•	•	•
sand dropseed	<u>cryptandrus</u>	Entire plant	D D	D	D	D	D	D	D	D	D	D	D
Pursh seepweed	Suaeda calceoliformis	Entire plant	U U	U	U	U	U	U	U	U	U	U	U
western	<u>Symphoricarpos</u>				_	_	_	_	_		_	_	_
snowberry	<u>occidentalis</u>	Entire plant	UU	U	U	U	U	U	U	U	U	U	U

	<u>Thermopsis</u>													
prairie	<u>rhombifolia var.</u>													
thermopsis	<u>annulocarpa(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	T	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	<u>Typha latifolia</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р
soapweed yucca, small soapweed		Entire plant	П	П	П	П	n	П	П	П	П	П	П	П
Siliali Suapweeu	<u>Tucca yiauca</u>	⊏iiiiie piani	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט

Legend: P=Preferred; D=Desirable; U=Undesirable; N=Not consumed; E=Emergency; T=Toxic; X=Used, but degree of utilization unknown

## **Hydrology Functions**

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from moderately slow to moderate. Runoff potential for this site varies from low to moderate depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

#### **Recreational Uses**

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

#### **Wood Products**

No appreciable wood products are present on the site.

#### **Other Products**

None noted.

## **Supporting Information**

#### **Associated Sites**

<u>Site name</u> <u>Site ID</u> <u>Site narrative</u>

Clayey (Cy) R058BY104WY Clayey
Lowland (LL) R058BY128WY Lowland
Overflow (Ov) R058BY130WY Overflow
Sandy (Sy) R058BY150WY Sandy

Shallow Loamy (SwLy) R058BY162WY Shallow Loamy

#### **Similar Sites**

Site name Site ID Site narrative

Loamy (Ly) R058BY222WY Loamy 15-17" Northern Plains P.Z. has higher

production.

#### **State Correlation**

This site has been correlated with the following states: MT

## **Inventory Data References**

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used. Those involved in developing this site include: Glen Mitchell, Range Management Specialist, NRCS; Chuck Ring, Range Management Specialist, NRCS; and Everet Bainter, Range Management Specialist. Other sources used as references include USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References
Data Source Number of Records Sample Period State County
SCS-RANGE-417 12 1971-1994 WY Campbell & others
Ocular estimates 5 1990-1999 WY Campbell & others

#### Other References

Field Offices

Buffalo, Douglas, Gillette, Lusk, Newcastle, Sheridan

## **Original Site Description Approval**

Author Date Approval Date
G. Mitchell 4/25/2000 E. Bainter 3/7/2008

## **Reference Sheet**

Aut	hor(s)/participant(s):
Cor	ntact for lead author:
Nor and	e: 4/1/2005 MLRA: 058B Ecological Site: Loamy (Ly) 10-14" thern Plains Precipitation Zone R058BY122WY This <i>must</i> be verified based on soils climate (see Ecological Site Description). Current plant community cannot be used to ntify the ecological site.
<b>Cor</b> Cov	mposition (indicators 10 and 12) based on: X Annual Production, Foliar ver, Biomass
nun <b>eac</b>	icators. For each indicator, describe the potential for the site. Where possible, (1) use aboves, (2) include expected range of values for above- and below-average years for <b>h</b> community and natural distrurbance regimes within the reference state, when ropriate and (3) cite data. Continue descriptions on separate sheet.
1.	Number and extent of rills: Rills should not be present.
2.	Presence of water flow patterns: Barely observable.
3.	Number and height of erosional pedestals or terracettes: Essentially non-existent.
4.	Bare ground from Ecological Site Description or other studies (rock, litter, standing dead, lichen, moss, plant canopy are not bare ground): Bare ground is 20-30% occurring in small areas throughout site.
5.	Number of gullies and erosion associated with gullies: Active gullies should not be present.
,	

6. Extent of wind scoured, blowouts and/or depositional areas: None

- 7. Amount of litter movement (describe size and distance expected to travel): Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces.
- 8. Soil surface (top few mm) resistance to erosion (stability values are averages most sites will show a range of values): Plant cover and litter is at 70% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 5 or greater.
- 9. Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness): Use Soil Series description for depth and color of A-horizon.
- 10. Effect on plant community composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Healthy deep rooted native grasses enhance infiltration and reduce runoff. Infiltration is Moderate.
- 11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.
- 12. Functional/Structural Groups (list in order of descending dominance by aboveground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to) with dominants and sub-dominants and "others" on separate lines:

Dominant: Cool Season Bunch grasses > Cool Season Rhizomatous grasses > Short

stature grasses/grasslikes > Forbs = Shrubs

Sub-dominant:

Other:

Additional:

13.	Amount of plant mortality	and decadence	(include which	functional group	os are
	expected to show mortalit	y or decadence)	: Very Low.		

- **14. Average percent litter cover (%) and depth (inches):** Average litter cover is 25-35% with depths of 0.25 to 1.0 inches.
- 15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1200 lbs/ac
- 16. Potential invasive (including noxious) species (native and non-native). List Species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicator, we are describing what is NOT expected in the reference state for the ecological site: Blue grama, Threadleaf sedge, Fringed sagewort, Prickly Pear, Big sagebrush, Broom Snakeweed, and Species found on Noxious Weed List
- 17. Perennial plant reproductive capability: All species are capable of reproducing.

## **Reference Sheet Approval**

Approval Date
E. Bainter 3/7/2008

United States Department of Agriculture Natural Resources Conservation Service Ecological Site Description

## Section I: Ecological Site Characteristics

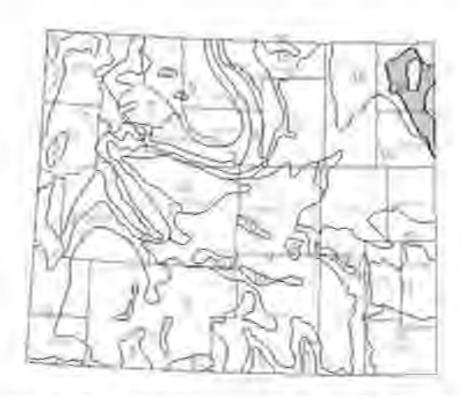
**Ecological Site Identification and Concept** 

Site name: Learny (Ly) 15-19" Procipitation Zone, Black Hills

Site type: Rangeland Site ID: R061XY122WY

Major land resource area (MLRA): 081-Black Hills Foot Stopes

Emarphiblion Zonus for Rangollino Ecological Site Descriptions



## **Physiographic Features**

This site occurs on land nearly level, up to 50% slopes.

Landform: (1) Hill

(2) Alluvial fan

(3) Stream terrace

MinimumMaximumElevation (feet):35005000Slope (percent):06Water table depth (inches):60

Flooding

Frequency: None None

**Ponding** 

Depth (inches):00Frequency:NoneNoneRunoff class:LowMedium

Aspect: No Influence on this site

## **Climatic Features**

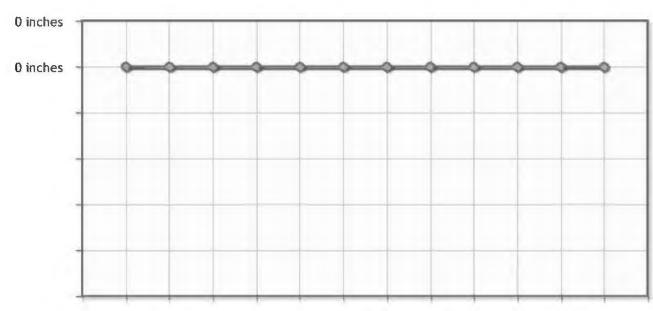
Annual precipitation ranges from 15-19 inches per year. Wide fluctuations may occur in vearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring. Strong winds are less frequent than over other areas of Wyoming. Occasional storms, however, can bring brief periods of high winds with gusts exceeding 50 mph. Growth of native cool season plants begins about April 1 and continues to about July 1. Native warm season plants begin about May 15 and continue to about August 15. Fall green-up may occur in September and last through October. The following information is from the "Devils Tower 2" climate station: Minimum Maximum 5 yrs. out of 10 between Frost-free period (days) (32°F): 58 93 June 6 - September 7 Freeze-free period (days) (28°F): 95 125 May 18 – September 20 Annual Precipitation (inches): 14.81 20.17 Mean annual precipitation: 17.66 inches Mean annual air temperature: 44.4 F (28.6 F Avg. Min. to 60.1 F Avg. Max.) For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include "Hulett" and "Sundance"

#### **Averaged**

Frost-free period (days): 75
Freeze-free period (days): 110
Mean annual precipitation (inches): 20.17

#### Monthly Precipitation (Inches):

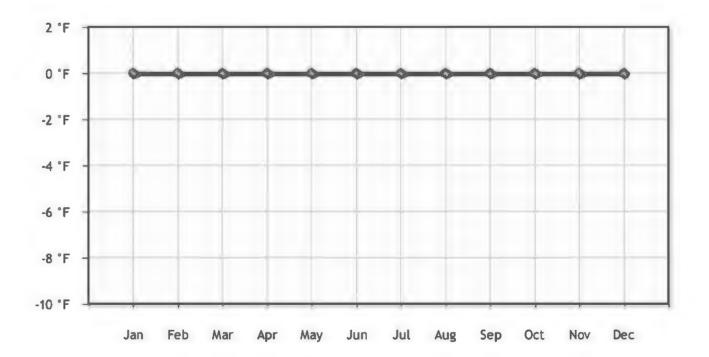
<u>Jan</u> Feb Mar Apr May <u>Jun</u> <u>Jul</u> Aug Sep Oct Nov Dec 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Hiah 0.000.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Low



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

## Monthly Temperature (°F):

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	May	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	Nov	<u>Dec</u>
High	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



## **Influencing Water Features**

Influencing Water Features

Wetland Description: System Subsystem Class Sub-class

None None None None

Stream Type: None

## **Representative Soil Features**

The soils of this site are deep to moderately deep (greater than 20" to bedrock), well-drained & moderately permeable. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick. These layers consist of the A horizon with very fine sandy loam, loam, or silt loam texture and may also include the upper few inches of the B horizon with sandy clay loam, silty clay loam or clay loam texture.

Parent Material Kind: residuum and alluvium Parent Material Origin: sandstone, unspecified

Surface Texture: loamy, silt loam, very fine sandy loam

Surface Texture Modifier: none is most common but gravelly or cobbly may occur

Subsurface Texture Group: loam Surface Fragments < 3" (% Cover): 0

Surface Fragments > 3" (%Cover): typically 0, occasionally up to 10

Subsurface Fragments < 3" (% Volume): typically 0, occasionally up to 20 Subsurface Fragments > 3" (% Volume): typically 0, occasionally up to 10

Minimum Maximum

Drainage Class: moderately well drained well drained

Permeability Class: moderately slow moderate

Depth (inches): 20 >60

Electrical Conductivity (mmhos/cm) <20": 0 4

Sodium Absorption Ratio <20": 0 5 Soil Reaction (1:1 Water) <20": 7.8 8.4 Soil Reaction (0.1M CaCl2) <20": NA NA

Available Water Capacity (inches) <30": 2.1 5.5 Calcium Carbonate Equivalent (percent) <20": 0 10

Surface texture: (1) Loam

(2) Silt loam

(3) Very fine sandy loam

Subsurface texture group: Loamy

Minimum

Maximum

Surface fragments <=3" (% cover):	0	0
Surface fragments >3" (% cover):	0	10
Subsurface fragments <=3" (% volume):	0	20
Subsurface fragments >3" (% volume):	0	10

Drainage class: Moderately well drained to well

drained

Permeability class: Moderately slow to moderate

	<u>Minimum</u>	<u>Maximum</u>
Depth (inches):	20	60
Available water capacity (inches):	2.10	5.50
Electrical conductivity (mmhos/cm):	0	4
Sodium adsorption ratio:	0	5
Calcium carbonate equivalent (percent):	0	10
Soil reaction (1:1 water):	7.8	8.4

#### **Plant Communities**

#### **Ecological Dynamics of the Site**

**Ecological Dynamics of the Site:** 

As this site deteriorates because of a combination of frequent and severe grazing, species such as blue grama and big sagebrush will increase. Grasses such as green needlegrass, needleandthread, big bluestem, little bluestem and western wheatgrass will decrease in frequency and production.

Big sagebrush may become dominant on some areas with an absence of fire. Wildfires are actively controlled in recent times so chemical control using herbicides has replaced the historic role of fire on this site. Recently, prescribed burning has regained some popularity.

The site is resilient when sagebrush is removed if a healthy and vigorous stand of grass exists and is maintained. The exception to this is where the herbaceous component is severely degraded at the time of treatment, growing conditions are unfavorable after treatment, and/or recovery periods are inadequate.

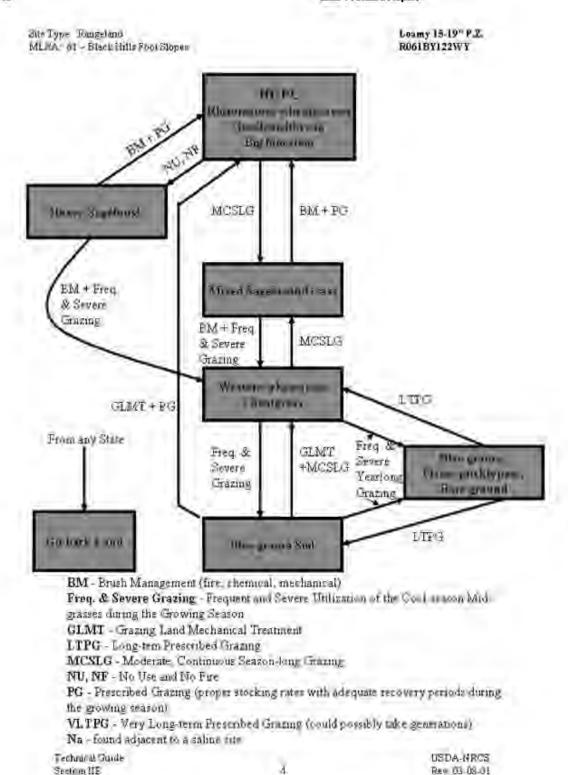
The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.

#### **Plant Community Narratives**

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC's) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

#### **State-and-Transition Diagram**



## Rhizomatous wheatgrasses needleandthread/Big bluestem

Rhizomatous Wheatgrasses/ Needleandthread/Big Bluestern Plant Community
This plant community is the interpretive plant community for this site and is considered to be
the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by
large herbivores and is well suited for grazing by domestic livestock. This plant community
can be found on areas that are properly managed with grazing and/or prescribed burning,

and on areas receiving occasional short periods of rest. The potential vegetation is about 75% grasses or grass-like plants, 15% forbs, and 10% woody plants. A mix of warm and cool season mid-grasses dominates the state.

The major grasses include western wheatgrass, needleandthread, big bluestem, little bluestem, and green needlegrass. Other grasses occurring on the state include threadleaf sedge, Sandberg bluegrass, bluebunch wheatgrass, blue grama, and sideoats grama. A variety of forbs and half-shrubs also occur, as shown in the preceding table. Big sagebrush is a conspicuous element of this state, occurs in a mosaic pattern, and makes up 5 to 10% of the annual production. Plant diversity is high.

The total annual production (air-dry weight) of this state is about 2200 lbs/acre, but it can range from about 1500 lbs/acre in unfavorable years to about 3000 lbs/acre in above average years.

This plant community is extremely stable and well adapted to the Black Hills Foot Slopes climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- No use and no fire for 20 years or more will convert this plant community to the Heavy Sagebrush Plant Community.
- Moderate, continuous season-long grazing will convert the plant community to the Mixed Sagebrush/Grass Plant Community.
- When cropped annually and then abandoned without reseeding, the state is converted to the Go-back Land Plant Community.

#### Rhizomatous wheatgrasses needleandthread/Big bluestem Plant Species Composition

	Grass/Gras	sslike			Annual Prod (pounds per	
<u>Group</u> 1	Group name	Common name	<u>Symbol</u>	Scientific name	<u>Low</u> 220	<u>High</u> 550
		streambank wheatgrass, thickspike wheatgrass	ELLAL	Elymus lanceolatus ssp. lanceolatus	220	550
		western wheatgrass	PASM	Pascopyrum smithii	220	550
2		green needlegrass	NAVI4	Nassella viridula	220 220	550 550
3		Columbia			220	550

2,2010			LOD I Illiadio Roport		
	needlegrass, subalpine needlegrass	ACNE9	<u>Achnatherum</u> <u>nelsonii</u>	220	550
4				220	550
	Richardson's needlegrass	ACRI8	<u>Achnatherum</u> <u>richardsonii</u>	220	550
5				220	330
	needle and thread, needleandthread	HECO26	<u>Hesperostipa</u> <u>comata</u>	220	330
6				110	220
	blue wildrye	ELGL	Elymus glaucus	110	220
7				110	220
	sideoats grama	BOCU	<u>Bouteloua</u> <u>curtipendula</u>	110	220
8				110	220
	blue grama	BOGR2	Bouteloua gracilis	110	220
9				110	220
	Cusick's bluegrass, Cusick bluegrass	POCU3	<u>Poa cusickii</u>	110	220
10				220	550
	Grass, perennial	2GP		0	110
	big bluestem	ANGE	Andropogon gerardii	0	110
	Pumpelly's brome	BRINP5	Bromus inermis ssp. pumpellianus var. pumpellianus	0	110
	threadleaf sedge	CAFI	Carex filifolia	0	110
	plains reedgrass	CAMO	<u>Calamagrostis</u> <u>montanensis</u>	0	110
	onespike danthonia, onespike oatgrass	DAUN	<u>Danthonia</u> <u>unispicata</u>	0	110
	bearded wheatgrass		Elymus caninus	0	110
	slender wheatgrass	ELTR7	Elymus trachycaulus	0	110
	prairie Junegrass spike fescue,	KOMA	Koeleria macrantha	0	110 110
	kingspike fescue	LEKI2	<u>Leucopoa kingii</u>	0	
	Sandberg bluegrass		Poa canbyi(syn)	0	110
	fowl bluegrass Sandberg	POPA2	<u>Poa palustris</u>	0	110
	bluegrass, big bluegrass, Canby bluegrass, alkali bluegrass	POSE	<u>Poa secunda</u>	0	110
	bluebunch wheatgrass	PSSP6	<u>Pseudoroegneria</u> <u>spicata</u>	0	110
	little bluestem	scsc	<u>Schizachyrium</u> <u>scoparium</u>	0	110

2/2015			ESD Printable Report		
Forb					roduction per acre)
<u>Group</u> <u>Group</u> <u>name</u> 11	Common name	<u>Symbol</u>	Scientific name	<u>Low</u> 220	<u>High</u> 330
• •	Forb, perennial	2FP		0	110
	prairie sagewort, fringed sagewort	ARFR4	Artemisia frigida	0	110
	white sagebrush, cudweed sagewort	ARLU	<u>Artemisia</u> Iudoviciana	0	110
	prairie clover	DALEA	<u>Dalea</u>	0	110
	fleabane	ERIGE2	<u>Erigeron</u>	0	110
	buckwheat	ERIOG	<u>Eriogonum</u>	0	110
	desertparsley, biscuitroot	LOMAT	<u>Lomatium</u>	0	110
	bluebells	MERTE	<u>Mertensia</u>	0	110
	silverleaf Indian breadroot	PEAR6	<u>Pediomelum</u> <u>argophyllum</u>	0	110
	beardtongue, penstemon	PENST	<u>Penstemon</u>	0	110
	upright prairie coneflower, prairie coneflower	RACO3	Ratibida columnifera	0	110
	American vetch	VIAM	Vicia americana	0	110
	deathcamas	ZIGAD	<u>Zigadenus</u>	0	110
Shrub/Vi	ine				roduction per acre)
<u>Group</u> <u>Group</u> <u>name</u>	Common name	<u>Symbol</u>	Scientific name	<u>Low</u>	<u>High</u>
12				0	110
	big sagebrush	ARTR2	Artemisia tridentata	0	110
13				0	110
	Shrub (>.5m)	2SHRUB		0	110

#### Plant Growth Curve

Growth curve

number:

WY1601

Growth curve

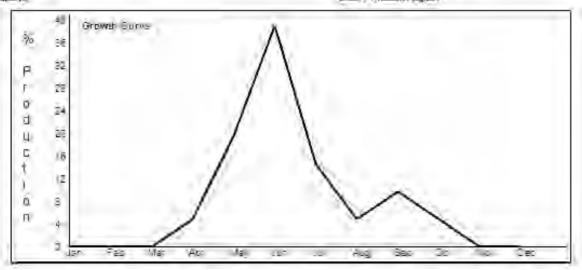
name:

15-19BL Upland sites

Growth curve description:

**Percent Production by Month** 

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	5	20	40	15	5	10	5	0	0



## Mixed sagebrush/grass

Mixed Sagebrush/Grass Plant Community

Historically, this plant community evolved under grazing by bison and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock in the absence of fire or brush management. Big sagebrush is a significant component of this plant community. A mix of warm and cool-season grasses make up the majority of the understory with the balance made up of annual cool-season grasses, and miscellaneous forbs.

Dominant grasses include needleandthread, western wheatgrass, little bluestern and green needlegrass. Grasses of secondary importance include blue grams, prairie junegrass, and Sandberg bluegrass. Forbs commonly found in this plant community include plains wallflower, hairy goldaster, slimflower scurfpea, and scarlet globernallow. Sagebrush canopy ranges from 20% to 30%. Fringed sagewort is commonly found. Plains pricklypear can also occur.

When compared to the Historic Climax Plant Community, sagebrush and blue grams have increased. Production of cool-season grasses, particularly green needlegrass, has been reduced. The cool-season mid-grasses are protected by the sagebrush canopy, but this protection makes them unavailable for grazing. Cheatgrass (downy brome) has invaded the state. The overstory of sagebrush and understory of grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as mule deer and antelops.

The total annual production (air-dry weight) of this state is about 1600 pounds per acre, but it can range from about 900 lbs/acre in unfavorable years to about 2500 lbs/acre in above average years.

This plant community is resistant to change. A significant reduction of big sagebrush can only be accomplished through fire or brush management. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

Transitions or pathways leading to other plant communities are as follows:

- Brush management (chemical, fire, or mechanical), followed by prescribed grazing, will convert this plant community to the Rhizomatous wheatgrasses/ Needleandthread/ Big Bluestem Plant Community. The probability of this occurring is high. When prescribed fire is used, sufficient fine fuels will need to be present. This may require deferment from grazing prior to treatment. Post management is critical to ensure success. This can range from two or more years of rest to partial growing season deferment, depending on the condition of the understory at the time of treatment and the growing conditions following treatment.
- Brush management, followed by frequent and severe grazing, will convert the plant community to the Western Wheatgrass/Cheatgrass Plant Community. The probability of this occurring is high. If bare areas exist after treatment, along with no recovery periods from grazing, cheatgrass will invede and plants not as resistant to grazing, such as green needlegrass, will be reduced.

#### Plant Growth Curve

Growth curve

WY1801

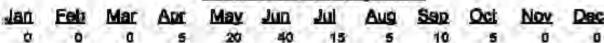
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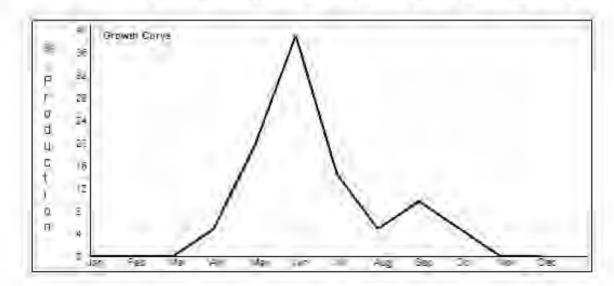
Growth curve name:

15-19BL Upland shee

Growth curve description:

#### Percent Production by Month





### Heavy Sagebrush

**Heavy Sagebrush Plant Community** 

This plant community is the result of long-term protection from grazing and fire. Big sagebrush eventually dominates this plant community with canopy cover often exceeding 60%. At first, excessive litter builds up shading out some of the grasses and forbs. Other plants become decadent with low vigor. Bunch grasses often develop dead centers. Eventually, the interspaces between plants increase in size leaving more soil surface exposed. Organic matter oxidizes in the air rather than being incorporated into the soil.

The dominant plants tend to be somewhat similar to those found in the Historic Climax Plant Community. Weedy species, cool-season grasses, and sedges have increased. Blue grama has decreased. Rodent activity has resulted in an increase in soil disturbance. Cactus and sageworts often increase. Noxious weeds such as Dalmatian toadflax, leafy spurge, or Canada thistle may invade the state if a seed source is present. Plant diversity is moderate to high.

The total annual production (air-dry weight) of this state is about 1200 pounds per acre, but it can range from about 900 lbs/acre in unfavorable years to about 2400 lbs/acre in above average years.

This plant community is not resistant to change and is more vulnerable to severe disturbance than the HCPC. The introduction of grazing or fire quickly changes the plant community.

Soil erosion is accelerated because of increased bare ground. Water flow patterns and pedestaling are obvious. Infiltration is reduced and runoff is increased.

Transitions or pathways leading to other plant communities are as follows:

- Brush management, followed by prescribed grazing, will return this plant community to at or near the Rhizomatous Wheatgrasses/ Needleandthread/ Big Bluestem Plant Community.
- Brush management, followed by frequent and severe grazing, will convert the plant community to the Western Wheatgrass/Cheatgrass Plant Community. The probability of this occurring is high because of the amount of bare ground exposed to cheatgrass invasion.

#### Plant Growth Curve

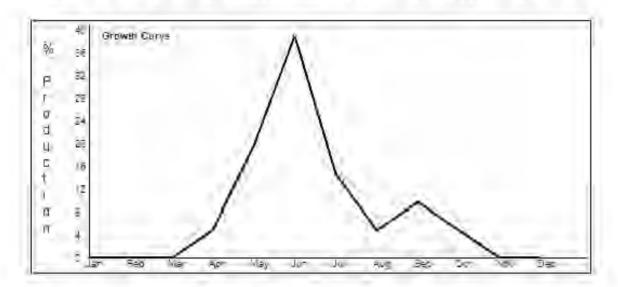
Growth curve wy1601

Growth curve

15-19BL Upland sites

name:

Growth curve description:



## Western wheatgrass/ cheatgrass

Western Wheatgrass/Cheatgrass Plant Community

This plant community is created when the Mixed Sagebrush/Grass Plant Community or the Heavy Sagebrush Plant Community is subjected to fire or brush management not followed by prescribed grazing. Rhizomatous wheatgrasses and annuals will dominate the state.

Compared to the HCPC, cheatgrass has invaded with western wheatgrass and thickspike wheatgrass maintaining at a similar or slightly higher level. Virtually all other cool-season mid-grasses are severely decreased. Blue grama is the same or slightly less than found in the HCPC. Plant diversity is low.

The total annual production (air-dry weight) of this state is about 1100 pounds per acra, but it can range from about 800 lbs/acre in unfavorable years to about 1500 lbs/acre in above average years.

This plant community is relatively stable with the rhizomatous wheatgrasses being somewhat resistant to overgrazing and the cheatgrass effectively competing against the establishment of perennial cool-season grasses.

An increase in bare ground reduces water infiltration and increases soil erosion. The watershed is usually functioning. The biotic integrity is reduced by the lack of diversity in the plant community.

Transitions or pathways leading to other plant communities are as follows:

- Moderate continuous season-long grazing will eventually return this plant community to the Mixed Sagebrush/Grass Plant Community.
- Frequent and severe grazing will convert this plant community to Blue Grama Sod Plant Community.

- Frequent and severe yearlong grazing will convert this plant community to Blue grama. Plains Pricklypear/ Bare Ground Plant Community.
- Long-term, prescribed grazing will eventually return this plant community to at or near the Rhizomatous Wheaturasses/ Needleandthread/ Big Bluestern Plant Community.

#### Plant Growth Curve

Growth curve

WY1801

number.

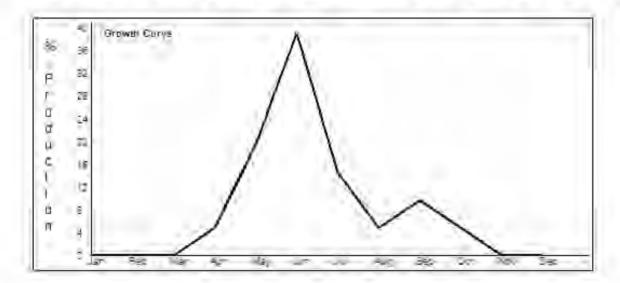
Growth curve

15-19BL Upland alles

name:

Growth curve description:

Percent Production by Month Sep Nov Dec Mar Oct Apr



## Blue grama sod

Blue Grama Sod Plant Community

This plant community is the result of frequent and severe grazing during the growing season of the cool-season mid-grasses. A dense sod of blue grama dominates. Pricklypear cactus can become dense enough so that livestock cannot graze forage growing within the cactus clumps.

When compared to the Historic Climax Plant Community, blue grams and threadlesf sedge have increased. All cool-season mid-grasses and forbs have been greatly reduced. Plant diversity is extremely low.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 450 lbs/acre in unfavorable years to about 1100 lbs/acre in above average years.

This sod bound plant community is very resistant to water infiltration. While this sod protects the state itself, off-site areas are affected by excessive runoff that can cause gully erosion. This sod is very resistant to change and may require grazing land mechanical treatment, such as chiseling, to return the cool-season grass component.

Transitions or pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling, etc.) and pricklypear cactus control (if needed), followed by prescribed grazing, will return this plant community to near Historic Climax Plant Community condition.
- Grazing land mechanical treatment, followed by moderate continuous season-long grazing, will convert this plant community to the Western Wheatgrass/Cheatgrass Plant Community.
- Frequent and severe yearlong grazing will eventually convert this state to the Blue Grama/ Plains Pricklypear/ Bare Ground Plant Community.

#### Plant Growth Curve

Growth curve

number:

WY1601

Growth curve

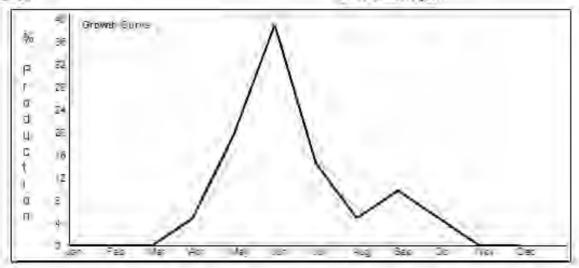
name:

15-19BL Upland sites

Growth curve description:

Percent Pi	oduction	by I	Month:
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<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	5	20	40	15	5	10	5	0	0



## blue grama/plains pricklypear/bare ground

Elue Grama/ Plains Pricklypear/ Bare Ground Plant Community
This plant community is the result of frequent and severe yearlong grazing over the long-term. Perennial plants are decreased. Cheatgrass, annual weeds, and bare ground have increased. Plains pricklypear has increased, rendering much of the forage unusable by livestock.

This plant community is highly variable depending on the severity, frequency, and duration of the grazing and also the condition of the plant community when this level of grazing began. Virtually all plants not resistant to overgrazing may have been eliminated. Dominant plants may include blue grama, threeawns, annuals, and rhizomatous wheatgrasses to a lesser degree. Perennial plant diversity is low.

The total annual production (air-dry weight) of this state is about 600 pounds per acre, but it can range from about 400 lbs/acre in unfavorable years to about 800lbs/acre in above average years.

This state is unhealthy and subject to increased erosion. Runoff is high on these states due to the sod nature of blue grams and bare ground.

Transitions or pathways leading to other plant communities are as follows:

- Long-term prescribed grazing will convert this plant community initially to the Blue Grama Sod Plant Community, when the state is dominated by blue grama sod at the time of treatment.
- Long-term prescribed grazing will convert this plant community to the Western Wheatgrass
  /Cheatgrass Plant Community, when the state has large amounts of cheatgrass, annual
  weeds, and bare ground at the time of treatment. Control of plains pricklypear cactus may be
  necessary.

Reseading areas with native plant species and proper grazing management may be necessary to accelerate recovery where few desirable plants remain.

#### Plant Growth Curve

Growth curve number:

WY1801

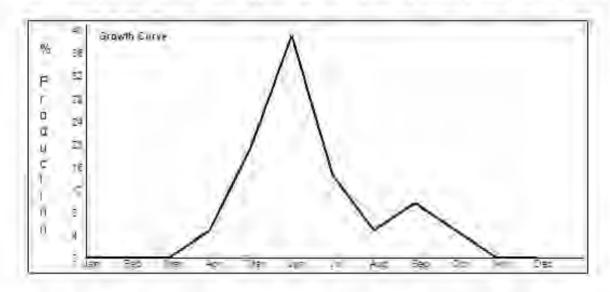
Growth curve

15-19BL Upland siles

name:

Growth curve description:

Percent Production by Month												
Jan	Feb	Mac	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Déc	
0	0	0	5	20	40	15	5	10	5	0	0	



## Go-back Land

Go-back Land Flant Community

This plant community occurs on land that has been cropped annually in the past and then abandoned without reseeding. Natural succession has resulted in a plant community dominated by varying combinations of threeawns, cheatgrass, blue grama, Sandberg bluegrass, and some rhizomatous wheatgrasses. Forage production is low since grasses such as threeawns and cheatgrass are not used efficiently by livestock.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 600 lbs/acre in unfavorable years to about 1200 lbs/acre in above average years.

Growth curve description: Too variable to estimate

The potential for accelerated erosion can be highly variable depending on amount of bare ground present. Biological diversity is low.

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing may be used to increase desirable native cool-season grass production. It is usually difficult to return to near Historic Climax Plant Community condition in a timely manner because of past soil loss.
- Grazing land mechanical treatment (i.e., chiseling) may improve forage production where significant rhizomatous wheatgrass is present to respond.

Where there is a lack of perennial grasses, reseeding to tame or native species may be necessary to return these lands to production in the form of pastureland. These pastures are normally seeded to crested wheatgrass, pubescent wheatgrass, or Russian wildrye. They require considerable investment to establish and have a variable life expectancy. They do produce up to 50% more than native range, but their value as forage is somewhat limited due to the single species usually seeded. In some cases, the single species or certain groups of species (e.g., wheatgrasses) may be more vulnerable to infestation by associated insects and/or diseases (e.g., black grass bugs).

# Section II: Ecological Site Interpretations

## **Animal Community**

Animal Community – Wildlife Interpretations

Rhizomatous Wheatgrasses/ Needleandthread/Big Bluestem Plant Community (HCPC): The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include Western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Mixed Sagebrush/Grass Plant Community: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule deer and antelope may use this state for foraging and cover year-round, as would cottontail and jack rabbits. It provides important winter, nesting, brood-rearing, and foraging habitat for sage grouse. Brewer's sparrows' nest in big sagebrush plants and hosts of other nesting birds utilize stands in the 20-30% cover range.

Heavy Sagebrush Plant Community: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. This community provides excellent escape and thermal cover for large ungulates, as well as nesting and brood rearing habitat for sage grouse.

Western Wheatgrass/Cheatgrass Plant Community: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

Blue Grama Sod and Go-back Land Plant Communities: These communities provide limited foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover and if the Historic Climax Plant Community or the Western Wheatgrass/Cheatgrass Plant Community is limited. Generally, these are not target plant communities for wildlife habitat management.

Blue Grama, Plains Pricklypear/Bare Ground Plant Community: Benefits to other wildlife are largely due to the subterranean structure created by the prairie dogs, not the sparse vegetation found on this plant community.

#### Animal Community - Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community Production Carrying Capacity\*
(Lbs/acre) (AUM/acre)
Rhizomatous WG/ Needleandthread/ Big Bluestem 1500-3000 .6
Heavy Sagebrush 900-2400 .35
Mixed Sagebrush/Grass 900-2500 .5
Western Wheatgrass/Cheatgrass 800-1500 .35
Blue Grama Sod 450-750 .25
Blue grama/Plains Pricklypear/ Bare ground 400-800 .20
Go-back Land 800-1500 .25

\* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area.

Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

#### Plant Preference by Animal Kind

Animal kind: all antelope

Animai king: ali a	ntelope													
Common name	Scientific name	<u>Plant</u> part	<u>J</u>	E	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	A	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	<u>Achnatherum</u> <u>hymenoides</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silverweed cinquefoil	Argentina anserina	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	Artemisia cana ssp. cana	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
sandwort	<u>Arenaria</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
black sagebrush birdfoot	Artemisia nova	plant Entire	Р	Р	Р	Р	Р	Ρ	Р		Р	•	Р	Р
sagebrush Fendler threeawn,	Artemisia pedatifida Aristida purpurea var.	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
red threeawn	<u>longiseta</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush twogrooved	Artemisia tridentata	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
milkvetch	Astragalus bisulcatus	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
aster	<u>Aster</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
fourwing saltbush	Atriplex canescens	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

2010	_		poi t											
shadscale saltbush	Atriplex confertifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Gardner's saltbush	Atriplex gardneri	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
American sloughgrass	Beckmannia syzigachne	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
mustard	<u>Brassica</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
water sedge	Carex aquatilis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ
prairie sandreed	<u>Calamovilfa longifolia</u> Calamagrostis	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
plains reedgrass	<u>montanensis</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
Nebraska sedge	Carex nebrascensis	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
beaked sedge garden	Carex rostrata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
yellowrocket Indian paintbrush,	Campe stricta(syn)	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
paintbrush northern	<u>Castilleja</u> <u>Calamagrostis stricta</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
reedgrass Douglas'	ssp. inexpansa	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
dustymaiden yellow	Chaenactis douglasii	plant	U	U	U	U	U	U	U	U	U	U	U	U
rabbitbrush, green rabbitbrush, low rabbitbrush,														
Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip hawksbeard	Crepis acuminata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
buttecandle, minerscandle	Cryptantha celosioides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

miner's candle	Cryptantha virgata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
plains springparsley	Cymopterus acaulis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
larkspur	<u>Delphinium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
inland saltgrass	Distichlis spicata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
California waterwort	Elatine californica	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
streambank wheatgrass, thickspike	Elymus lanceolatus ssp.		_	_	_	_	_	_	_	_	_	_	_	_
wheatgrass slender	<u>lanceolatus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
wheatgrass	Elymus trachycaulus	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
horsetail	<u>Equisetum</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
fleabane	<u>Erigeron</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	Ericameria nauseosa	plant	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower buckwheat	Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American mannagrass	Glyceria grandis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
spiny hopsage	Grayia spinosa	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	Gutierrezia sarothrae	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock goldenweed	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and thread,		Entire												

2015	_	SD Printable K	eport											
needleandthread	Hesperostipa comata	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rush	<u>Juncus</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Utah juniper	Juniperus osteosperma	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain juniper	Juniperus scopulorum	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	<u>Krascheninnikovia</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
basin wildrye	Leymus cinereus	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
licorice-root, lovage	<u>Ligusticum</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
desertparsley, biscuitroot	<u>Lomatium</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
lupine	<u>Lupinus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
prairie bluebells Nuttall's	Mertensia lanceolata	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
povertyweed	Monolepis nuttalliana	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted evening- primrose	Oenothera caespitosa	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
nailwort western	<u>Paronychia</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
western wheatgrass large Indian	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
breadroot, breadroot scurfpea	<u>Pediomelum</u> <u>esculentum</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
beardtongue, penstemon	<u>Penstemon</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
reed canarygrass	Phalaris arundinacea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
phlox	<u>Phlox</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

bud sagebrush, bud sagewort	<u>Picrothamnus</u> <u>desertorum</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
woolly plantain, woolly		Entire												
Indianwheat	Plantago patagonica	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg bluegrass	Poa ampla(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains cottonwood	<u>Populus deltoides ssp.</u> <u>monilifera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass	Poa juncifolia(syn)	Entire plant	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р
Sandberg bluegrass, big bluegrass, Canby														
bluegrass, alkali bluegrass	Poa secunda	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebunch wheatgrass	<u>Pseudoroegneria</u> <u>spicata</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western buttercup	Ranunculus occidentalis	-	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
wax currant	Ribes cereum	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Woods' rose	<u>Rosa woodsii var.</u> <u>woodsii</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
western dock	Rumex aquaticus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
willow	<u>Salix</u> <u>Sarcobatus</u>	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
greasewood	<u>vermiculatus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
bulrush	Scirpus Sobjective	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
beaked skeletonweed	Shinnersoseris rostrata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

Animal kind: All antelope

2015	E	SD Printable Repo	ort											
Common name	Scientific name	<u>Plant</u> <u>part</u>	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
alkali sacaton	Sporobolus airoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all a	ntelope													
		<u>Plant</u>												
Common name	Scientific name	<u>part</u> Entire	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
sand dropseed	Sporobolus cryptandrus		U	U	U	U	U	U	U	U	U	U	U	U
alkali cordgrass	Spartina gracilis		U	U	U	U	U	U	U	U	U	U	U	U
prairie cordgrass	Spartina pectinata		U	U	U	U	U	U	U	U	U	U	U	U
desert princesplume	<u>Stanleya pinnata var.</u> pinnata	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
		Entire												
Pursh seepweed	Suaeda calceoliformis	piarie	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
shortspine														
horsebrush, spiny horsebrush	<u>Tetradymia spinosa</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
arrowgrass	<u>Triglochin</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetab	Viola amariaana	Entire	<b>D</b>	Ь	Ь	Ь	Б	Ь	Ь	Ь	<b>D</b>	Р	Ь	Б
American vetch badlands mule-	<u>Vicia americana</u>	plant Entire	۲	Р	Γ	Г	_	Р	Ρ	Р	Р	Г	Ρ	٢
ears	Wyethia scabra(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
woodyaster	<u>Xylorhiza</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
soapweed yucca,		Entire												
small soapweed foothill	Yucca glauca	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
deathcamas	Zigadenus paniculatus	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Animal kind: all c	attle													
		Dlost												
Common name	Scientific name	<del></del>	<u>J</u>	E	<u>M</u>	A	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
	A obillog	Entire												

plant

<u>Achillea</u>

yarrow

0000000000000

Indian ricegrass	<u>Achnatherum</u> <u>hymenoides</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silverweed cinquefoil	Argentina anserina	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	<u>Artemisia cana ssp.</u> <u>cana</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
sandwort	<u>Arenaria</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
black sagebrush birdfoot	Artemisia nova	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
sagebrush	Artemisia pedatifida Aristida purpurea var.	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
red threeawn	<u>longiseta</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush twogrooved	Artemisia tridentata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	Astragalus bisulcatus	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
aster	<u>Aster</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
fourwing saltbush shadscale	Atriplex canescens	plant Entire	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р
saltbush Gardner's	Atriplex confertifolia	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
saltbush American	Atriplex gardneri	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sloughgrass	Beckmannia syzigachne		D	D	D	D	D	D	D	D	D	D	D	D
blue grama	Bouteloua gracilis	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
mustard	<u>Brassica</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
water sedge	Carex aquatilis	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D

2015	Į.	ESD Printable R	eport											
threadleaf sedge	Carex filifolia	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
prairie sandreed	Calamovilfa longifolia	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р
plains reedgrass	<u>Calamagrostis</u> <u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge	Carex nebrascensis	Entire plant Entire	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked sedge	Carex rostrata	plant	D	D	D	D	D	D	D	D	D	D	D	D
garden yellowrocket	Campe stricta(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Indian paintbrush, paintbrush	<u>Castilleja</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
northern reedgrass	Calamagrostis stricta ssp. inexpansa	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Douglas' dustymaiden	Chaenactis douglasii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow rabbitbrush, green rabbitbrush, low rabbitbrush, Douglas	<u>Chrysothamnus</u>	Entire												
rabbitbrush	<u>viscidiflorus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip hawksbeard	Crepis acuminata	plant	U	U	U	U	U	U	U	U	U	U	U	U
buttecandle, minerscandle	Cryptantha celosioides	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
miner's candle	Cryptantha virgata	plant	U	U	U	U	U	U	U	U	U	U	U	U
plains springparsley	Cymopterus acaulis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
larkspur	<u>Delphinium</u>	plant	U	D	D	D	D	D	D	D	U	D	D	D
California waterwort	Elatine californica	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Canada wildrye	Elymus canadensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

silverberry	Elaeagnus commutata	Entire plant	U	IJ	IJ	U	П	U	IJ	U	IJ	IJ	U	U
squirreltail,	<u>Liabagnas commutata</u>	plant	Ü					Ü	J				Ü	
bottlebrush	Elymus elymoides ssp.	Entire		_						_	_			
squirreltail	<u>elymoides</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
streambank wheatgrass,														
thickspike	Elymus lanceolatus ssp.	Entire												
wheatgrass	<u>lanceolatus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
slender		Entire												
wheatgrass	Elymus trachycaulus	plant	Р	Р	D	Р	Р	Р	Р	Р	Р	Р	Р	Р
horsetail	Equipotum	Entire	U	IJ									U	11
norsetan	<u>Equisetum</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
fleabane	<u>Erigeron</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
rubber rabbitbrush	Ericameria nauseosa	plant	U	U	U	U	U	U	U	U	U	U	U	U
sulphur-flower		Entire												
buckwheat	Eriogonum umbellatum	plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	Entire plant	IJ	IJ			11		11	11	11	11	U	11
American ilconce	<u>Orycyrrniza repidota</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U
spiny hopsage	Grayia spinosa	plant	U	U	U	U	U	U	U	U	U	U	U	U
	· · ·	Entire												
broom snakeweed	<u>Gutierrezia sarothrae</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>	Entire												
goldenweed	acaulis(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and		Catico												
thread, needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u> </u>	Entire	•	•	•	•	•	•	•		•	•	-	•
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
Baltic rush	Juncus balticus(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
	lumaura	Entire	_	_	_	_	_	_	_	_	_	_	_	_
rush	<u>Juncus</u>	plant Entire	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	D	ט
Utah juniper	Juniperus osteosperma	plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain	<u> </u>	Entire												
juniper	Juniperus scopulorum	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
prairie Junegrass	Koeleria macrantha	plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfet	Kroochoninnikovia	Entire	Р	Р	Р	Р	Р	D	D	Р	D	D	D	Р
winterfat	<u>Krascheninnikovia</u>	plant Entire	۲	٢	٢	_	٢	۲	7	۲	٢	٢	٢	
basin wildrye	<u>Leymus cinereus</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

licorice-root,	I law a tlaw a	Entire												
lovage	<u>Ligusticum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
desertparsley,	Lomotium	Entire	U		U									
biscuitroot	<u>Lomatium</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
lunina	Luninuo	Entire	Ь	_	_	_	_	_	_	_	_	_	_	_
lupine	<u>Lupinus</u>	plant	D	D	ט	ט	ט	ט	ט	D	ט	ט	ט	D
proirie bluebelle	Mertensia lanceolata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie bluebells	<u>Merterisia lariceolata</u>	•	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
Nuttall's	Monolonia nuttalliana	Entire plant	U	U	U									
povertyweed	Monolepis nuttalliana	•	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U		U			11		11			11	11
<u>-</u>	<u>IICHAI USUHIS</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U
tufted evening- primrose	Oenothera caespitosa	plant	U	U	U		U	11	11	U			11	U
primose	<u>Oeriotriera caespitosa</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U
nailwort	<u>Paronychia</u>	plant	U	U	U	11	11	11	11	ш	11	11	11	11
western	<u>r aronyonia</u>	Entire	U	Ü	Ü	O	J	J	O	Ü	O	J	J	J
wheatgrass	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	ח	D
large Indian	<u>r dooopyrum omam</u>	piant												
breadroot,														
breadroot	Pediomelum	Entire												
scurfpea	<u>esculentum</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
beardtongue,		Entire												
penstemon	<u>Penstemon</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
reed canarygrass	Phalaris arundinacea	plant	D	D	D	D	D	D	D	D	D	D	D	D
		<b>Entire</b>												
phlox	<u>Phlox</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush,	<u>Picrothamnus</u>	<b>Entire</b>												
bud sagewort	<u>desertorum</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
woolly plantain,														
woolly		Entire												
Indianwheat	<u>Plantago patagonica</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg		Entire	_	_	_	_	_	_	_	_	_	_	_	_
bluegrass	<u>Poa ampla(syn)</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Populus deltoides ssp.	Entire	_	_	_	_	_	_	_	_	_	_	_	_
plains cottonwood	<u>monilifera</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg		Entire	_	_	_	_	_	_	_	_	_	_	_	_
bluegrass	<u>Poa juncifolia(syn)</u>	plant	D	D	D	D	D	ט	D	D	D	ט	ט	ט
Sandberg														
bluegrass, big														
bluegrass, Canby bluegrass, alkali		Entire												
bluegrass	Poa secunda	plant	D	D	D	D	D	D	D	D	D	D	D	D
•		•	-	*										
bluebunch	<u>Pseudoroegneria</u>	Entire	Ъ	Р	Р	Р	Р	D	Р	D	Р	D	D	D
wheatgrass	<u>spicata</u>	plant	۲		7	_	۲	Р	۲	7	۲	۲	7	Р

Nuttall's		Entire												
alkaligrass	Puccinellia nuttalliana	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western buttercup	Ranunculus occidentalis	plant	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
wax currant	Ribes cereum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Woods' rose	Rosa woodsii var. woodsii	Entire plant	D	D	D	ח	ח	ח	ח	ח	ח	ח	ח	D
Woods Tose	<u>woodsn</u>	Entire	J		ט		ט					ט		
western dock	Rumex aquaticus	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
willow	<u>Salix</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
greasewood	<u>Sarcobatus</u> vermiculatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
greasewood	<u>verniculatus</u>	Entire	ט	ט	ט	ט	ט	0	ט	ט	ט	ט	ט	ט
bulrush	Scirpus	plant	D	D	D	D	D	D	D	D	D	D	D	D
little bluestem	<u>Schizachyrium</u> scoparium	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked skeletonweed	Shinnersoseris rostrata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
hive eved even	Cias min alais ma	Entire	_	_	_	_	_	<b>D</b>	<b>D</b>	_	_	_	_	_
blue-eyed grass	<u>Sisyrinchium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All o	cattle													
Common name	Scientific name	<u>Plant</u> part	<u>J</u>	E	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	A	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
alkali sacaton	Sporobolus airoides	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

Animal kind: all cattle

_	J 10	_	ob i illiabio i top												
	Common name	Scientific name	<u>part</u> Entire	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
	sand dropseed	Sporobolus cryptandrus	plant	D	D	D	D	D	D	D	D	D	D	D	D
	alkali cordgrass	Spartina gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	prairie cordgrass	Spartina pectinata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	desert	Stanleya pinnata var.	Entire	т	_	Т		· -	_	_	_	<b>T</b>	_	_	
	princesplume	<u>pinnata</u>	plant Entire	Т				-				-			Т
	Pursh seepweed western	Suaeda calceoliformis Symphoricarpos	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	snowberry	occidentalis	plant	U	U	U	U	U	U	U	U	U	U	U	U
	shortspine horsebrush, spiny		Entire												
	horsebrush	<u>Tetradymia spinosa</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	arrowgrass	<u>Triglochin</u>	plant	Т	Т	Т	Т	Т	Т	T	Т	T	Т	Т	Т
	narrowleaf cattail	Typha angustifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	broadleaf cattail	Typha latifolia	Entire plant	D	D	D	D	ח	D	Ь	П	Р	Р	Ь	D
		<u>Typha latifolia</u>	Entire	_											
	American vetch badlands mule-	<u>Vicia americana</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	ears	Wyethia scabra(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
	woodyaster	<u>Xylorhiza</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
	soapweed yucca, small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	foothill deathcamas	Zigadenus paniculatus	Entire plant	Т	т	Т	т	Т	Т	Т	Т	т	Т	т	Т
			pro	-	-	-	-	-	-	-	-	-	-	-	-
	Animal kind: all de	eer	Dist												
	Common name	Scientific name	<u>Plant</u> part	<u>J</u>	<u>E</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
	yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
		<u>Achnatherum</u>	Entire												
	Indian ricegrass	<u>hymenoides</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	textile onion	Allium textile	plant	D	D	D	D	D	D	D	D	D	D	D	D
	rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

silvenweed cinquefoil         Artemisia cana ssp. silver sagebrush carnagon, green sagewort         Entire plant         Cu U U U U U U U U U U U U U U U U U U U															
Silver sagebrush tarragon, green sagewort arragon, green sagewort arragon, green sagewort arragon, green sagewort prairie sagewort prairie sagewort prairie sagewort prairie sagewort problem sagebrush arragon, green sagewort prairie sagewort prairie sagewort problem sagebrush arragon, green sagewort prairie sagewort problem sagebrush arragon, green sagewort prairie sagewort prairie sagewort problem sagebrush arragon, green sagewort problem sagewort problem sagewort problem sagebrush arragon, green sagewort problem sagewort		Argentina anserina		U	U	U	U	U	U	U	U	U	U	U	U
tarragon, green sagewort  Artemisia dracunculus  Entire plant  Artemisia dracunculus  Entire plant  Artemisia frigida  Plant  Pl		Artemisia cana ssp.													
Sagewort         Artemisia dracunculus         plant         U         <	•	<u>cana</u>	•	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Sandwort Arenaria Plant Plant Prairie sagewort Prairie sagewort Prairie sagewort Prairie sagewort Prairie sagewort Province Sagebrush Artemisia frigida Plant Prairie Sagebrush Artemisia pedatifida Plant Predict Plant Predict Plant Plant Plant Plant Plant Predict Plant P		Artomicio drocunoulus						11							11
sandwort         Arenaria         plant         U	sagewort	Artemisia uracunculus	•	U	U	U	U	U	U	U	U	U	U	U	U
Fringed sagewort   Artemisia frigida   Diant	sandwort	<u>Arenaria</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Entire plant   Entire saltbush   Atriplex canescens   Entire saltbush   Atriplex confertifolia   Entire saltbush   Atriplex gardneri   Entire saltbush   Atriplex gardneri   Entire saltbush   Atriplex gardneri   Entire saltbush   Entire saltbush   Atriplex gardneri   Entire saltbush   Entire saltbush   Atriplex gardneri   Entire saltbush   E		Artomisio frigido						11		11					
sagebrush         Artemisia pedatifida         plant         U         <	•	Artemisia myida	•	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn		Artemisia pedatifida		U	U	U	U	U	U	U	U	U	U	U	U
Plant   Plan	<del>-</del>	<u>-</u>	•												
Second   S		• •	plant	U	U	U	U	U	U	U	U	U	U	U	U
twogrooved milkvetch    Astragalus bisulcatus   Entire Entire   Plant   Entire   Plant   Entire   Plant   Plan															
milkvetch         Astragalus bisulcatus         plant         T	big sagebrush	Artemisia tridentata	plant	D	D	D	D	D	D	D	D	D	D	D	D
Entire plant	_		Entire												
aster       plant       U        U       U       U       U       U       U       U       U       U       U       U       U       U       U       U        U       U       U       U       U       U       U       U       U       U       U <th< td=""><td>milkvetch</td><td>Astragalus bisulcatus</td><td>•</td><td>T</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td><td>Т</td></th<>	milkvetch	Astragalus bisulcatus	•	T	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Entire plant		A = 4 =													
Plant   Plan	aster	<u>ASIEr</u>	•	U	U	U	U	U	U	U	U	U	U	U	U
Entire plant	milkvetch	Astragalus		D	D	ח	ח	D	D	D	ח	D	ח	D	D
Fourwing saltbush   Atriplex canescens   Plant   Pla		rionaganao	•												
saltbush       Atriplex confertifolia       plant       U        U       U       U       U       U       U       U       U       U       U       U       U       U       U       U        U       U       U       U       U       U       U       U       U       U       U       U       U       U       U        U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U	fourwing saltbush	Atriplex canescens		Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Gardner's saltbush       Atriplex gardneri       Entire plant       P        P       P       P       P       P       P       P       P       P       P       P       P       P       P       P        P       P       P       P       P       P       P       P       P       P       P       P       P       P       P        P       P       P       P       P       P       P       P       P       P       P       P       P       P       P        P       P       P       P       P       P       P       P       P       P       P       P       P       P       P	shadscale	·	Entire												
saltbush Atriplex gardneri plant Entire Entire Sloughgrass Beckmannia syzigachne plant Sloughgrass Beckmannia syzigachne plant Entire blue grama Bouteloua gracilis Plant Entire mustard Brassica Plant Entire water sedge Carex aquatilis Plant Entire prairie sandreed Calamovilfa longifolia Plant Calamagrostis montanensis Plant Plan	saltbush	Atriplex confertifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
American sloughgrass			_	_	_	_	_	_	_	_	_	_	_	_	_
sloughgrass    Beckmannia syzigachne plant   Entire blue grama   Bouteloua gracilis   Entire plant   Entire pla		<u>Atriplex gardneri</u>	-	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue grama  Bouteloua gracilis  Entire plant D D D D D D D D D D D D D D D D D D D		Pookmonnio ovzigoohno								11					
blue grama  Bouteloua gracilis  Entire mustard  Brassica  Plant  Entire plant  Plant  Entire plant  Plant  Entire	siougrigrass	<u>Deckindiinia Syziyaciine</u>	-	U	U	U	U	U	U	U	U	U	U	U	U
mustard  Brassica  Entire plant Entire water sedge  Carex aquatilis  Entire threadleaf sedge  Calamovilfa longifolia Calamagrostis  Entire plant Entire plant D D D D D D D D D D D D D D D D D D D	blue grama	Bouteloua gracilis	=	D	D	D	D	D	D	D	D	D	D	D	D
mustard Brassica plant U U U U U U U U U U U U U U U U U U U	Dido giama	Boatoloaa graomo	•	_	_			_	_	_	_	_		_	_
water sedge	mustard	<u>Brassica</u>	=	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge			Entire												
threadleaf sedge	water sedge	Carex aquatilis	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sandreed Calamovilfa longifolia plant D D D D D D D D D D D D D D D D D D D			=	_	_	_	_	_	_	_	_	_	_	_	_
prairie sandreed <u>Calamovilfa longifolia</u> plant U U U U U U U U U U U U U U U U U U U	threadleaf sedge	<u>Carex filifolia</u>	•	D	D	D	D	D	D	D	D	D	D	D	D
Calamagrostis plains reedgrass montanensis  Entire plant plant D D D D D D D D D D D D D D D D D D D	projrio condrood	Colomovilfo longifolio								11					
plains reedgrass montanensis  plant  plant  D  D  D  D  D  D  D  D  D  D  D  D  D	prairie sariureeu		•	U	U	U	U	U	U	U	U	U	U	U	U
Entire spike sedge <u>Carex nardina</u> plant U U U U U U U U U U U U U U U U U U U	plains reedgrass	_		D	D	D	D	D	D	D	D	D	D	D	D
spike sedge <u>Carex nardina</u> plant U U U U U U U U U U U U U U U U U U U	F		•	_	_	_	_	_	_	_	_	_	_	_	_
Entire	spike sedge	Carex nardina	_	U	U	U	U	U	U	U	U	U	U	U	U
			Entire												

/2015	_	SD FIIIIable K	ерогі											
Nebraska sedge	<u>Carex nebrascensis</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
beaked sedge garden	Carex rostrata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
yellowrocket	Campe stricta(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian paintbrush, paintbrush	<u>Castilleja</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
northern reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Douglas' dustymaiden		Entire plant												
yellow	<u>Chaenactis douglasii</u>	ριατιι	U	U	U	U	U	U	U	U	U	U	U	U
rabbitbrush, green rabbitbrush, low rabbitbrush,														
Douglas rabbitbrush	<u>Chrysothamnus</u> viscidiflorus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Tabbitbitasii	<u>viscianioras</u>	Entire	J	ט		U	ט	J		J	ט			J
water hemlock	<u>Cicuta</u>	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	T
poison hemlock tapertip	Conium maculatum	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
hawksbeard	Crepis acuminata	plant	D	D	D	D	D	D	D	D	D	D	D	D
buttecandle, minerscandle	Cryptantha celosioides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
miner's candle	Cryptantha virgata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
plains springparsley	Cymopterus acaulis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Andre de la company	<u>Deschampsia</u>	Entire	_			_		_						
tufted hairgrass	<u>caespitosa(syn)</u>	plant Entire	ט	ט	D	ט	ט	ט	ט	ט	ט	ט	ט	ט
larkspur	<u>Delphinium</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
inland saltgrass	Distichlis spicata	plant	U	U	U	U	U	U	U	U	U	U	U	U
California waterwort	Elatine californica	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
silverberry	Elaeagnus commutata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
squirreltail, bottlebrush squirreltail streambank wheatgrass,	Elymus elymoides ssp. elymoides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
slender	Elymus trachycaulus	Entire	D	D	D	D	D	D	D	D	D	D	D	D
wheatgrass	<u> Liymuo traonyoaarao</u>	plant												
		Entire												
horsetail	<u>Equisetum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
fleabane	<u>Erigeron</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	Friedmaria mayaasa	Entire	_	_	_	_	_	_	_	_	_	_	_	_
	Ericameria nauseosa	plant	D	ט	D	ט	ט	ט	ט	ט	ט	ט	ט	ט
sulphur-flower buckwheat	Eriogonum umbellatum	Entire plant	U	11	U	п	11	11	11	11	11	11	11	11
American	<u>Lnogonam ambenatam</u>	Entire	J	J	J	J	J	J	U	J	U	J	J	J
mannagrass	Glyceria grandis	plant	U	U	U	U	U	U	U	U	U	U	U	U
g.	<u>,</u>	Entire		_		_			_		_		_	
American licorice	Glycyrrhiza lepidota	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
spiny hopsage	<u>Grayia spinosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
	Gutierrezia sarothrae	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>	Entire												
goldenweed	acaulis(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and		Entire												
thread, needleandthread	Hesperostipa comata	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
nocalcanatinoaa	rooporootipa comata	Entire	•	•	•		•	•	•	•	•	•	•	•
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	_	Entire												
Baltic rush	Juncus balticus(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
rush	<u>Juncus</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
Utah juniper	Juniperus osteosperma	plant	D	D	D	D	D	D	D	D	D	D	D	D
Rocky Mountain	luminarua aaanularum	Entire	<b>D</b>	_	_	_	_	_	_	_	_	_	_	_
juniper	Juniperus scopulorum	plant	D	D	D	ט	ט	ט	ט	ט	ט	ט	D	D
nrairie lunearass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	ח	D	D	D
prairie duriegrass	Nociona macrantra	Entire			ט	0	ט		ט	J	ט	J	ט	
winterfat	Krascheninnikovia	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire	-		_									_
basin wildrye	Leymus cinereus	plant	D	D	D	D	D	D	D	D	D	D	D	D
licorice-root,	•	Entire												
lovage	<u>Ligusticum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
desertparsley,		Entire												
biscuitroot	<u>Lomatium</u>	plant	D	D	D	ח	ח	D	ח	D	ח	ח	D	D
	<u> Loniadani</u>		ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	J	ט

lupine	<u>Lupinus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie bluebells	Mertensia lanceolata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's	_	Entire												
povertyweed	Monolepis nuttalliana	plant	П	П	U	П	11	П	П	П	П	П	П	П
povertyweed	•	•	J	J	U	J	J	J	J	J	J	J	J	J
4 la la -	<u>Muhlenbergia</u>	Entire												
mat muhly	<u>richardsonis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted evening-		Entire												
primrose	<u>Oenothera caespitosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		<b>Entire</b>												
nailwort	<u>Paronychia</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
western		Entire												
wheatgrass	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
<u> </u>	<u>r ascopyram smiriii</u>	plant	D	0	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
large Indian														
breadroot,	5 " '													
breadroot	<u>Pediomelum</u>	Entire	_		_	_	_	_	_	_	_		_	_
scurfpea	<u>esculentum</u>	plant	D	D	D	D	D	D	D	D	ט	D	D	D
beardtongue,		Entire												
penstemon	<u>Penstemon</u>	plant	Р	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ
		Entire												
reed canarygrass	Phalaris arundinacea	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire				_	•	_	_		_		_	
phlox	Phlox	plant	U	U	U	11	U	U	11	U	11	11	11	U
•	<u> </u>	•	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush,	<u>Picrothamnus</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
bud sagewort	<u>desertorum</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
woolly plantain,														
woolly		Entire												
Indianwheat	<u>Plantago patagonica</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg		Entire												
bluegrass	Poa ampla(syn)	plant	Р	Р	Р	Р	Р	Ρ	Р	Ρ	Р	Р	Р	Ρ
2.009.000	Populus deltoides ssp.	Entire	-	-	-	-			-		-	•	-	•
plains cottonwood		plant	D	D	П	D	D	П	П	D	D	D	D	D
•	<u>monimera</u>	•	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
Sandberg	5	Entire												
bluegrass	<u>Poa juncifolia(syn)</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Sandberg														
bluegrass, big														
bluegrass, Canby														
bluegrass, alkali		Entire												
bluegrass	December	plant	_	_	_	_	_	_	_	_	_	_	_	_
	<u>Poa secunda</u>	•	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg	<u>Poa secunda ssp.</u>	Entire												
bluegrass	<u>juncifolia(syn)</u>	plant	Р	Р	Р	Р	Р	Ρ	Ρ	Р	Р	Р	Р	Р
bluebunch	<u>Pseudoroegneria</u>	<b>Entire</b>												
wheatgrass	<u>spicata</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's	-	Entire												
alkaligrass	Puccinellia nuttalliana	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
antangi acc	. Journama mattumana	۲.۵۰،۱۲	•	•	-	•	•	•	-	•	-	•	•	•

western buttercup	Ranunculus occidentalis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	D. (". (	Entire	_		_		_				_	_	_	_
skunkbush sumac	<u>Knus triiobata</u>	plant Entire	D	D	D	ט	ט	ט	ט	ט	ט	ט	ט	D
wax currant	Ribes cereum	plant	D	D	D	D	D	D	D	D	D	D	D	D
Woods' rose	<u>Rosa woodsii var.</u> <u>woodsii</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
western dock	Rumex aquaticus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
willow	Salix	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
greasewood	<u>Sarcobatus</u> <u>vermiculatus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bulrush	<u>Scirpus</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
beaked skeletonweed	Shinnersoseris rostrata	Entire plant	U		U									IJ
Skeletoriweed	Sillinersuseris rustrata	Entire	U	U	U	U	U	U	U	U	U	U	U	U
blue-eyed grass	<u>Sisyrinchium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All o	leer	<b>.</b>												
Animal kind: All o	leer <u>Scientific name</u>	Plant part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
			<u>J</u>	E D	<u>М</u> D	<u>А</u> D	<u>М</u> D	D J	D J	<u>A</u> D	<u>s</u> D	<u>O</u> D	<u>N</u> D	<u>D</u> D
Common name	Scientific name  Sporobolus airoides	part Entire	_	_										
Common name alkali sacaton	Scientific name  Sporobolus airoides	part Entire plant Plant part	D	D		D	D	D	D	D	D	D	D	D
Common name  alkali sacaton  Animal kind: all d	Scientific name  Sporobolus airoides  eer  Scientific name	part Entire plant Plant part Entire plant	_ D	D E	D	D A	<b>D</b>	<u>J</u>	<u>J</u>	D <u>A</u>	D <u>S</u>	D <u>O</u>	D <u>N</u>	D
Common name  alkali sacaton  Animal kind: all d  Common name	Scientific name  Sporobolus airoides  eer  Scientific name	part Entire plant part Entire plant Entire plant Entire plant	_ <u>J</u>	D E U	<b>D</b>	D <u>A</u> U	<b>М</b> И	n Ā	n Ā	D <u>A</u> U	D <u>S</u> U	D <u>O</u> U	D <u>N</u> U	D D U
Common name  alkali sacaton  Animal kind: all d  Common name  sand dropseed	Scientific name  Sporobolus airoides  eer  Scientific name  Sporobolus cryptandrus	part Entire plant Plant part Entire plant Entire plant Entire	_ D	E U	<b>М</b> И	D <u>A</u> U	D <u>M</u> U	П Л П	П Л П	D <u>A</u> U	D <u>S</u> U	D <u>Q</u> U	D <u>N</u> U	D <u>D</u> U
Common name  alkali sacaton  Animal kind: all d  Common name  sand dropseed  alkali cordgrass	Scientific name  Sporobolus airoides  eer  Scientific name  Sporobolus cryptandrus  Spartina gracilis	part Entire plant Plant part Entire plant Entire plant Entire plant Entire plant Entire plant	_ D	E U	D <u>M</u> U	D <u>A</u> U	D <u>M</u> U	П Л П	П Л П	D <u>A</u> U	D <u>S</u> U	D <u>Q</u> U	D <u>N</u> U	D <u>D</u> U
Common name  alkali sacaton  Animal kind: all d  Common name  sand dropseed  alkali cordgrass  prairie cordgrass desert	Scientific name  Sporobolus airoides  eer  Scientific name  Sporobolus cryptandrus  Spartina gracilis  Spartina pectinata Stanleya pinnata var.	part Entire plant Plant part Entire plant Entire plant Entire plant Entire plant Entire	_ D U U T	E U U T	D <u>M</u> U	D <u>A</u> U U T	D М U U T	л Л Л	л Л Л	D A U U T	D <u>S</u> U U T	D Q U U T	D N U U T	D <u>D</u> U

Portice plant				-1											
American vetch   Scientific name   Scientific		<u>Tetradymia spinosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Plant	arrowgrass	<u>Triglochin</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Second   Part	narrowleaf cattail	Typha angustifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch badlands muleears	broadleaf cattail	Typha latifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
Part		<u>Vicia americana</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Sapweed yucas samal soapweed yucas yucas samal soapweed yucas samal soapweed yucas yu		Wyethia scabra(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
Samall soapweed   Yucca glauca   Plant   Entire p	•	<u>Xylorhiza</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Animal kind: all horses    Plant part   Dant   Dant	small soapweed	Yucca glauca	plant	D	D	D	D	D	D	D	D	D	D	D	D
Common name         Scientific name         Plant part part         J. E. M. A. M. J. J. J. A. S. Q. N. D. Entire plant           yarrow         Achillea         Achinatherum hymenoides         Entire plant         P. P		Zigadenus paniculatus		Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Common name         Scientific name         part         J. E. M. A. M. J. J. A. S. O. N. D. Entire plant         J. V.	Animal kind: all h	orses	Dlant												
yarrow         Achillea         plant         U	Common name	Scientific name	part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	D
Indian ricegrass	yarrow		plant	U	U	U	U	U	U	U	U	U	U	U	U
textile onion	Indian ricegrass		plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
rose pussytoes	textile onion	Allium textile		D	D	D	D	D	D	D	D	D	D	D	D
cinquefoil Argentina anserina Plant U U U U U U U U U U U U U U U U U U U		Antennaria rosea		U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush tarragon, green sagewort       cana       plant       D D D D D D D D D D D D D D D D D D D			plant	U	U	U	U	U	U	U	U	U	U	U	U
sagewort Artemisia dracunculus  sandwort Arenaria  plant U U U U U U U U U U U U U U U U U U U			plant	D	D	D	D	D	D	D	D	D	D	D	D
sandwort Arenaria plant U U U U U U U U U U U U U U U U U U U		Artemisia dracunculus	plant	U	U	U	U	U	U	U	U	U	U	U	U
fringed sagewort  Artemisia frigida  plant  Entire  black sagebrush  Artemisia nova  birdfoot  sagebrush  Artemisia pedatifida  Fendler threeawn, Aristida purpurea var.		<u>Arenaria</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
black sagebrush Artemisia nova birdfoot sagebrush Artemisia pedatifida Fendler threeawn, Aristida purpurea var.		Artemisia frigida	plant	U	U	U	U	U	U	U	U	U	U	U	U
sagebrush <u>Artemisia pedatifida</u> plant U U U U U U U U U U U U U U U U U U U	_	Artemisia nova	plant	U	U	U	U	U	U	U	U	U	U	U	U
· · · · · · · · · · · · · · · · · · ·	sagebrush	<u>.</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
				U	U	U	U	U	U	U	U	U	U	U	U

hia oogobayoh	Artomioio tridontoto	Entire											U	
big sagebrush twogrooved	Artemisia tridentata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	Astragalus bisulcatus	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
		Entire												
aster	<u>Aster</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
IIIIKVELGII	<u>Astragatus</u>	Entire	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
fourwing saltbush	Atriplex canescens	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
shadscale		Entire												
saltbush	Atriplex confertifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
Gardner's saltbush	Atriplex gardneri	Entire plant	D	D	D	ח	D	D	D	D	D	D	D	D
American	Autpiex garunen	Entire	U	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
sloughgrass	Beckmannia syzigachne		D	D	D	D	D	D	D	D	D	D	D	D
	, ,	Entire												
blue grama	Bouteloua gracilis	plant	D	D	D	D	D	D	D	D	D	D	D	D
mustard	Brassica	Entire	IJ	IJ	U	U	U	U	U	IJ	U	IJ	U	IJ
	<u> </u>	plant Entire	D	_	D	_		D	D	D	_	J		
water sedge	Carex aquatilis	plant	ט	D	ט	D	D	ט	ט	ט	D	D	D	D
		Entire												
threadleaf sedge	Carex filifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D
	ماد معمد المعادم	Entire	_	_	_	_	_	_	_	_	_	_	_	_
prairie sandreed	Calamovilfa longifolia	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains reedgrass	<u>Calamagrostis</u> <u>montanensis</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
p.c		Entire			_		_			_		_		_
spike sedge	Carex nardina	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
Nebraska sedge	Carex nebrascensis	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked sedge	Carex rostrata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
garden	<u>oa.ox.roomata</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
yellowrocket	Campe stricta(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Indian paintbrush,		Entire	_	_	_	_	_	_	_	_	_	_	_	_
paintbrush	<u>Castilleja</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
northern reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	P	Р
Douglas'	зэр. шохранза	Entire	•	•	•	•	•	•	•	•	•	•	•	•
dustymaiden	Chaenactis douglasii	plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow														
rabbitbrush, green														
rabbitbrush, low														

rabbitbrush,	<u>Chrysothamnus</u>	Entire												
Douglas	viscidiflorus	plant	D	D	ח	П	П	ח	П	D	П	П	П	D
rabbitbrush	<u>viscialiloras</u>	•	D	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
		Entire												
water hemlock	<u>Cicuta</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
		<b>Entire</b>												
poison hemlock	Conium maculatum	plant	Т	Τ	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip		<b>Entire</b>												
hawksbeard	<u>Crepis acuminata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
buttecandle,		Entire												
minerscandle	Cryptantha celosioides	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
miner's candle	Cryptantha virgata	plant	u	U	U	U	U	U	U	U	U	U	U	U
plains	<u> </u>	Entire						_	_		_		_	
springparsley	Cymopterus acaulis	plant	U	11	U	11	11	11	11	11	11	11	11	U
opinigpardicy	<u> </u>	Entire	J	J	J	J	J	J	O	J	O	O	J	J
( (f) and the affirm and a	<u>Deschampsia</u>	plant	_	_	_	_	_	_	_	_	_	_		_
tufted hairgrass	<u>caespitosa(syn)</u>	•	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
larkspur	<u>Delphinium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
inland saltgrass	<u>Distichlis spicata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
California		Entire												
waterwort	Elatine californica	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		<b>Entire</b>												
Canada wildrye	Elymus canadensis	plant	Р	Ρ	Ρ	Р	Ρ	Р	Р	Р	Р	Р	Р	Р
		Entire												
silverberry	Elaeagnus commutata	plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail,	_	-												
bottlebrush	Elymus elymoides ssp.	Entire												
squirreltail	elymoides	plant	D	D	D	D	D	D	D	D	D	D	D	D
streambank	•	•												
wheatgrass,														
thickspike	Elymus lanceolatus ssp.	Entire												
wheatgrass	<u>lanceolatus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
slender		Entire												
wheatgrass	Elymus trachycaulus	plant	Р	Ρ	Р	Р	Ρ	Р	Р	Ρ	Р	Р	Ρ	Р
•	· ·	Entire												
horsetail	<u>Equisetum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	<del></del>	Entire												
fleabane	<u>Erigeron</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u> </u>	Entire	_	_										
rubber rabbitbrush	Ericameria nauseosa	plant	U	U	IJ	U	IJ	U	П	U	П	IJ	IJ	IJ
sulphur-flower	<u></u>	Entire		_	_	_	_	_	_	_	_	_	_	_
buckwheat	Eriogonum umbellatum	plant	U	11	U	11	11	11	11	11	11	11	11	U
	<u> — nogonam ambeliatam</u>	•	J	J	J	J	J	J	J	J	J	J	5	J
American	Glyceria grandia	Entire	D	D	D	D	D	D	D	Ъ	D	П	D	D
mannagrass	<u>Glyceria grandis</u>	plant	U	U	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט

American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
spiny hopsage	<u>Grayia spinosa</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
broom snakeweed	Gutierrezia sarothrae	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>	Entire												
goldenweed	acaulis(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and thread,		Entire												
needleandthread	Hesperostipa comata	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Dalkie made	lua ana halliana (ana)	Entire	_	_	_	_	_	_	_	_	_	_	_	_
Baltic rush	Juncus balticus(syn)	plant Entire	D	D	D	D	ט	ט	ט	D	ט	D	D	D
rush	<u>Juncus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
Utah juniper	Juniperus osteosperma	plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain juniper	Juniperus scopulorum	Entire plant	U	IJ	Ш	П	П	П	Ш	Ш	IJ	Ш	U	Ш
jumpor	<u>ватрогав воораютатт</u>	Entire	Ü	Ü	J	J	J	J	J	Ü	J	J	J	J
prairie Junegrass	Koeleria macrantha	plant	D	D	D	D	D	D	D	D	D	D	D	D
	Marachania di mala	Entire	Р	_	Р	_	_	_	_	_	_	Р	Р	Р
winterfat	<u>Krascheninnikovia</u>	plant Entire	Р	Р	۲	Р	Р	Р	Р	Р	Р	۲	۲	۲
basin wildrye	<u>Leymus cinereus</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
licorice-root,	•	Entire												
lovage	<u>Ligusticum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
desertparsley, biscuitroot	Lomatium	Entire plant	Ш	ы	Ш	П	П	П	Ш	Ш	IJ	П	U	Ш
biodaiti oot	<u>Lomatiam</u>	Entire	Ü	Ü	J	J	J	Ü	J	Ü	J	J	J	J
lupine	<u>Lupinus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
projrio bluobello	Martanaia lanasalata	Entire	_	_	_	_	_	_	_	_	_	_	_	_
prairie bluebells Nuttall's	Mertensia lanceolata	plant Entire	D	D	D	D	D	D	ט	D	ט	ט	D	D
povertyweed	Monolepis nuttalliana	plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Muhlenbergia</u>	Entire												
mat muhly	<u>richardsonis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted evening- primrose	Oenothera caespitosa	Entire plant	11	11	11	11	11	11	11	11	11	11	U	11
priminose	<u>Ochothera caesprosa</u>	Entire	J	J	Ü	J	J	J	J	Ü	J	J	J	J
nailwort	<u>Paronychia</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
western		Entire	_		_		_	_		_			_	_
wheatgrass	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D

large Indian breadroot,														
breadroot scurfpea	<u>Pediomelum</u> <u>esculentum</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
beardtongue,		Entire												
penstemon	<u>Penstemon</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Dhalaria amushina a	Entire	_	_	_	_	_	_	_	_	_	_	_	_
reed canarygrass	<u>Phalaris arundinacea</u>	plant Entire	D	D	ט	ט	ט	ט	ט	D	ט	D	D	D
phlox	Phlox	plant	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush,	<u>Picrothamnus</u>	Entire												
bud sagewort	<u>desertorum</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
woolly plantain,		<b>—</b> 40												
woolly Indianwheat	Plantago patagonica	Entire plant		11		п	11	П	11	U	11	ш	11	U
Sandberg	<u>r lamago patagomea</u>	Entire	J	U	U	U	U	U	Ü	U	U	U	U	U
bluegrass	Poa ampla(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
_	Populus deltoides ssp.	Entire												
plains cottonwood	<u>monilifera</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg		Entire	_	_	_	_				_		_		_
bluegrass	<u>Poa juncifolia(syn)</u>	plant	D	D	ט	ט	ט	D	ט	ט	D	D	D	D
Sandberg bluegrass, big														
bluegrass, Canby														
bluegrass, alkali		Entire												
bluegrass	<u>Poa secunda</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebunch	<u>Pseudoroegneria</u>	Entire	_	_		_		_	_		_	_	_	
wheatgrass	<u>spicata</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant	Þ	P	P	P	Þ	Þ	Þ	Р	Þ	Þ	P	Р
anangrass	<u>r doomema riditamaria</u>	Entire	•	•	1	•	•	•	•	•	•	•	•	
western buttercup	Ranunculus occidentalis		D	D	D	D	D	D	D	D	D	D	D	D
·		Entire												
skunkbush sumac	Rhus trilobata	plant	D	D	D	D	D	D	D	D	D	D	D	D
,	D.,	Entire												
wax currant	Ribes cereum	plant	U	U	U	U	U	U	U	U	U	U	U	U
Woods' rose	Rosa woodsii var. woodsii	Entire plant	ш	П	П	П	П	П	11	U	П	П	11	11
7700d3 103C	<u>₩000311</u>	Entire	J	J	J	J	J	J	J	J	J	J	J	J
western dock	Rumex aquaticus	plant	U	U	U	U	U	U	U	U	U	U	U	U
	•	Entire												
willow	<u>Salix</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Sarcobatus</u>	Entire												
greasewood	<u>vermiculatus</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire plant												
		Piarit				_								

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bulrush		<u>Scirpus</u>		D	D	D	D	D	D	D	D	D	D	D	D
P40 - 1 1 1	_	<u>Schizachyrium</u>	Entire	_	_	_	_	_	_		_			_	_
little blueste	em	<u>scoparium</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked skeletonwe	ed	Shinnersoseris rostrata	Entire plant	П	П	П	П	П	П	П	П	П	П	U	П
SKCICIOTIVE	Cu	<u>Oriminoradadria reatrata</u>	Entire			Ü	J						Ü	J	
blue-eyed g	grass	<u>Sisyrinchium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kin	<b>d: All</b> h	orses													
0		0 ' ''	<u>Plant</u>		_							_	_		_
Common na	<u>ame</u>	Scientific name	<u>part</u>	<u>J</u>	ᆫ	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
alkali sacat	on	Sporobolus airoides	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
amaii odoat	<b>O</b>	<u>oporopolad an olado</u>	plant	•	•	•	•	•	•	•	•	Ī	•	•	•
Animal kin	<b>d:</b> all h	orses													
_			<u>Plant</u>								_	_			_
Common na	<u>ame</u>	Scientific name	<u>part</u>	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
sand drops	aad	Sporobolus cryptandrus	Entire plant	D	D	D	D	ח	D	ח	ח	ח	ח	D	ח
Sand drops	CCu	<u>Oporobolus cryptanurus</u>	Entire	ט	ט	ט			ט		U		ט	ט	ט
alkali cordg	rass	Spartina gracilis	plant	D	D	D	D	D	D	D	D	D	D	D	D
			Entire												
prairie cord	grass	Spartina pectinata	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
desert		Stanleya pinnata var.	Entire	_	_	_	_	_	_	_	_	_	_	_	_
princesplun	ne	<u>pinnata</u>	plant	ı	ı	ı	Т	Т	Т	Τ	Т	Т	Τ	ı	Т
Pursh seep	weed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western		Symphoricarpos	Entire												
snowberry		<u>occidentalis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
shortspine															
horsebrush horsebrush		Totrodymia animaaa	Entire											U	
norsebrush		<u>Tetradymia spinosa</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass		<u>Triglochin</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
J			Entire												
narrowleaf	cattail	<u>Typha angustifolia</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
	44 11		Entire	_	_				_	_	_	_	_	_	_
broadleaf c	attail	<u>Typha latifolia</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
American v	etch	Vicia americana	Entire plant	P	Р	P	P	P	P	P	P	P	P	Р	P
badlands m		<u>vicia ameneana</u>	Entire	•	•	1	•	•	•	•	'	•	•	•	•
ears	idio	Wyothia coahra(cyn)	plant	11	11		11	11	11	11	11	11	11	U	11
		Wyethia scabra(syn)	Entire	J	J	J	J	J	J	J	J	J	J	J	J
woodyaster	•	<u>Xylorhiza</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
soapweed y		_	Entire												

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small soapweed	<u>Yucca glauca</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
foothill		Entire												
deathcamas	Zigadenus paniculatus	plant	Т	T	Т	Т	Т	T	Т	Т	Т	Т	Τ	Τ
Animal kind: all s	heep													
		<u>Plant</u>												
Common name	Scientific name	<u>part</u>	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
		Entire												
yarrow	<u>Achillea</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	Achnatherum	Entire												
Indian ricegrass	<u>hymenoides</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
· ·		Entire												
textile onion	Allium textile	plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes,		Entire												
rose pussytoes	Antennaria rosea	plant	U	U	U	U	U	U	U	U	U	U	U	U
silverweed		Entire	_	_	_	_	_	_	_	_	_	_	_	_
cinquefoil	Argentina anserina	plant	U	IJ	IJ	IJ	IJ	IJ	IJ	IJ	IJ	IJ	U	IJ
oniquoton	Artemisia cana ssp.	Entire		Ŭ					Ŭ	Ŭ				
silver sagebrush	<u>cana</u>	plant	D	ח	ח	ח	ח	ח	ח	ח	ח	ח	D	ח
•	<u>oana</u>	Entire	ט			ט	ט	ט		ט		ט		ט
tarragon, green sagewort	Artemisia dracunculus	plant	U	U	11	11	11	11	11	ш	11	11	U	П
Sagewort	Arternisia dracuriculus	•	U	U	U	U	U	U	U	U	U	U	U	U
sandwort	Arenaria	Entire plant		11		11	11		11	11		11	U	11
	Alenana	•	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort,	Artominio frigido	Entire	U										U	
fringed sagewort	<u>Artemisia frigida</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
blast, sanskarsk	Autominio mono	Entire	_	_	_	_	_	_	_	_	_	_	_	_
black sagebrush	<u>Artemisia nova</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
birdfoot		Entire												
sagebrush	<u>Artemisia pedatifida</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	Aristida purpurea var.	Entire												
red threeawn	<u>longiseta</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire	_		_	_	_					_	_	_
big sagebrush	Artemisia tridentata	plant	D	D	D	D	D	D	D	D	D	D	D	D
twogrooved		Entire												
milkvetch	<u>Astragalus bisulcatus</u>	plant	Т	Т	Т	Т	Т	Т	Т	T	Т	Т	Т	Т
		Entire												
aster	<u>Aster</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
milkvetch	<u>Astragalus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u></u>	Entire	_	_	_		_	_	_	_	_	_	_	_
fourwing salthush	Atriplex canescens	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
shadscale	<u> </u>	Entire	•	•	•	•		•	•	•	•	•	•	•
saltbush	Atriplex confertifolia	plant	U	11	11	11	11	11	11	11	11	11	U	П
Gardner's	<u>, wipiox comerciiona</u>	Entire	J	J	J	J	5	J	J	J	J	J	J	J
saltbush	Atriplex gardneri	plant	Р	P	P	P	P	P	D	P	P	P	Р	P
อดแมนอก	Authiev Agintiett	Piarit		٢	Г				٢	٢			1	1-

American sloughgrass	Beckmannia syzigachne	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
blue grama	Bouteloua gracilis	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
mustard	<u>Brassica</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
water sedge	Carex aquatilis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie sandreed	Calamovilfa longifolia	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
plains reedgrass	<u>Calamagrostis</u> <u>montanensis</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge	Carex nebrascensis	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked sedge	Carex rostrata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
garden yellowrocket	Campe stricta(syn)	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
Indian paintbrush, paintbrush	<u>Castilleja</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
northern reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Douglas' dustymaiden	Chaenactis douglasii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow rabbitbrush, green rabbitbrush, low rabbitbrush,	1													
Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	T
tapertip hawksbeard	Crepis acuminata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
buttecandle, minerscandle	Cryptantha celosioides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
miner's candle plains	Cryptantha virgata	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U

12	Jio		on Lillianie Keh	ωι											
	springparsley	Cymopterus acaulis	plant	U	U	U	U	U	U	U	U	U	U	U	U
	tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	larkspur	<u>Delphinium</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	inland saltgrass California	<u>Distichlis spicata</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	waterwort	Elatine californica	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	Canada wildrye	Elymus canadensis	plant Entire	Р	Р	Р	Р	Р	Ρ	Р	Ρ	Р	Р	Р	Р
	silverberry squirreltail,	Elaeagnus commutata	plant	U	U	U	U	U	U	U	U	U	U	U	U
	bottlebrush squirreltail streambank	<u>Elymus elymoides ssp.</u> <u>elymoides</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	wheatgrass, thickspike	Elymus lanceolatus ssp.		_	_	_	_	_	_	_	_	_	_	_	_
	wheatgrass slender	<u>lanceolatus</u>	plant Entire	D	D	D	D	D	D	ט	D	D	D	D	D
	wheatgrass	Elymus trachycaulus	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	horsetail	<u>Equisetum</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	fleabane	<u>Erigeron</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	rubber rabbitbrush sulphur-flower	Ericameria nauseosa	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	buckwheat American	Eriogonum umbellatum	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	mannagrass	Glyceria grandis	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	American licorice	<u>Glycyrrhiza lepidota</u>	plant Entire	U	U	U	U	U	U					U	
	spiny hopsage	<u>Grayia spinosa</u>	plant Entire	_		_		_	U	_	_	_		U	
	stemless mock	Gutierrezia sarothrae Haplopappus	plant Entire											U	
	goldenweed needle and	<u>acaulis(syn)</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	thread, needleandthread	Hesperostipa comata	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U

Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U			
		Entire															
rush	<u>Juncus</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U			
		Entire															
Utah juniper	Juniperus osteosperma	plant	U	U	U	U	U	U	U	U	U	U	U	U			
Rocky Mountain		Entire															
juniper	<u>Juniperus scopulorum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U			
		Entire	_	_	_	_	_	_	_	_	_	_	_				
prairie Junegrass	Koeleria macrantha	plant	D	D	D	D	D	D	D	D	D	D	D	D			
	1.7 1 1 1 1	Entire			_		_	_	_	_							
winterfat	<u>Krascheninnikovia</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р			
م مالمال مناسم	Lavenus alabarava	Entire	<b>D</b>	_	_	_	_	_	_	_	_	_	_	<b>D</b>			
basin wildrye	<u>Leymus cinereus</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р			
licorice-root,	Liquotioum	Entire	U		U					U			U	U			
lovage	<u>Ligusticum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U			
desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant	D	D	D	D	D	ח	ח	D	D	D	D	D			
2.200		Entire		<i>ъ</i>	<b>-</b>	<b>–</b>	<b>–</b>	<b>-</b>	<b>–</b>	<b>-</b>	<b>-</b>	<b>Т</b>	<b>-</b>	_			
lupine	<u>Lupinus</u>	plant	Т	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	Т			
		Entire															
prairie bluebells	Mertensia lanceolata	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р			
Nuttall's	Wortonola lariboolata	Entire	•	•	•	•	•	•	•	•	•	•	•	•			
povertyweed	Monolepis nuttalliana	plant	U	U	U	U	U	U	U	U	U	U	U	U			
p - · · · · · · ·	Muhlenbergia	Entire		_		_			_		_		_				
mat muhly	<u>richardsonis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U			
tufted evening-		Entire															
primrose	Oenothera caespitosa	plant	U	U	U	U	U	U	U	U	U	U	U	U			
		Entire															
nailwort	<u>Paronychia</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U			
western		Entire															
wheatgrass	<u>Pascopyrum smithii</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D			
large Indian																	
breadroot,	D " .																
breadroot	Pediomelum	Entire	_	_	_	_	_	_	_	_	_	_	_	_			
scurfpea	<u>esculentum</u>	plant	D	D	ט	ט	ט	D	ט	ט	ט	D	D	D			
beardtongue, penstemon	Penstemon	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	D	Р			
penstemon	<u>renstemon</u>	•	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г			
reed canarygrass	Phalaris arundinacea	Entire plant	U		U									11			
reed carrarygrass	<u>i maians arunumacea</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U			
phlox	Phlox	plant	П	IJ	U	IJ	IJ	IJ	IJ	IJ	IJ	П	IJ	U			
bud sagebrush,	Picrothamnus	Entire	9	•	_	_	•	_	_	_	_	_	_	•			
bud sagewort	<u>desertorum</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р			
woolly plantain,		۴	-	•	-	•	-	-	-	-	•	-	-	-			
piamani,																	

woolly Indianwheat	Plantago patagonica	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg bluegrass	Poa ampla(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains cottonwood Sandberg	Populus deltoides ssp. monilifera	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
bluegrass Sandberg	Poa juncifolia(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluegrass, big bluegrass, Canby														
bluegrass, alkali	Doo oogunda	Entire	D	D	D	D	Ь	Ь	D	D	D	D	D	D
bluegrass	Poa secunda	plant	ט	ט	ט	ט	D	D	ט	ט	ט	ט	ט	ט
bluebunch wheatgrass	<u>Pseudoroegneria</u> <u>spicata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
· ·		Entire												
western buttercup	Ranunculus occidentalis	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush sumac	Rhus trilobata	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
wax currant	Ribes cereum	plant	U	U	U	U	U	U	U	U	U	U	U	U
Mandel rese	Rosa woodsii var.	Entire	_	_	_	_	_	_	_	_	_	_	_	_
Woods' rose	<u>woodsii</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
western dock	Rumex aquaticus	plant	U	U	U	U	U	U	U	U	U	U	U	U
willow	<u>Salix</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Sarcobatus</u>	Entire												
greasewood	<u>vermiculatus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
bulrush	Soirnus	Entire plant		11	U	11	11	11	11	11	11	11	11	
bullusii	<u>Scirpus</u> <u>Schizachyrium</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	<u>scoparium</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked	•	Entire												
skeletonweed	Shinnersoseris rostrata	plant	U	U	U	U	U	U	U	U	U	U	U	U
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plant i i i i i i i i i i i i i i i i i i i														
Animal kind: All sheep														
Common name	Scientific name	<u>Plant</u> <u>part</u>	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
alkali sacaton	Sporobolus airoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

Animal kind: all sheep

Common nome	Saigntifia nama	Plant	J	_	N 4	٨	N.A			٨	0	_	N I	_				
Common name	Scientific name	<u>e part J F M A M J J A S</u> Entire						<u>ა</u>	<u>U</u>	11	ㅁ							
sand dropseed	Sporobolus cryptandrus	plant	D	D	D	D	D	D	D	D	D	D	D	D				
	0 " "	Entire																
alkali cordgrass	<u>Spartina gracilis</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U				
prairie cordgrass	Spartina pectinata	plant	D	D	D	D	D	D	D	D	D	D	D	D				
desert	Stanleya pinnata var.	Entire																
princesplume	<u>pinnata</u>	plant	Τ	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т				
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	11	11	11	11	11	11	11	11	U				
western	Symphoricarpos	Entire	J	U	U	U	U	Ü	U	Ü	U	U	U	U				
snowberry	<u>occidentalis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U				
shortspine																		
horsebrush, spiny	Totro dumio onino co	Entire	U	IJ	U	U					U			U				
horsebrush	<u>Tetradymia spinosa</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U				
arrowgrass	<u>Triglochin</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т				
J		Entire																
narrowleaf cattail	Typha angustifolia	plant	U	U	U	U	U	U	U	U	U	U	JUL					
broadleaf cattail	Tunha latifalia	Entire	U	IJ	U	U	U		11		U			U				
broadlear Callaii	<u>Typha latifolia</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U				
American vetch	<u>Vicia americana</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р				
badlands mule-		Entire																
ears	Wyethia scabra(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U				
woodyaster	<u>Xylorhiza</u>	Entire plant	Т	т	т	Т	т	Т	т	т	Т	т	Т	т				
soapweed yucca,	<u> </u>	Entire	•	•	•	•	•	•	•	•	•	•	•	•				
small soapweed	<u>Yucca glauca</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D				
foothill	71	Entire	_	<b>-</b>	_	_	_	<b>-</b>	_	<b>-</b>	_	_	_	_				
deathcamas	Zigadenus paniculatus	plant	Т	1	Т	Τ	Т	Т	Τ	Т	Τ	Τ	1	Т				

Legend: P=Preferred; D=Desirable; U=Undesirable; N=Not consumed; E=Emergency; T=Toxic; X=Used, but degree of utilization unknown

# **Hydrology Functions**

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration and runoff potential for this site varies from moderate to high depending on soil hydrologic

group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses such as bluebunch wheatgrass. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

### **Recreational Uses**

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

### **Wood Products**

No appreciable wood products are present on the site.

### **Other Products**

none noted

# **Supporting Information**

#### **Associated Sites**

Site name Site ID Site narrative

 Clayey (Cy)
 R061XY104WY

 Lowland (LL)
 R061XY128WY

 Overflow (Ov)
 R061XY130WY

 Sandy (Sy)
 R061XY150WY

 Shallow Loamy (SwLy)
 R061XY162WY

#### **Similar Sites**

Site name Site ID Site narrative

Loamy (Ly) R058BY222WY Loamy 15-17" Northern Plains P.Z. has lower

production.

#### **State Correlation**

This site has been correlated with the following states: wy

# **Inventory Data References**

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel were also used. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

### **Original Site Description Approval**

AuthorDateApprovalDateG. Mitchell10/31/2002 E. Bainter3/4/2008

### **Reference Sheet**

#### Author(s)/participant(s):

#### Contact for lead author:

**Date:** 4/1/2005 **MLRA:** 061X **Ecological Site:** Loamy (Ly) 15-19" Precipitation Zone, Black Hills R061XY122WY This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community cannot be used to identify the ecological site.

**Composition (indicators 10 and 12) based on:** X Annual Production, Foliar Cover, Biomass

**Indicators.** For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for **each** community and natural distrurbance regimes within the reference state, when appropriate and (3) cite data. Continue descriptions on separate sheet.

- 1. Number and extent of rills: Rills should not be present
- 2. Presence of water flow patterns: Barely observable

3.	Number and height of erosional pedestals or terracettes: Essentially non-existent
4.	Bare ground from Ecological Site Description or other studies (rock, litter, standing dead, lichen, moss, plant canopy are not bare ground): Bare ground is 15-25% occurring in small areas throughout site
5.	Number of gullies and erosion associated with gullies: Active gullies should not be present
6.	Extent of wind scoured, blowouts and/or depositional areas: None
7.	Amount of litter movement (describe size and distance expected to travel): Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces.
8.	Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values): Plant cover and litter is at 75% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 5 or greater.
9.	Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness): Use Soil Series description for depth and color of A-horizon
10.	Effect on plant community composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Healthy deep rooted native grasses enhance infiltration and reduce runoff. Infiltration is Moderate.

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction

layer or soil surface crusting should be present.

<b>12.</b>	Functional/Structural Groups (list in order of descending dominance by above-
	ground weight using symbols: >>, >, = to indicate much greater than, greater
	than, and equal to) with dominants and sub-dominants and "others" on separate
	lines:

Dominant:

Sub-dominant:

Other:

Additional: Mid-stature Bunch grasses > Mid-stature Rhizomatous grasses > Short stature grasses/grasslikes = Forbs > Shrubs

- 13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low
- **14. Average percent litter cover (%) and depth (inches):** Average litter cover is 30-40% with depths of 0.25 to 1.0 inches
- 15. Expected annual production (this is TOTAL above-ground production, not just forage production): 2000 lbs/ac
- 16. Potential invasive (including noxious) species (native and non-native). List Species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicator, we are describing what is NOT expected in the reference state for the ecological site: Blue grama, Big sagebrush, Annual bromes, Fringed sagewort, Prickly Pear, and Species found on Noxious Weed List
- 17. Perennial plant reproductive capability: All species are capable of reproducing

# Reference Sheet Approval

Approval Date
E. Bainter 3/4/2008

United States Department of Agriculture Natural Resources Conservation Service Ecological Site Description

# Section I: Ecological Site Characteristics

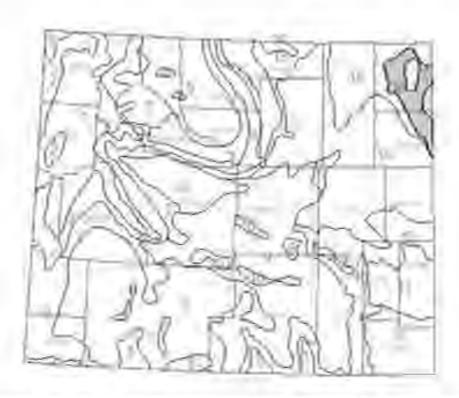
**Ecological Site Identification and Concept** 

Site name: Shallow Lounny (SwLy) 15-19" Precipitation Zone, Black Hills

Site type: Rangeland Site ID: R061XY182WY

Major land resource area (MLRA): 061-Black Hills Foot Stopes

Emarphiblion Zonus for Rangollinii Ecological Sile Descriptions



# **Physiographic Features**

This site occurs on steep slopes and ridge tops, but may occur on all slopes.

Landform: (1) Hill

(2) Ridge

(3) Escarpment

Minimum Maximum
Elevation (feet): 3500 5000
Slope (percent): 0 60
Water table depth (inches): 60

Flooding

Frequency: None None

**Ponding** 

Depth (inches):00Frequency:NoneNoneRunoff class:NegligibleHighAspect:No Influence on this site

## **Climatic Features**

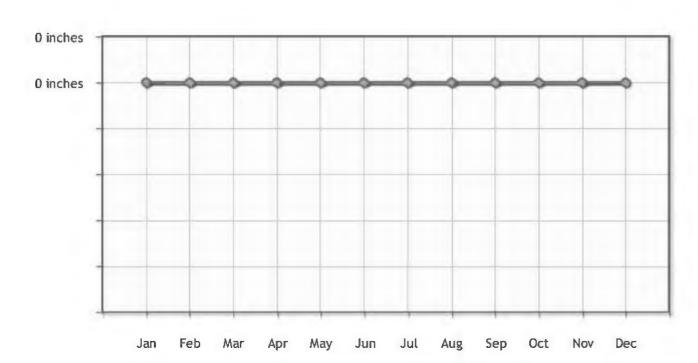
Annual precipitation ranges from 15-19 inches per year. Wide fluctuations may occur in vearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring. Strong winds are less frequent than over other areas of Wyoming. Occasional storms, however, can bring brief periods of high winds with gusts exceeding 50 mph. Growth of native cool season plants begins about April 1 and continues to about July 1. Native warm season plants begin about May 15 and continue to about August 15. Fall green-up may occur in September and last through October. The following information is from the "Devils Tower 2" climate station; Mean annual precipitation; 17.66 inches Mean annual air temperature: 44.4 F (28.6 F Avg. Min. to 60.1 F Avg. Max.) For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include "Hulett" and "Sundance".

#### <u>Averaged</u>

Frost-free period (days): 75
Freeze-free period (days): 110
Mean annual precipitation (inches): 20.17

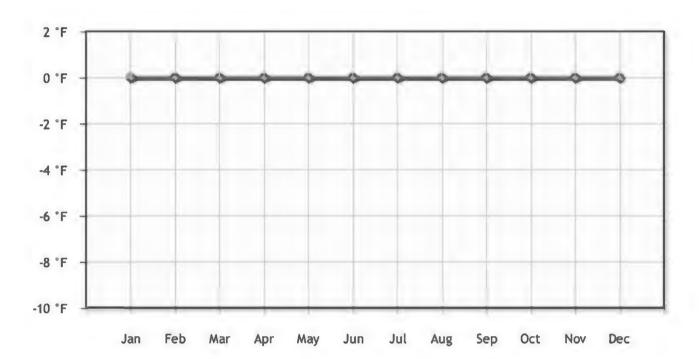
### Monthly Precipitation (Inches):

Jul Jan Feb Mar Apr May <u>Jun</u> Aug Sep Oct Nov Dec 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Hiah Low 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00



### Monthly Temperature (°F):

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	Aug	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
High	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



# **Influencing Water Features**

Stream Type: None

# **Representative Soil Features**

The soils of this site are shallow (less than 20"to bedrock) well-drained soils formed in alluvium over residuum or residuum. These soils have moderate permeability and may occur on all slopes. The bedrock may be any kind which is virtually impenetrable to plant roots, except igneous. The surface soil will have one or more of the following textures: very fine sandy loam, loam, silt loam, sandy clay loam, silty clay loam, and clay loam. Thin ineffectual layers of other textures are disregarded. Layers of the soil most influential to the

plant community vary from 3 to 6 inches thick.

Surface texture: (1) Loam

(2) Silt loam

(3) Clay loam

Subsurface texture group: Loamy

	<u>Minimum</u>	<u>Maximum</u>
Surface fragments <=3" (% cover):	0	10
Surface fragments >3" (% cover):	0	20
Subsurface fragments <=3" (% volume):	0	15
Subsurface fragments >3" (% volume):	0	0

Drainage class: Well drained

Permeability class: Moderate to moderately rapid

	<u>Minimum</u>	<u>Maximum</u>
Depth (inches):	10	20
Available water capacity (inches):	1.10	4.20
Electrical conductivity (mmhos/cm):	0	4
Sodium adsorption ratio:	0	5
Calcium carbonate equivalent (percent):	0	5
Soil reaction (1:1 water):	6.6	8.4

## **Plant Communities**

## **Ecological Dynamics of the Site**

**Ecological Dynamics of the Site:** 

As this site deteriorates, species such as blue grama and big sagebrush will increase. Grasses such as bluebunch wheatgrass, little bluestem, sideoats grama and rhizomatous wheatgrasses will decrease in frequency and production.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.

Plant Community Narratives

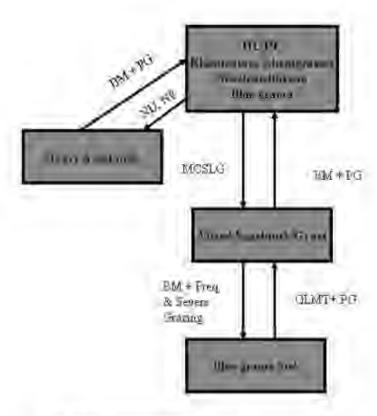
Following are the narratives for each of the described plant communities. These plant

communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC's) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

## **State-and-Transition Diagram**

Sur Type Progeland
MLRA - 61 - Blankfillin Foot Signer

Shallow Loamy 15-19" P.Z. R061XV162WY



BM - Brush Management (fire, chemical, mechanical)

Freq. & Severe Grazing - Frequent and Severe Utilization of the Contrasson Midgrasses during the Growing Season

GLMT - Grazing Lund Mechanical Treatment

LTPG - Long-tem Prescribed Grazing

MCSLG - Moderate, Continuous Season-long Grazing

NII, NF - No Ilse and No Fur-

PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing neason).

VLTPG Very Long-term Prescribed Grazing (could possibly take generations)

Na - found adjacent to a saline arte

Technocal Quide Section IIE USDW-418C3 New 81-12-01

# Rhizmatous wheatgrasses/Needleandthread/Blue grama

Rhizomatous Wheatgrasses, Needleandthread, Blue Grama Plant Community
The Interpretive plant community for this site is the Historic Climax Plant Community. This
state evolved with grazing by large herbivores and is well suited for grazing by domestic
livestock. Potential vegetation is about 80% grasses or grass-like plants, 10% forbs, and
10% woody plants. The state is dominated by cool season midgrasses. The major grasses

include little bluestem, bluebunch wheatgrass, needleandthread, sideoats grama, and western wheatgrass. Other grasses occurring on the state include Sandberg bluegrass, blue grama, plains muhly, spikefescue and prairie junegrass. Big sagebrush is a conspicuous element of this state and occurs in a mosaic pattern. Big sagebrush may become dominant on some areas with absence of fire. Natural fire occurred frequently in this community and prevented big sagebrush from being the dominant landscape. Wildfires are actively controlled in recent times so chemical control using herbicides has replaced the historic role of fire on this state. Recently controlled burning has regained some popularity.

The total annual production (air-dry weight) of this state is about 1400 pounds per acre, but it can range from about 900 lbs/acre in unfavorable years to about 1800 lbs/acre in above average years.

The state is extremely stable and well adapted to the Black Hills Foot Slopes climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- Protection from grazing and fire will convert this plant community to the Heavy Sagebrush Plant Community.
- Moderate, continuous season-long grazing will convert the plant community to the Mixed Sagebrush/Grass Plant Community.
- Frequent and severe grazing and brush management will convert the plant community to the Blue Grama Plant Community.

## Rhizmatous wheatgrasses/Needleandthread/Blue grama Plant Species Composition

Grass	Annual Productior (pounds per acre)				
Group Group name		<u>Symbol</u>	Scientific name	<u>Low</u> 140	<u>High</u> 350
	little bluestem	SCSC	<u>Schizachyrium</u> <u>scoparium</u>	140	350
2				140	350
	bluebunch wheatgrass	PSSP6	<u>Pseudoroegneria</u> <u>spicata</u>	140	350
3				140	210
	needle and thread, needleandthread	HECO26	<u>Hesperostipa</u> <u>comata</u>	140	210
4				70	210
	western wheatgrass	atgrass PASM <u>Pascopyrum smith</u>		70	210
5				70	140

		spike fescue, kingspike fescue	LEKI2	Leucopoa kingii	70	140
6	<b>.</b>					
	,				70	140
		sideoats grama	BOCU	<u>Bouteloua</u> curtipendula	70	140
7	,				70	280
•		Grass, perennial	2GP		0	70
		blue grama	BOGR2	Bouteloua gracilis	0	70
		hairy grama	BOHI2	Bouteloua hirsuta	0	70
		threadleaf sedge	CAFI	Carex filifolia	0	70
		timber oatgrass, timber danthonia	DAIN	<u>Danthonia</u> intermedia	0	70
		onespike danthonia, onespike oatgrass	DAUN	<u>Danthonia</u> <u>unispicata</u>	0	70
		blue wildrye	ELGL	Elymus glaucus	0	70
		prairie Junegrass	KOMA	Koeleria macrantha	0	70
		plains muhly, stoneyhills muhly	MUCU3	<u>Muhlenbergia</u> <u>cuspidata</u>	0	70
		fowl bluegrass	POPA2	<u>Poa palustris</u>	0	70
		Sandberg bluegrass, big bluegrass, Canby bluegrass, alkali	POSE	<u>Poa secunda</u>	0	70
		bluegrass				
	Forb	bluegrass			Annual Pro	
	Group		S. mahal	Soiantifia nama	(pounds p	er acre)
	<u>Group</u> Group <u>name</u>	Common name	<u>Symbol</u>	Scientific name	(pounds p	er acre) High
<u>Q</u> 8	<u>Group</u> Group <u>name</u>	Common name		Scientific name	(pounds pounds p	er acre) High 210
	<u>Group</u> Group <u>name</u>	Common name Forb, perennial	2FP		(pounds pounds p	High 210 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax	2FP COMAN	<u>Comandra</u>	Low 70 0	High 210 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune	2FP	Comandra Dalea Erysimum capitatum	(pounds pounds p	High 210 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover	2FP COMAN DALEA	<u>Comandra</u> <u>Dalea</u>	(pounds p Low 70 0 0	High 210 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western	2FP COMAN DALEA	Comandra Dalea Erysimum capitatum	(pounds p Low 70 0 0	High 210 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower	2FP COMAN DALEA ERCAC	Comandra Dalea Erysimum capitatum var. capitatum	(pounds p Low 70 0 0 0	High 210 70 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower fleabane desertparsley,	2FP COMAN DALEA ERCAC ERIGE2	Comandra Dalea Erysimum capitatum var. capitatum Erigeron	(pounds pounds p	High 210 70 70 70 70 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower fleabane desertparsley, biscuitroot	2FP COMAN DALEA ERCAC ERIGE2 LOMAT	Comandra Dalea Erysimum capitatum var. capitatum Erigeron Lomatium	(pounds pounds p	High 210 70 70 70 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower fleabane desertparsley, biscuitroot lupine	2FP COMAN DALEA ERCAC ERIGE2 LOMAT LUPIN	Comandra Dalea Erysimum capitatum var. capitatum Erigeron Lomatium Lupinus	(pounds p  Low 70 0 0 0 0 0 0 0	High 210 70 70 70 70 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower fleabane desertparsley, biscuitroot lupine bluebells silverleaf Indian	2FP COMAN DALEA ERCAC ERIGE2 LOMAT LUPIN MERTE	Comandra Dalea Erysimum capitatum var. capitatum Erigeron Lomatium Lupinus Mertensia Pediomelum	(pounds p	High 210 70 70 70 70 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower fleabane desertparsley, biscuitroot lupine bluebells silverleaf Indian breadroot beardtongue,	2FP COMAN DALEA ERCAC ERIGE2 LOMAT LUPIN MERTE PEAR6	Comandra Dalea Erysimum capitatum var. capitatum Erigeron Lomatium Lupinus Mertensia Pediomelum argophyllum	(pounds p	High 210 70 70 70 70 70 70 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower fleabane desertparsley, biscuitroot lupine bluebells silverleaf Indian breadroot beardtongue, penstemon	2FP COMAN DALEA ERCAC ERIGE2 LOMAT LUPIN MERTE PEAR6 PENST	Comandra Dalea  Erysimum capitatum var. capitatum  Erigeron  Lomatium  Lupinus  Mertensia Pediomelum argophyllum  Penstemon  Sedum Thermopsis montana var.	(pounds p	High 210 70 70 70 70 70 70 70 70 70
	<u>Group</u> Group <u>name</u>	Common name  Forb, perennial bastard toadflax prairie clover sanddune wallflower, western wallflower fleabane desertparsley, biscuitroot lupine bluebells silverleaf Indian breadroot beardtongue, penstemon stonecrop mountain	2FP COMAN DALEA ERCAC ERIGE2 LOMAT LUPIN MERTE PEAR6 PENST SEDUM	Comandra Dalea  Erysimum capitatum var. capitatum  Erigeron Lomatium  Lupinus Mertensia Pediomelum argophyllum  Penstemon  Sedum Thermopsis	(pounds p	High 210 70 70 70 70 70 70 70 70 70 70

Shrub/V)	ries				roduction per acre)
Group parms	Common name	Bymbol	Scientific name	Low	High 70
	bly segebrush	ARTR2	Artemiala bidentala	0	70
10				0	70
	skunkbush sumec	RHTR	Rhus bilobata	0	70
11				D	70
	winterful	KRASC	Krascheninnikovis	0	70
12				o	70
	Shrub (>.5m)	28HRUB		0	70

## Plant Growth Curve

Growth curve

WY1601

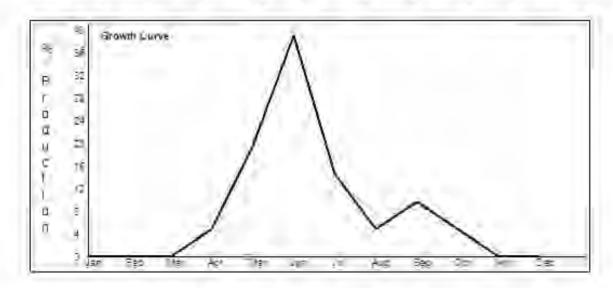
number.

15-19BL Upland slies

Growth curve name:

Growth curve description:

#### Percent Production by Month Jan May Jun Nov Jul



# Heavy Sagebrush

Heavy Sagebrush Plant Community

This plant community is the result of protection from grazing and fire. Big sagebrush dominates this plant community with canopy cover often exceeding 50%. The understory of grass includes rhizomatous wheatgrasses, bluebunch wheatgrass, little bluestem, Sandberg bluegrass, and prairie junegrass. With complete protection from grazing and fire, the state will become dominated by big sagebrush. The big sagebrush canopy protects the cool season grasses, but this protection makes them unavailable for grazing. Big sagebrush is long-lived and will persist for a long period.

This plant community can provide valuable winter feed for both livestock (especially sheep) and wildlife (such as mule deer and antelope).

The total annual production (air-dry weight) of this state is about 1000 pounds per acre, but it can range from about 800 lbs/acre in unfavorable years to about 1200 lbs/acre in above average years.

The soil resources of this state are protected from erosion. The watershed is functioning. The biotic community is intact except that grass production is lowered.

Transitional pathways leading to other plant communities are as follows:

• Brush control followed by deferment for 1 to 2 years and prescribed grazing management thereafter will return this state to near Historic Climax Plant Community. Care should be taken when planning brush control to exclude critical winter ranges.

#### Plant Growth Curve

Growth curve

number:

WY1601

Growth curve

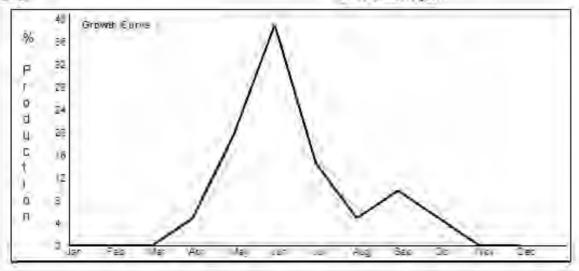
name:

15-19BL Upland sites

Growth curve description:

**Percent Production by Month** 

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
n	n	0	5	20	40	15	5	10	5	n	n



# Mixed Sagebrush/Grass

Mixed Sagebrush/Grass Plant Community

Historically, this plant community evolved under grazing by bison and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock in the absence of fire or brush control. Wyoming big sagebrush is a significant component of this plant community. Cool-season grasses make up the majority of the understory with the balance made up of short warm-season grasses, annual cool-season grass, and miscellaneous forbs.

Dominant grasses include bluebunch wheatgrass, rhizomatous wheatgrasses, little bluestem, sideoats grama, and blue grama. Grasses of secondary importance include prairie junegrass, and Sandberg bluegrass. Forbs, commonly found in this plant community, include Louisiana sagewort (cudwesd), plains wallflower, hairy goldaster, slimflower scuripea, and scarlet globemallow. Big sagebrush canopy ranges from 20% to 30%. Fringed sagewort is commonly found. Plains pricklypear and winterfat can also occur.

When compared to the Historical Climax Plant Community, big sagebrush and blue grams have increased. Bluebunch wheatgrass has decreased, often occurring only where protected from grazing by the sagebrush canopy. Production of cool-season grasses has also been reduced. Cheatgrass (downy brome) has invaded the state. The overstory of big sagebrush and understory of grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as mule deer and antelope.

The total annual production (air-dry weight) of this state is about 1000 pounds per acre, but it can range from about 800 lbs./acre in unfavorable years to about 1200 lbs./acre in above average years.

The state is stable and protected from excessive erosion. The biotic integrity of this plant community is usually intact. However, it can be at risk depending on how far a shift has occurred in plant composition toward blue grams, sagebrush, and/or cheatgrass. The watershed is usually functioning. However, it can become at risk when canopy cover of sagebrush, blue grams sod, and/or bare ground increases.

Transitional pathways leading to other plant communities are as follows:

· Brush management followed by 1 or 2 years deferment and prescribed grazing use will

return this state to near Historic Climax Plant Community.

 Frequent and severe grazing and brush management will convert this state to the Blue grams sod Plant Community.

#### Plant Growth Curve

Growth curve

WY1601

number.

Growth curve

nama:

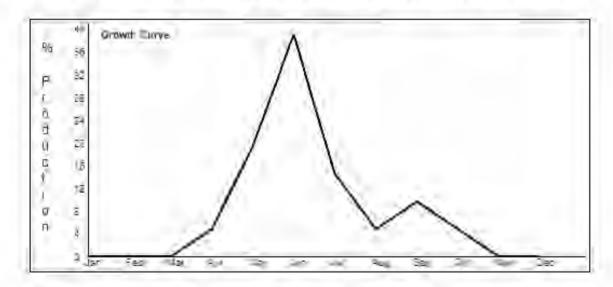
15-19BL Upland sites

Growth curve description:

Percent Production by Month

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

0 0 0 5 20 40 15 5 10 5 0 0



# Blue grama Sod

Blue Grama Sod Plant Community

This plant community is the result of long-term, heavy, continuous, season-long grazing. A dense sod of blue grams and threadlest sedge dominates and covers up to 90% of the soil surface. When the historic climax community is replaced by warm season dominated communities, grass production is reduced.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 600 lbs/acre in unfavorable years to about 1000 lbs/acre in above average years.

The sod formed by these grasses is resistant to water infiltration. While this sod protects the

state, off-site areas are affected by excessive runoff that may cause gully erosion. This sod is resistant to change and may require practices such as grazing land mechanical treatment to return to a cool season grass community. Transitional pathways leading to other plant. communities are as follows:

Transitional pathways leading to other plant communities are as follows:

 Grazing Land Mechanical Treatment (chiseling, etc.) followed by prescribed grazing will return this plant community to near Historic Climax Plant Community.

#### Plant Growth Curve

Growth curve

WY1601

number:

name:

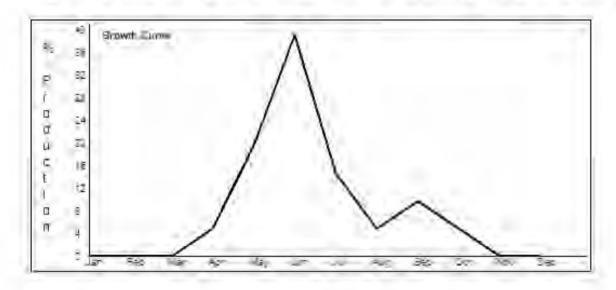
Growth curve

15-19BL Upland sites

Growth curve description:

Percent Production by Month

2.5 5 5	Carlot .	245			-	-3.		120	1000	Take Till	245
Jan	Feb	Mar	ADE	May	Jun	Jul	Aug	Sep	Oct	NOY	Dec
				20							



# Section II: Ecological Site Interpretations

# **Animal Community**

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Heavy Sagebrush: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. This community can provide nesting and brood rearing habitat for sage grouse.

Mixed Sagebrush/Grass: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule deer and antelope may use this state for foraging and cover year-round, as would cottontail and jack rabbits. It provides important winter, nesting, brood-rearing, and foraging habitat for sage grouse. Brewer's sparrows' nest in big sagebrush plants, and hosts of other nesting birds utilize stands in the 20-30% cover range.

Blue Grama Sod: These communities provide limited foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover and if the Historic Climax Plant Community or the Mixed Sagebrush/Grass Plant Community is limiting. Generally, these are not target plant communities for wildlife habitat management.

Animal Community - Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community Production Carrying Capacity\* (Lbs/acre) (AUM/ac)
Historic Climax Plant Community 900-1800 .35

Heavy Sagebrush 800-1200 .25 Mixed Sagebrush/Grass 800-1200 .25 Blue Grama Sod 600-1000 .15

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

## Plant Preference by Animal Kind

Animal kind: all antelope

Common name	Scientific name	Plant part	<u>J</u>	<u>E</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	Achnatherum hymenoides	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р
textile onion	Allium textile	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes, rose pussytoes silverweed	Antennaria rosea	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
cinquefoil	Argentina anserina	plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	<u>Artemisia cana ssp.</u> <u>cana</u>	Entire plant Entire	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р
tarragon, green sagewort	Artemisia dracunculus	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
sandwort	<u>Arenaria</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
black sagebrush	Artemisia nova	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush twogrooved	Artemisia tridentata	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D

<sup>\* -</sup> Continuous, season-long grazing by cattle under average growing conditions.

milkvetch	Astragalus bisulcatus	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
		Entire												
aster	<u>Aster</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
milkvetch	<u>Astragalus</u>	plant	D	ט	ט	D	D	D	ט	D	D	ט	D	D
founving salthush	Atriplex canescens	Entire plant	Р	D	D	D	D	P	Þ	Р	D	D	Þ	Þ
shadscale	<u>Aurpiex carresceris</u>	Entire	•	•	•	•	•	•	•	•		1	ı	•
saltbush	Atriplex confertifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
Gardner's		Entire												
saltbush	<u>Atriplex gardneri</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
American		Entire												
sloughgrass	Beckmannia syzigachne	-	U	U	U	U	U	U	U	U	U	U	U	U
bluo arama	Bouteloua gracilis	Entire plant	Ъ	Ь	Ъ	ח	ח	Ъ	П	D	П	ח	П	П
blue grama	<u>bouteioua gracilis</u>	Entire	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
mustard	Brassica	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
water sedge	Carex aquatilis	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
threadleaf sedge	Carex filifolia	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
prairie sandreed	Calamovilfa longifolia	Entire plant	U	11					11	U	11	11	11	
prairie saridreed	<u>Calamagrostis</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U
plains reedgrass	<u>montanensis</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
<b>J J</b>		Entire												
spike sedge	Carex nardina	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire	_							_				_
Nebraska sedge	Carex nebrascensis	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
beaked sedge	Carex rostrata	plant	U	U	U	U	U	U	U	U	U	U	U	U
garden		Entire												
yellowrocket	Campe stricta(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian paintbrush,		Entire	_	_	_	_	_	_	_		_	_	_	_
paintbrush	<u>Castilleja</u>	plant	D	D	ט	ט	ט	ט	ט	D	ט	ט	ט	ט
northern reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	Entire plant	11	11	П	11	11	П	11	U	11	11	11	11
Douglas'	<u>ээр. шехранза</u>	Entire	J	U	U	U	U	Ü	U	J	U	U	Ü	J
dustymaiden	Chaenactis douglasii	plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow	_	•												
rabbitbrush, greer	1													
rabbitbrush, low rabbitbrush,														
Douglas	<u>Chrysothamnus</u>	Entire												
rabbitbrush	<u>viscidiflorus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D

water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip hawksbeard	Crepis acuminata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
buttecandle, minerscandle	Cryptantha celosioides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
miner's candle	Cryptantha virgata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
plains springparsley	Cymopterus acaulis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
larkspur	<u>Delphinium</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
inland saltgrass California	<u>Distichlis spicata</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
waterwort	Elatine californica	plant	D	D	D	D	D	D	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
streambank wheatgrass, thickspike	Elvmus lanceolatus ssp.	Entire												
wheatgrass	lanceolatus ssp.	plant	D	D	D	D	D	D	D	D	D	D	D	D
slender wheatgrass	Elymus trachycaulus	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
horsetail	<u>Equisetum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
fleabane	<u>Erigeron</u>	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	Ericameria nauseosa	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower buckwheat American	Eriogonum umbellatum	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
mannagrass	Glyceria grandis	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	plant	U	U	U	U	U	U	U	U	U	U	U	U

spiny hopsage	Grayia spinosa	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
broom snakeweed	Gutierrezia sarothrae	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock goldenweed needle and	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
thread, needleandthread	Hesperostipa comata	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
iris	<u>Iris</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
rush	<u>Juncus</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Utah juniper	Juniperus osteosperma	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	Vroechoninnikovio	Entire	Р	Р	Р	D	D	Р	D	Р	Р	Р	D	Р
winterial	<u>Krascheninnikovia</u>	plant Entire	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
basin wildrye licorice-root,	<u>Leymus cinereus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
lovage	<u>Ligusticum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
lupine	<u>Lupinus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie bluebells	Mertensia lanceolata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's povertyweed	Monolepis nuttalliana	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted evening- primrose	Oenothera caespitosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
nailwort	<u>Paronychia</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian														

·			-1											
breadroot,	Do dia analysis	<b>-</b>												
breadroot	Pediomelum	Entire	D	D	Ь	Ь	Ь	Ь	Ь	Ь	Ь	Ь	D	Ь
scurfpea	<u>esculentum</u>	plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
beardtongue,	Day (and	Entire	_											
penstemon	<u>Penstemon</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	٢	Р	٢	Р
	Dhalaria amusikasasa	Entire												
reed canarygrass	<u>Phalaris arundinacea</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
nhlov	Dhlov	Entire	U		U									
phlox	Phlox	plant	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush, bud sagewort	<u>Picrothamnus</u> <u>desertorum</u>	Entire plant	Р	Р	Ь	Ь	D	Ь	Ь	Ь	Ь	Ь	Р	Ь
•	<u>ueseriorum</u>	piarit	Г		Г	Г		Г					Г	
woolly plantain, woolly		Entire												
Indianwheat	Plantago patagonica	plant	U	IJ	U	IJ	IJ	IJ	IJ	IJ	IJ	u	IJ	IJ
Sandberg	riamago patagomoa	Entire	·	Ŭ		Ŭ	Ŭ				Ŭ		Ū	Ŭ
bluegrass	Poa ampla(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
J.aog.aoo	Populus deltoides ssp.	Entire	•	•	-	•	•	•	-	-	•	-	-	•
plains cottonwood		plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg		Entire	_		_	_		_		_	_		_	_
bluegrass	Poa juncifolia(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Sandberg		•												
bluegrass, big														
bluegrass, Canby														
bluegrass, alkali		Entire	_										_	
bluegrass	<u>Poa secunda</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebunch	<u>Pseudoroegneria</u>	Entire												
wheatgrass	<u>spicata</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's	<u> </u>	Entire	_	_	_	_	_	_	_	_	_		_	_
alkaligrass	Puccinellia nuttalliana	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
amang. ara a		•												
wootorn buttoroup	Panunaulus assidantalia	Entire	D	Ь	D	Ь	Ь	Ь	Ь	Ь	Ь	Ь	Ь	Ь
western buttercup	Ranunculus occidentalis	-	D	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
skunkbush sumac	Phus trilohoto	Entire plant	Ъ	П	D	Ь	Ь	Ь	Ь	Ь	Ь	Ь	Ь	П
Skulikbusii Sulliac	KIIUS IIIIODAIA	Entire	D	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
wax currant	Ribes cereum	plant	ח	D	D	n	D	D	D	D	n	П	D	П
wax currant		Entire	D	ט	ט	ט	ט	ט	0	ט	ט	ט	ט	ט
Woods' rose	Rosa woodsii var. woodsii	plant	ח	D	D	D	D	D	D	D	D	D	ח	D
western dock		Entire	11	_	U	_	_	_	_	_	_	_	_	_
western dock	Rumex aquaticus	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
willow	Salix	plant	U	U	U	U	IJ	U	U	IJ	U	u	U	IJ
	<u>Sarcobatus</u>	Entire												
greasewood	<u>vermiculatus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
g. 1221.100 <b>4</b>		Entire	_	_	_	_	_	_	_	_	_	_	_	_
bulrush	<u>Scirpus</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
			_	_	_	_	_	_	_	_	_	_	_	_

little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
beaked skeletonweed	Shinnersoseris rostrata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All a	antelope													
Common name	Scientific name	<u>Plant</u> <u>part</u> Entire	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	Α	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
alkali sacaton	Sporobolus airoides	plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all a	intelope													
Common name	Scientific name	<u>Plant</u> <u>part</u> Entire	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	Α	<u>s</u>	<u>O</u>	N	D
sand dropseed	Sporobolus cryptandrus		U	U	U	U	U	U	U	U	U	U	U	U
alkali cordgrass	Spartina gracilis	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
prairie cordgrass	Spartina pectinata	plant	U	U	U	U	U	U	U	U	U	U	U	U
desert princesplume	<u>Stanleya pinnata var.</u> <u>pinnata</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
shortspine horsebrush, spiny horsebrush	Tetradymia spinosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch badlands mule-	<u>Vicia americana</u>	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
ears	Wyethia scabra(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
woodyaster soapweed yucca,	<u>Xylorhiza</u>	Entire plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т

small soapweed	Yucca glauca	plant	D	D	ח	ח	П	ח	ח	П	ח	ח	D	ח
foothill	<u>rucca giauca</u>	Entire	U	ט	ט	ט	U	ט	ט	D	ט	ט	ט	ט
deathcamas	Zigadenus paniculatus	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Animal kind: all c	attle													
		<u>Plant</u>												
Common name	Scientific name	<u>part</u> Entire	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
•	Achnatherum	Entire												
Indian ricegrass	<u>hymenoides</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
_	-	Entire												
textile onion	Allium textile	plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes,		Entire												
rose pussytoes	Antennaria rosea	plant	U	U	U	U	U	U	U	U	U	U	U	U
silverweed		Entire												
cinquefoil	Argentina anserina	plant	U	U	U	U	U	U	U	U	U	U	U	U
	Artemisia cana ssp.	Entire												
silver sagebrush	<u>cana</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green		Entire												
sagewort	Artemisia dracunculus	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
sandwort	<u>Arenaria</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort,		Entire												
fringed sagewort	Artemisia frigida	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
black sagebrush	<u>Artemisia nova</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
birdfoot		Entire												
sagebrush	Artemisia pedatifida	plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn,	Aristida purpurea var.	Entire												
red threeawn	<u>longiseta</u>	plant			U									
		<b>-</b> . e	U	U	U	U	U	U	U	U	U	U	U	U
hia coachruch	Artemisia tridentata	Entire plant			U									11
big sagebrush	Arternisia triueritata	Entire	U	U	U	U	U	U	U	U	U	U	U	U
twogrooved milkvetch	Astragalus bisulcatus	plant		11	U	11	11	11	11	11	11	11	11	11
HIIIKVEICH	Asiragaius pisuicatus	Entire	U	U	U	U	U	U	U	U	U	U	U	U
aster	<u>Aster</u>	plant	11	11	U	11	11	11	11	11	11	11	11	ш
astol	ASIGI	Entire	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	plant	D	D	D	D	D	ח	ח	D	ח	ח	D	ח
mintvotori	<u>Hotragaras</u>	Entire	ט		ט	ט	ט				ט	ט	ט	
fourwing salthush	Atriplex canescens	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
shadscale	A MINION OUTTOGOOTIO	Entire	•	•	•	•	•	•	•	•	•	•	•	•
saltbush	Atriplex confertifolia	plant	IJ	IJ	U	П	IJ							
Gardner's	prox comortiona	Entire	_	_	_	_	_	_	_	_	_	_	_	_
saltbush	Atriplex gardneri	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		F.3	•	•	-	-	-	•	•	•	-	-	-	•

American sloughgrass	Beckmannia syzigachne	-	D	D	D	D	D	D	D	D	D	D	D	D
blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
mustard	<u>Brassica</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
water sedge	Carex aquatilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie sandreed	Calamovilfa longifolia	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains reedgrass	<u>Calamagrostis</u> <u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge	Carex nebrascensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р
beaked sedge	Carex rostrata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
garden yellowrocket	Campe stricta(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р
Indian paintbrush, paintbrush	<u>Castilleja</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
northern reedgrass	Calamagrostis stricta ssp. inexpansa	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Douglas' dustymaiden 	Chaenactis douglasii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow rabbitbrush, green rabbitbrush, low														
rabbitbrush, Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	Entire plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip hawksbeard	Crepis acuminata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
buttecandle, minerscandle	Cryptantha celosioides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
miner's candle plains	Cryptantha virgata	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U

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springparsley	Cymopterus acaulis	plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
larkspur	<u>Delphinium</u>	plant	U	D	D	D	D	D	D	D	U	D	D	D
California waterwort	Elatine californica	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Canada wildrye	Elymus canadensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
streambank wheatgrass,		•												
thickspike wheatgrass slender	<u>Elymus lanceolatus ssp.</u> <u>lanceolatus</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
wheatgrass	Elymus trachycaulus	plant Entire	Р	Р	D	Р	Р	Р	Р	Р	Р	Р	Р	Р
horsetail	<u>Equisetum</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
fleabane	<u>Erigeron</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
rubber rabbitbrush sulphur-flower	Ericameria nauseosa	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
buckwheat	Eriogonum umbellatum	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	plant	U	U	U	U	U	U	U	U	U	U	U	U
spiny hopsage	Grayia spinosa	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	Gutierrezia sarothrae	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock goldenweed needle and	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
thread, needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
rush	<u>Juncus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D

Utah juniper	Juniperus osteosperma	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	<u>Krascheninnikovia</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
basin wildrye	Leymus cinereus	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
licorice-root, lovage	<u>Ligusticum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
lupine	<u>Lupinus</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
prairie bluebells Nuttall's	Mertensia lanceolata	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
povertyweed	<u>Monolepis nuttalliana</u> <u>Muhlenbergia</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly tufted evening-	<u>richardsonis</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
primrose	Oenothera caespitosa	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
nailwort western	<u>Paronychia</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
wheatgrass large Indian	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
breadroot, breadroot	<u>Pediomelum</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
scurfpea beardtongue,	<u>esculentum</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
penstemon	<u>Penstemon</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
reed canarygrass	Phalaris arundinacea	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
phlox	Phlox	plant	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush, bud sagewort	<u>Picrothamnus</u> <u>desertorum</u>	Entire plant	Р	Ρ	Р	Р	Р	Р	Ρ	Р	Ρ	Ρ	Р	Р
woolly plantain, woolly Indianwheat	Plantago patagonica	Entire plant	U	11	U	11	11	11	11	11	11	11	11	11
Sandberg		Entire												_
bluegrass	<u>Poa ampla(syn)</u> <u>Populus deltoides ssp.</u>	plant Entire	۲	Р	۲	۲	۲	۲	۲	Р	Р	Р	Р	Р

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plains cottonwood	monilifera	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass	Poa juncifolia(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big														
bluegrass, Canby bluegrass, alkali		Entire												
bluegrass	Poa secunda	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebunch	<u>Pseudoroegneria</u>	Entire												
wheatgrass	<u>spicata</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's	5 ' " " " "	Entire												_
alkaligrass	<u>Puccinellia nuttalliana</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western buttercup	Ranunculus occidentalis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
woodon badoroap	Tananoana ooonaomano	Entire												
skunkbush sumac	Rhus trilobata	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
wax currant	Ribes cereum	plant	U	U	U	U	U	U	U	U	U	U	U	U
Woods' rose	Rosa woodsii var. woodsii	Entire plant	ח	ח	ח	ח	ח	ח	ח	D	ח	ח	ח	ח
W0003 103C	WOOdsii	Entire					ט	ט						0
western dock	Rumex aquaticus	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
willow	<u>Salix</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
greasewood	<u>Sarcobatus</u> vermiculatus	Entire plant	ח	ח	ח	ח	ח	ח	П	D	ח	ח	ח	D
greasewood	<u>verriiculatus</u>	Entire	ט	U	U	ט	U	U	ט	ט	ט	ט	U	ט
bulrush	<u>Scirpus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Schizachyrium</u>	Entire												
little bluestem	<u>scoparium</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked skeletonweed	Shinnersoseris rostrata	Entire plant				11			11	U				
Skeletoliweed	Sillillersuseris rustrata	Entire	U	U	U	U	U	U	U	U	U	U	U	U
blue-eyed grass	<u>Sisyrinchium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All o	attle													
0		<u>Plant</u>		_		Α.				٨	_	^	N.I.	_
Common name	Scientific name	<u>part</u> Entire	<u>J</u>	上	<u>IVI</u>	A	<u>IVI</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>5</u>	<u>U</u>	N	ט
alkali sacaton	Sporobolus airoides	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Animal kind: all c	attle													
Common some	Cojontifio no	Plant		_	N A	۸	N A	,		٨	c	_	N.I	_
Common name	Scientific name	<u>part</u> Entire	<u>J</u>	ᆮ	<u>IVI</u>	<u> </u>	<u>IVI</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>ა</u>	<u>U</u>	<u>IX</u>	ᄁ
		LIMIC												

	_	05 1 111100010 110	ро. с											
sand dropseed	Sporobolus cryptandrus	-	D	D	D	D	D	D	D	D	D	D	D	D
alkali cordgrass	Spartina gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
proirie cordarece	Sporting postingto	Entire plant	D	D	Р	D	D	D	D	D	D	D	D	D
prairie cordgrass desert	<u>Spartina pectinata</u> <u>Stanleya pinnata var.</u>	Entire	7	Г	_	_	_	_	_	٢	_	٢	_	Γ
princesplume	<u>pinnata</u>	plant	T	T	Т	Т	T	Т	Т	Т	Т	Т	Т	T
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	Symphoricarpos occidentalis	Entire plant	IJ	U	U	U	IJ	U	IJ	U	U	IJ	IJ	IJ
shortspine		•						_						
horsebrush, spiny horsebrush	<u>Tetradymia spinosa</u>	Entire plant	11	11	U		11	11	11	11	11	11	11	11
Horsebrush	<u>retradyrnia spiriosa</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	T
narrowleaf cattail	Typha angustifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
nanomea esta		Entire	_		_	_			_					_
broadleaf cattail	Typha latifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
badlands mule-	Marthia and hardown	Entire	_		_	_	_	_	_	_		_	_	_
ears	Wyethia scabra(syn)	plant Entire	D	D	D	ט	ט	ט	ט	ט	ט	ט	D	D
woodyaster	<u>Xylorhiza</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
soapweed yucca,		Entire												
small soapweed	<u>Yucca glauca</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
foothill deathcamas	Zigadenus paniculatus	Entire plant	т	т	т	т	т	т	т	т	т	т	т	т
deathcamas	<u> Zigadenas parnediatas</u>	piant	•	•	1	•	•	•	•	•	•	1		•
Animal kind: all d	eer	DI 1												
Common name	Scientific name	<u>Plant</u> part	J	F	<u>M</u>	Α	М	J	J	Α	S	0	N	D
		Entire												
yarrow	<u>Achillea</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	Achnatherum hymenoides	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>,</u>	Entire		•	•	•	•	•	-			•	•	•
textile onion	Allium textile	plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	IJ	IJ	U	IJ	U	IJ						
silverweed		Entire			_	_			_			_		
cinquefoil	Argentina anserina	plant	U	U	U	U	U	U	U	U	U	U	U	U

silver sagebrush	Artemisia cana ssp. cana	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
sandwort	<u>Arenaria</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
twogrooved milkvetch	Astragalus bisulcatus	Entire plant Entire	Т	T	Т	T	Т	Т	Т	Т	Т	Т	Т	Т
aster	<u>Aster</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
fourwing saltbush shadscale	Atriplex canescens	plant Entire	Р	Ρ	Р	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Р	Ρ
saltbush Gardner's	Atriplex confertifolia	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
saltbush	Atriplex gardneri	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
American sloughgrass	Beckmannia syzigachne	-	U	U	U	U	U	U	U	U	U	U	U	U
blue grama	Bouteloua gracilis	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
mustard	<u>Brassica</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
water sedge	Carex aquatilis	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
prairie sandreed	Calamovilfa longifolia Calamagrostis	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
plains reedgrass	<u>montanensis</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
Nebraska sedge	Carex nebrascensis	plant	D	D	D	D	D	D	D	D	D	D	D	D

hooked godge	Corox rootroto	Entire									U			
beaked sedge garden	<u>Carex rostrata</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
yellowrocket	Campe stricta(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian paintbrush,	On atilla in	Entire	_	_	_	_	_	_	_	_	_	_	_	_
paintbrush northern	<u>Castilleja</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Douglas'		Entire												
dustymaiden yellow	Chaenactis douglasii	plant	U	U	U	U	U	U	U	U	U	U	U	U
rabbitbrush, green														
rabbitbrush, low														
rabbitbrush, Douglas	<u>Chrysothamnus</u>	Entire												
rabbitbrush	<u>viscidiflorus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
water hemlock	<u>Cicuta</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
nainan hamilaak	Comitime managed at time	Entire	_	_	_	_	_	_	_	_	_	_	_	_
poison hemlock	Conium maculatum	plant Entire	Т	ı	ı	Т	Т	Т	Т	Т	Т	Т	Т	1
tapertip hawksbeard	Crepis acuminata	plant	D	D	D	D	D	D	D	D	D	D	D	D
buttecandle,		Entire			_		_							
minerscandle	Cryptantha celosioides	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
miner's candle	<u>Cryptantha virgata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
plains springparsley	Cymopterus acaulis	Entire plant	U	11	U	U	U	U	U	U	U	U	11	U
Springparsicy	<u>Deschampsia</u>	Entire	U	U	Ü	U	U	U	U	U	U	U	U	Ü
tufted hairgrass	<u>caespitosa(syn)</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
· ·		Entire												
larkspur	<u>Delphinium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Salam de adtamas a a	Distinction and area	Entire												
inland saltgrass California	<u>Distichlis spicata</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
waterwort		plant	_	_	_	_	_	_	_	_	_	_	_	_
Waterwert	Elatine californica	Entire	D	D	D	ט	ט	ט	ט	ט	D	ט	ט	ט
Canada wildrye	Elymus canadensis	plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u> </u>	Entire								_	_		_	
silverberry	Elaeagnus commutata	plant	D	D	D	D	D	D	D	D	D	D	D	D
squirreltail,														
bottlebrush	Elymus elymoides ssp.	Entire									U			
squirreltail streambank	<u>elymoides</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
wheatgrass,														
thickspike	Elymus lanceolatus ssp.	Entire												

2010	-		copor c											
wheatgrass	<u>lanceolatus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
slender		Entire	_		_		_		_	_		_	_	_
wheatgrass	Elymus trachycaulus	plant	D	D	D	ט	ט	ט	ט	ט	ט	D	D	ט
horsetail	<u>Equisetum</u>	Entire plant	U	Ш	U	П	П	П	П	П	11	11	11	ш
norsetan	<u>Lquisetuiri</u>	Entire	J	Ü	O	U	U	Ü	Ü	Ü	Ü	J	U	J
fleabane	<u>Erigeron</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	-	Entire												
rubber rabbitbrush	Ericameria nauseosa	plant	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower	_, , , , , , , , , , , , , , , , , , ,	Entire												
buckwheat	Eriogonum umbellatum	plant	U	U	U	U	U	U	U	U	U	U	U	U
American	Chronia grandia	Entire		11	U				11		11	11		
mannagrass	<u>Glyceria grandis</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	plant	IJ	IJ	U	IJ	IJ	IJ	IJ	П	IJ	IJ	IJ	IJ
, anonoan noonoo	<u>Oryoyiiiiiza iopiaota</u>	Entire	Ū	Ü	Ü	Ū	Ū			Ü		Ŭ		
spiny hopsage	Gravia spinosa	plant	U	U	U	U	U	U	U	U	U	U	U	U
. ,	· · ·	Entire												
broom snakeweed	Gutierrezia sarothrae	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>	Entire												
goldenweed	acaulis(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and		<b>⊏</b> 4!												
thread, needleandthread	Hesperostipa comata	Entire plant	P	P	Р	P	P	P	P	P	P	P	P	Р
needicandinead	riesperostipa comata	Entire	•	ı	•	1	1	•	ı	'	ı	I	•	•
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire									_			
Baltic rush	Juncus balticus(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
rush	<u>Juncus</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
Utah juniper	Juniperus osteosperma	plant	D	D	D	D	D	D	D	D	D	D	D	D
Rocky Mountain		Entire												
juniper	Juniperus scopulorum	plant	D	D	D	D	D	D	D	D	D	D	D	D
-		Entire												
prairie Junegrass	Koeleria macrantha	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
winterfat	<u>Krascheninnikovia</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
hasin wildrag	Lovmus cinorous	Entire	D	D	D	D	D	D	Ь	D	Ь	Ь	D	D
basin wildrye licorice-root,	<u>Leymus cinereus</u>	plant Entire	ט	ט	ט	ט	ט	ט	ט	U	ט	ט	ט	ט
lovage	<u>Ligusticum</u>	plant	IJ	U	U	U	U	U	U	U	U	U	IJ	U
desertparsley,	<u></u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
biscuitroot	<u>Lomatium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		-												

		Entire	_	_	_	_	_	_	_	_	_	_	_	_
lupine	<u>Lupinus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
prairie bluebells	Mertensia lanceolata	plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's		Entire												
povertyweed	Monolepis nuttalliana	plant	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly	<u>Muhlenbergia</u> richardsonis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
tufted evening-		Entire												
primrose	Oenothera caespitosa	plant	U	U	U	U	U	U	U	U	U	U	U	U
nailwort	<u>Paronychia</u>	Entire plant	U	U	U	U	U	U	U	U	IJ	П	П	U
western	<u>r dronyonia</u>	Entire	J	Ŭ	Ü									Ü
wheatgrass	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian breadroot,														
breadroot, breadroot	<u>Pediomelum</u>	Entire												
scurfpea	<u>esculentum</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
beardtongue,	<u>Penstemon</u>	Entire	В	Р	Р	D	D	D	D	Р	D	Р	D	Р
penstemon	<u>renstemon</u>	plant Entire	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
reed canarygrass	Phalaris arundinacea	plant	U	U	U	U	U	U	U	U	U	U	U	U
	DU	Entire												
phlox	Phlox  Diarathamaus	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush, bud sagewort	<u>Picrothamnus</u> <u>desertorum</u>	plant	_	_	_	_	_	_	_	_	_	_	_	_
J		•	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
woolly plantain, woolly		Entire												
Indianwheat	Plantago patagonica	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg	Dog omnlo(ovn)	Entire	Р	Ь	Р	Ь	Ь	Ь	Ь	Ь	Ь	Ь	Ь	Р
bluegrass	Poa ampla(syn) Populus deltoides ssp.	plant Entire	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
plains cottonwood		plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg		Entire												
bluegrass	Poa juncifolia(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Sandberg														
bluegrass, big bluegrass, Canby														
bluegrass, alkali		Entire												
bluegrass	Poa secunda	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass	<u>Poa secunda ssp.</u> <u>juncifolia(syn)</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch	<u>Pseudoroegneria</u>	Entire	•	•	•	•	•	•	•	•	•	•	•	•
wheatgrass	<u>spicata</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's		Entire												

2010	_		poi t											
alkaligrass	Puccinellia nuttalliana	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western buttercup	Ranunculus occidentalis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
•		Entire												
skunkbush sumac	Rhus trilobata	plant	D	D	D	D	D	D	D	D	D	D	D	D
wax currant	Ribes cereum	Entire plant	D	D	D	ח	ח	ח	ח	ח	ח	ח	D	ח
wax currant	Rosa woodsii var.	Entire												
Woods' rose	<u>woodsii</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
western dock	Rumex aquaticus	plant	U	U	U	U	U	U	U	U	U	U	U	U
willow	<u>Salix</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Williow	Sarcobatus	Entire	•	•	•	•	•	•	•	•	•	•	•	•
greasewood	vermiculatus	plant	D	D	D	D	D	D	D	D	D	D	D	D
	0.1	Entire												
bulrush	Scirpus	plant	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
beaked	<u>555 parrarrr</u>	Entire	_					_						
skeletonweed	Shinnersoseris rostrata	plant												
		<b></b>	U	U	U	U	U	U	U	U	U	U	U	U
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	·	•												
Animal kind: All d	leer													
Common name	Scientific name	<u>Plant</u> part	<u>J</u>	_	N.A	٨	N.A	ı	ı	٨	0	_	N	n
Common name	<u>Scientific flame</u>	Entire	J	ᆫ	IVI	Δ	IVI	J	J	Δ	<u> </u>	<u>U</u>	11	ט
alkali sacaton	Sporobolus airoides	plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all d	eer													
Common nama	Scientific name	Plant	,	_	N.A	٨	N.A			٨	0	_	N	П
Common name	<u>Scientific name</u>	<u>part</u> Entire	<u>J</u>	Г	<u>IVI</u>	Δ	<u>IVI</u>	<u>J</u>	<u>J</u>	Δ	<u> </u>	<u>U</u>	<u>N</u>	ט
sand dropseed	Sporobolus cryptandrus		U	U	U	U	U	U	U	U	U	U	U	U
•		Entire												
alkali cordgrass	<u>Spartina gracilis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie cordgrass	Spartina pectinata	Entire plant	ш	11	П	11	11	11	11	11	11	11	U	11
desert	Stanleya pinnata var.	Entire	U	U	U	U	U	U	U	Ü	U	U	U	U
princesplume	pinnata	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
		Entire												
Pursh seepweed	Suaeda calceoliformis	plant	U	U	U	U	U	U	U	U	U	U	U	U
western	<u>Symphoricarpos</u>	Entire												

2010	•		por t											
snowberry shortspine	<u>occidentalis</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
horsebrush, spiny horsebrush	<u>Tetradymia spinosa</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
J		Entire												
narrowleaf cattail	Typha angustifolia	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch badlands mule-	Vicia americana	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
ears	Wyethia scabra(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
woodyaster	<u>Xylorhiza</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
soapweed yucca, small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
foothill	<u>1 uoou giuuou</u>	Entire												
deathcamas	Zigadenus paniculatus	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Animal kind: all h	orses													
Common name	Scientific name	<u>Plant</u> part	1	F	М	Δ	М	ı	ı	Δ	S	0	<u>N</u>	ח
<u>Common name</u>	<u>Ocientino name</u>	Entire	<u>U</u>	_	IVI	Δ	IVI	<u> </u>	<u>U</u>	Δ	<u> </u>	<u> </u>	14	ㅁ
yarrow	<u>Achillea</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Achnatherum</u>	Entire	_				_						_	_
Indian ricegrass	<u>hymenoides</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silverweed		Entire												
cinquefoil	Argentina anserina	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	<u>Artemisia cana ssp.</u> <u>cana</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green		Entire												
sagewort	Artemisia dracunculus	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
sandwort	<u>Arenaria</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
black sagebrush	Artemisia nova	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot		Entire	_	•	_	_	_	_	_	_	_	•	_	_
sagebrush	Artemisia pedatifida	plant	U	U	U	U	U	U	U	U	U	U	U	U

Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
twogrooved		Entire												
milkvetch	Astragalus bisulcatus	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
aster	Aster	Entire plant	U	П	П	П	U	U	U	U	U	U	U	U
milkvetch		Entire	D	ם	D	D	D	D	D	D	D			
mikvetch	<u>Astragalus</u>	plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	D	D	D
founding calthuch	Atriplay canascans	Entire plant	Р	Р	Р	Р	Р	D	Р	D	Р	Р	D	Р
shadscale	Atriplex canescens	Entire	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
saltbush	Atriplex confertifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
Gardner's	<u> </u>	Entire												
saltbush	Atriplex gardneri	plant	D	D	D	D	D	D	D	D	D	D	D	D
American		Entire												
sloughgrass	Beckmannia syzigachne	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
blue grama	<u>Bouteloua gracilis</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
mustard	Brassica	Entire plant		11			11		11	11	U			11
mustaru	<u>Di dosica</u>	Entire	U	U	U	U	U	U	U	U	U	U	U	U
water sedge	Carex aquatilis	plant	D	D	D	D	D	D	D	D	D	D	D	D
· ·	•	Entire												
threadleaf sedge	Carex filifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire							_					
prairie sandreed	Calamovilfa longifolia	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
nloine reedarees	<u>Calamagrostis</u>	Entire plant	D	D	D	D	D	D	Ь	Ь	D	_	_	D
plains reedgrass	<u>montanensis</u>	piarit	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
		Entire												
spike sedge	Carex nardina	plant	D	D	D	D	D	D	D	D	D	D	D	D
NI-barata and	0	Entire	_		_						_		_	
Nebraska sedge	Carex nebrascensis	plant	Р	Р	Р	Р	٢	Р	٢	Р	Р	Р	Р	Р
beaked sedge	Carex rostrata	Entire plant	П	ח	D	D	D	ח	ח	ח	D	П	П	D
garden	Carex rostrata	Entire	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
yellowrocket	Campe stricta(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Indian paintbrush,	<u> </u>	Entire									-	-		
paintbrush	<u>Castilleja</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
northern	Calamagrostis stricta	Entire												
reedgrass	ssp. inexpansa	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Douglas'	Observation described	Entire	, ,	, .	, .		, .	, .	, .	, .	, ,	, .	, ,	, .
dustymaiden	Chaenactis douglasii	plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow														

rabbitbrush, green rabbitbrush, low rabbitbrush,	1													
Douglas	<b>Chrysothamnus</b>	Entire												
rabbitbrush	<u>viscidiflorus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
water hemlock	<u>Cicuta</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
	<u> </u>	Entire	•	•	•	•	•	•	•		•	•	·	•
poison hemlock	Conium maculatum	plant	т	т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip	<u>Oomani madalatam</u>	Entire	•	٠		•	•	•	•	•	•	•	•	•
hawksbeard	Crepis acuminata	plant	- 11	11	U	11	11	11	11	ш	11	11	11	U
	<u>Orepis acaminata</u>	-	J	U	J	J	J	J	J	U	J	J	U	U
buttecandle, minerscandle	Cryptontha coloniaidas	Entire	D	D	D	D	D	D	D	D	D	D	D	D
minerscandle	Cryptantha celosioides	plant	D	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
		Entire												
miner's candle	Cryptantha virgata	plant	U	U	U	U	U	U	U	U	U	U	U	U
plains		Entire												
springparsley	Cymopterus acaulis	plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Deschampsia</u>	Entire			_	_	_	_	_					
tufted hairgrass	<u>caespitosa(syn)</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
larkspur	<u>Delphinium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		<b>Entire</b>												
inland saltgrass	<u>Distichlis spicata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
California		<b>Entire</b>												
waterwort	Elatine californica	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
Canada wildrye	Elymus canadensis	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
,		Entire												
silverberry	Elaeagnus commutata	plant	U	U	U	IJ	IJ	U	IJ	U	U	U	IJ	IJ
squirreltail,	<u> </u>	pianic	Ū		•	Ū	Ū	Ū	Ū					
bottlebrush	Elymus elymoides ssp.	Entire												
squirreltail	elymoides	plant	D	D	D	D	D	D	D	D	D	D	D	D
-	<u>orymora o o</u>	piant				_		_						
streambank														
wheatgrass,		Cation.												
thickspike	Elymus lanceolatus ssp.		D	D	D	Ь	Ь	D	Ь	Ь	Ь	Ь	Ь	Ь
wheatgrass	<u>lanceolatus</u>	plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	D	ט
slender		Entire												
wheatgrass	<u>Elymus trachycaulus</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
horsetail	<u>Equisetum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		<b>Entire</b>												
fleabane	<u>Erigeron</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
rubber rabbitbrush	n <u>Ericameria nauseosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
sulphur-flower		Entire												
buckwheat	Eriogonum umbellatum	plant	U	U	U	U	U	U	U	U	U	U	U	U
•		•	_	-										

 3.0	_	OD 1 IIII WOOD I KOP	~ .											
American	Olympia amandia	Entire	_	_	_	_	_	_	_	_	_	_	_	_
mannagrass	<u>Glyceria grandis</u>	plant	D	D	ט	ט	ט	ט	U	ט	ט	ט	D	ט
American licorice	Glycyrrhiza lepidota	Entire plant	П	П	ш	П	П	ш	П	ш	11	ш	U	11
American noonce	<u>Orycyrrniza repidota</u>	Entire	J	U	J	J	U	J	U	J	J	J	J	J
spiny hopsage	Gravia spinosa	plant	U	IJ	U	U	U	U	u	U	U	U	U	U
op.i.y i.opougo	<del>Orayia opineca</del>	Entire	•								•			
broom snakeweed	Gutierrezia sarothrae	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>	Entire												
goldenweed	acaulis(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and														
thread,		Entire	_	_		_		_	_	_		_	_	_
needleandthread	<u>Hesperostipa comata</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant	D	D	D	Ь	Ь	Ь	Ь	Ь	Ь	Ь	D	Ь
Daille Tusti	Juncus pallicus(syrij	•	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
rush	Juncus	Entire plant	D	ח	ח	ח	ח	ח	n	ח	ח	ח	D	ח
14311	<u>ouncus</u>	Entire	ט	0		_		J	ט	J		J	J	J
Utah juniper	Juniperus osteosperma	plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain		Entire	_											
juniper	Juniperus scopulorum	plant	U	U	U	U	U	U	U	U	U	U	U	U
•	•	Entire												
prairie Junegrass	Koeleria macrantha	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
winterfat	<u>Krascheninnikovia</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire	_	_	_	_	_	_	_	_	_	_	_	_
basin wildrye	<u>Leymus cinereus</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
licorice-root,	Linuations	Entire			U									U
lovage	<u>Ligusticum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
desertparsley,		Entire												
biscuitroot	<u>Lomatium</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
lunina	Luninua	Entire	<b>D</b>	D	_	_	_	_	_	_	_	_	D	_
lupine	<u>Lupinus</u>	plant	D	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
prairie bluebells	Mertensia lanceolata	Entire plant	ח	ח	ח	ח	ח	ח	ח	ח	ח	ח	D	ח
Nuttall's	<u> </u>	Entire		ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
povertyweed	Monolepis nuttalliana	plant	П	11	11	11	11	11	11	11	11	11	U	11
por engineer	•	Entire	J	U	J	J	J	J	U	J	J	J	J	J
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	plant	U	IJ	U	IJ								
tufted evening-	<u> </u>	Entire												
primrose	Oenothera caespitosa	plant	U	U	U	U	U	U	U	U	U	U	U	U
•		Entire												
nailwort	<u>Paronychia</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U

western wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian breadroot,														
breadroot	<u>Pediomelum</u>	Entire												
scurfpea	<u>esculentum</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
beardtongue,		Entire												
penstemon	<u>Penstemon</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
reed canarygrass	Phalaris arundinacea	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
phlox	<u>Phlox</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush,	<u>Picrothamnus</u>	Entire												
bud sagewort	<u>desertorum</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
woolly plantain,														
woolly		Entire												
Indianwheat	<u>Plantago patagonica</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg		Entire												
bluegrass	<u>Poa ampla(syn)</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Populus deltoides ssp.	Entire												
plains cottonwood	<u>monilifera</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg		Entire												
bluegrass	<u>Poa juncifolia(syn)</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg														
bluegrass, big														
bluegrass, Canby		□ time												
bluegrass, alkali	Doo oogundo	Entire	D	_	Ь	<b>D</b>	Ь	<b>D</b>	_	D	D	D	D	Ь
bluegrass	Poa secunda	plant	ט	D	D	D	D	D	D	ט	ט	ט	ט	D
bluebunch	Pseudoroegneria	Entire	Р	Ь	D	D	Р	D	Р	Р	Ь	Р	Ь	Р
wheatgrass	<u>spicata</u>	plant	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
Nuttall's	Dussinallia nuttalliana	Entire	В	Р	Р	Р	Ъ	В	В	Б	В	В	Р	Б
alkaligrass	<u>Puccinellia nuttalliana</u>	plant		_	_	_		_	_	_		_	_	
		Entire												
western buttercup	Ranunculus occidentalis	plant	D	D	D	D	D	D	D	D	D	D	D	D
	Nariarioalao odolaoritano													
	Dhua tellah ata	Entire	_	_	_	_	_	_	_	_	_	_	_	_
skunkbush sumac	Rnus triiodata	plant	ט	ט	D	ט	ט	ט	ט	ט	ט	ט	ט	ט
	Dib a a como	Entire												
wax currant	Ribes cereum	plant	U	U	U	U	U	U	U	U	U	U	U	U
M/a a dal assas	Rosa woodsii var.	Entire												
Woods' rose	<u>woodsii</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	D	Entire												
western dock	Rumex aquaticus	plant	U	U	U	U	U	U	U	U	U	U	U	U
willow	Caliv	Entire	_	_	_	_	_	_	_	_	_	_	_	_
willow	<u>Salix</u>	plant	D	ט	D	ט	ט	ט	ט	ט	ט	ט	D	D
	<u>Sarcobatus</u>	Entire												

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greasewood	<u>vermiculatus</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
bulrush	<u>Scirpus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked	<u>coopanam</u>	Entire	•	•	•	•	•	•	•		•	•	•	•
skeletonweed	Shinnersoseris rostrata	plant	U	U	U	U	U	U	U	U	U	U	U	U
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All h	norses													
Common name	Scientific name	<u>Plant</u> <u>part</u> Entire	<u>J</u>	E	<u>M</u>	A	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
alkali sacaton	Sporobolus airoides	plant	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р
Animal kind: all h	orses													
_		<u>Plant</u>												
Common name	Scientific name	<u>part</u> Entire	<u>J</u>	E	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	Α	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
sand dropseed	Sporobolus cryptandrus	plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali cordgrass	Spartina gracilis	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
prairie cordgrass	Spartina pectinata	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р
desert princesplume	<u>Stanleya pinnata var.</u> <u>pinnata</u>	Entire plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
Pursh seepweed	Suaeda calceoliformis	plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
shortspine														
horsebrush, spiny horsebrush	Tetradymia spinosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
broadleaf cattail	Typha latifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
American vetch	<u>Vicia americana</u>	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Ρ	Ρ	Р	Р
badlands mule- ears	Wyethia scabra(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

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woodyaster	<u>Xylorhiza</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
soapweed yucca, small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
foothill deathcamas	Zigadenus paniculatus	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
		•												
Animal kind: all s	heep													
Common name	Scientific name	<u>Plant</u> part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	Α	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	<u>Achnatherum</u> <u>hymenoides</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silverweed		Entire			U									
cinquefoil	Argentina anserina Artemisia cana ssp.	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	<u>cana</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
sandwort	<u>Arenaria</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
black sagebrush	Artemisia nova	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
twogrooved milkvetch	Astragalus bisulcatus	Entire plant	т	Т	Т	Т	Т	Т	Т	т	Т	Т	Т	Т
aster	<u>Aster</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
fourwing saltbush shadscale	Atriplex canescens	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

2010	-	OD I IIII WOO I KO	por t											
saltbush	Atriplex confertifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
Gardner's	Atrinlay gardnari	Entire	В	П	Ь	Ь	Б	Ь	П	Ь	Б	Б	Р	Ь
saltbush American	Atriplex gardneri	plant Entire	Г	Г	Г	_	Г	Г	Г	Г	Г	Г	Г	Г
sloughgrass	Beckmannia syzigachne		U	U	U	U	U	U	U	U	U	U	U	U
3 3		Entire												
blue grama	Bouteloua gracilis	plant	D	D	D	D	D	D	D	D	D	D	D	D
mustord	Brassica	Entire											U	
mustard	<u>DI assica</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
water sedge	Carex aquatilis	plant	U	U	U	U	U	U	U	U	U	U	U	U
· ·	•	Entire												
threadleaf sedge	Carex filifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D
	Colomovillo longifolio	Entire	Ь	_	_	_	_	_	_	_	_	_	_	_
prairie sandreed	<u>Calamovilfa longifolia</u> <u>Calamagrostis</u>	plant Entire	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	D	ט
plains reedgrass	<u>montanensis</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
spike sedge	Carex nardina	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire	_		_								_	
Nebraska sedge	Carex nebrascensis	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
beaked sedge	Carex rostrata	Entire plant	U	IJ	IJ	IJ	IJ	IJ	IJ	U	IJ	IJ	U	IJ
garden	<u> </u>	Entire	Ū			Ū	Ū		Ū		Ū	Ū	Ū	
yellowrocket	Campe stricta(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
Indian paintbrush,	<b>-</b>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
paintbrush	<u>Castilleja</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
northern reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	Entire plant	D	D	D	ח	ח	D	D	ח	ח	ח	D	D
Douglas'	<u>зор. тохраноа</u>	Entire			<u></u>									
dustymaiden	Chaenactis douglasii	plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow														
rabbitbrush, green rabbitbrush, low														
rabbitbrush,														
Douglas	<u>Chrysothamnus</u>	Entire												
rabbitbrush	<u>viscidiflorus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	Cicuta	Entire plant	Т	т	т	т	т	т	т	т	т	т	т	т
water Herrilock	<u>Cicuta</u>	Entire	•	•	ı	'	•	1	•	1	•	1	'	•
poison hemlock	Conium maculatum	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip		Entire												
hawksbeard	<u>Crepis acuminata</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
buttecandle, minerscandle	Cryptantha calosioidos	Entire plant	D	ח	D	Ъ	ח	ח	ח	ח	ח	ח	D	D
minerscandle	<u>Cryptantha celosioides</u>	Entire	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט

2	פוט		SD Printable Re	port											
	miner's candle plains	Cryptantha virgata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	springparsley	Cymopterus acaulis	plant	U	U	U	U	U	U	U	U	U	U	U	U
	tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ
	larkspur	<u>Delphinium</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	inland saltgrass California	<u>Distichlis spicata</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	waterwort	Elatine californica	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	Canada wildrye	Elymus canadensis	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	silverberry squirreltail,	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	bottlebrush squirreltail streambank	Elymus elymoides ssp. elymoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	wheatgrass, thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	plant	D	D	D	D	D	D	D	D	D	D	D	D
	slender wheatgrass	Elymus trachycaulus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	horsetail	<u>Equisetum</u>	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	fleabane	<u>Erigeron</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	rubber rabbitbrush sulphur-flower	<u>Ericameria nauseosa</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	buckwheat	Eriogonum umbellatum	plant	U	U	U	U	U	U	U	U	U	U	U	U
	American mannagrass	Glyceria grandis	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	American licorice	Glycyrrhiza lepidota	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	spiny hopsage	<u>Grayia spinosa</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	broom snakeweed stemless mock	Gutierrezia sarothrae Haplopappus	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	goldenweed needle and	<u>acaulis(syn)</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	thread, needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ

iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rush	<u>Juncus</u>	Entire plant	_	_	_		_	_		_	_	_	U	_
Utah juniper	Juniperus osteosperma	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	<u>Krascheninnikovia</u>	Entire plant	Р	Ρ	Ρ	Ρ	Р	Р	Р	Р	Р	Ρ	Р	Р
basin wildrye	Leymus cinereus	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
licorice-root, lovage desertparsley,	<u>Ligusticum</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
biscuitroot	<u>Lomatium</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
lupine	<u>Lupinus</u>	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
prairie bluebells Nuttall's	Mertensia lanceolata	plant Entire	Р	Ρ	Ρ	Р	Ρ	Р	Р	Р	Ρ	Ρ	Р	Р
povertyweed	Monolepis nuttalliana Muhlenbergia	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly tufted evening-	<u>richardsonis</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
primrose	Oenothera caespitosa	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
nailwort western	<u>Paronychia</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
wheatgrass large Indian	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
breadroot, breadroot scurfpea	<u>Pediomelum</u> <u>esculentum</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
beardtongue, penstemon	<u>Penstemon</u>	Entire plant	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р
reed canarygrass	Phalaris arundinacea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
phlox	<u>Phlox</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
bud sagebrush, bud sagewort	<u>Picrothamnus</u> <u>desertorum</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

woolly plantain, woolly		Entire												
Indianwheat	Plantago patagonica	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg bluegrass	Poa ampla(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
0	Populus deltoides ssp.	Entire												
plains cottonwood	<u>monilifera</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass	Poa juncifolia(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Sandberg	,													
bluegrass, big bluegrass, Canby														
bluegrass, alkali		Entire												
bluegrass	<u>Poa secunda</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebunch	<u>Pseudoroegneria</u>	Entire	Р	Ь	Ь	Ь	Ь	Ь	Ъ	Р	Р	Р	Ь	_
wheatgrass Nuttall's	<u>spicata</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	۲	۲	۲	Р	Р
alkaligrass	Puccinellia nuttalliana	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
amang acc	- a como ma manamama	Entire		•	•	•	•		•	•	•	•	•	•
western buttercup	Ranunculus occidentalis		D	D	D	D	D	D	D	D	D	D	D	D
		Entire				_	_	_	_	_	_	_		
skunkbush sumac	Rhus trilobata	plant	D	D	D	D	D	D	D	D	D	D	D	D
wax currant	Ribes cereum	Entire plant	U	U	U	U	U	U	IJ	IJ	U	U	IJ	U
wax ourraint	Rosa woodsii var.	Entire		J			Ü						J	J
Woods' rose	<u>woodsii</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
western dock	Rumex aquaticus	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
willow	<u>Salix</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Sarcobatus</u>	Entire												
greasewood	<u>vermiculatus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
bulrush	<u>Scirpus</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	Entire plant	D	Р	D	D	Р	D	D	D	D	D	D	Р
beaked	<u>scoparium</u>	Entire	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
skeletonweed	Shinnersoseris rostrata	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
blue-eyed grass	<u>Sisyrinchium</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Animal kind: All s	heep													
	•	<u>Plant</u>												
Common name	Scientific name	<u>part</u>	<u>J</u>	E	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	A	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
		Entire												

plant

D D D D D D D D D D

Sporobolus airoides

alkali sacaton

aikali sacaton	<u>Sporobolus airoldes</u>	piant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
Animal kind: all s	heep													
_		<u>Plant</u>		_					_	_	_	_		_
Common name	Scientific name	<u>part</u>	<u>J</u>	E	<u>M</u>	A	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	D
sand dropseed	Sporobolus cryptandrus	Entire plant	D	D	ח	П	D	П	Ь	П	Ь	Ь	D	Ь
sand dropseed	<u>Sporobolus cryptanurus</u>	Entire	ט	ט	ט	ט	ט	U	ט	ט	ט	ט	ט	ט
alkali cordgrass	Spartina gracilis	plant	U	U	U	U	U	U	U	U	U	U	U	U
J	•	Entire												
prairie cordgrass	Spartina pectinata	plant	D	D	D	D	D	D	D	D	D	D	D	D
desert	<u>Stanleya pinnata var.</u>	Entire	_	_	_			_	_	_	_	_		
princesplume	<u>pinnata</u>	plant	ı	ı	ı	Т	1	ı	Т	ı	ı	ı	Т	T
Pursh seepweed	Suaeda calceoliformis	Entire plant	11	11	U	11	11	П	11	П	11	11	11	U
western	Symphoricarpos	Entire	U	U	U	U	U	U	Ü	Ü	Ü	Ü	U	U
snowberry	occidentalis	plant	U	U	U	U	U	U	U	U	U	U	U	U
shortspine		•												
horsebrush, spiny		Entire												
horsebrush	<u>Tetradymia spinosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	т	т	Т	т	Т	т	т	т	т	т	т	т
arrowgrass	<u>Trigiooniii</u>	Entire	•	•	•	•	•	•	•	•	•	•	•	•
narrowleaf cattail	Typha angustifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
broadleaf cattail	<u>Typha latifolia</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
A	Viole amendence	Entire	Р	P	P	Р	_	Р	_	Р	Р	Р	Р	_
American vetch	<u>Vicia americana</u>	plant	Р	۲	۲	۲	Р	۲	Р	۲	۲	۲	۲	Р
badlands mule- ears	Wyethia scabra(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u> </u>	Entire												
woodyaster	<u>Xylorhiza</u>	plant	Т	Т	Т	T	T	Т	Т	Т	T	T	Т	Т
soapweed yucca,		Entire												
small soapweed	<u>Yucca glauca</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
foothill	Zigodonus popioulotus	Entire	_	т	т	т	т	т	т	т	т	т	т	т
deathcamas	Zigadenus paniculatus	plant	1	1	1	1	T	Т	Т	Т	Т	Т	1	ı

Legend: P=Preferred; D=Desirable; U=Undesirable; N=Not consumed; E=Emergency; T=Toxic; X=Used, but degree of utilization unknown

# **Hydrology Functions**

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from moderate to moderately rapid. Runoff potential for this site varies from moderate to high depending on soil hydrologic group and ground cover. In many cases,

areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses such as bluebunch wheatgrass. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

#### **Recreational Uses**

This site provides hunting opportunities for upland game species. The wide varieties of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

#### **Wood Products**

No appreciable wood products are present on the site.

#### **Other Products**

none noted

# **Supporting Information**

**Associated Sites** 

Site name Site ID Site narrative

Shallow Clayey (SwCy) R061XY158WY

Similar Sites

<u>Site name</u> <u>Site ID</u> Site narrative

Shallow Loamy (SwLy) R058BY262WY Shallow Loamy 15-17" Northern Plains P.Z.

has lower production.

#### **State Correlation**

This site has been correlated with the following states: wy

# **Inventory Data References**

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel were also used. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National

Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

#### **Original Site Description Approval**

Author Date Approval Date

G. Mitchell 10/31/2002 E. Bainter 3/5/2008

#### **Reference Sheet**

#### Author(s)/participant(s):

#### Contact for lead author:

**Date:** 4/1/2005 **MLRA:** 061X **Ecological Site:** Shallow Loamy (SwLy) 15-19" Precipitation Zone, Black Hills R061XY162WY This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community cannot be used to identify the ecological site.

**Composition (indicators 10 and 12) based on:** X Annual Production, Foliar Cover, Biomass

**Indicators.** For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for **each** community and natural distrurbance regimes within the reference state, when appropriate and (3) cite data. Continue descriptions on separate sheet.

- 1. Number and extent of rills: Rills should not be present
- 2. Presence of water flow patterns: Barely observable
- 3. Number and height of erosional pedestals or terracettes: Essentially non-existent
- 4. Bare ground from Ecological Site Description or other studies (rock, litter, standing dead, lichen, moss, plant canopy are not bare ground): Bare ground is 45-55% occurring in small areas throughout site

5.	Number of gullies and erosion associated with gullies: Active gullies should be restricted to areas of concentrated water flow patterns on steeper slopes
6.	Extent of wind scoured, blowouts and/or depositional areas: Small scoured sites may be observed
7.	Amount of litter movement (describe size and distance expected to travel): Litter movement is little to none based on topography and water flow patterns
8.	Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values): Plant cover and litter is at 55% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 4 or greater.
9.	Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness): Use Soil Series description for depth and color of A-horizon
10.	Effect on plant community composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Infiltration is moderate.
11.	Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.

lines: Dominant:

**Sub-dominant:** 

12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to) with dominants and sub-dominants and "others" on separate

Other:

Additional: Mid stature Cool Season Grasses > Mid Stature Warm Season Grasses > Shrubs = Forbs = Short Grasses/Grasslikes

- 13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low
- **14. Average percent litter cover (%) and depth (inches):** Average litter cover is 20-30% with depths of 0.25 to 0.5 inches
- 15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1400 lbs/ac
- 16. Potential invasive (including noxious) species (native and non-native). List Species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicator, we are describing what is NOT expected in the reference state for the ecological site: Blue grama, Big sagebrush, Fringed sagewort, Prickly Pear, and Species found on Noxious Weed List
- 17. Perennial plant reproductive capability: All species are capable of reproducing

# **Reference Sheet Approval**

Approval Date

E. Bainter 3/5/2008

United States Department of Agriculture Natural Resources Conservation Service Ecological Site Description

# Section I: Ecological Site Characteristics

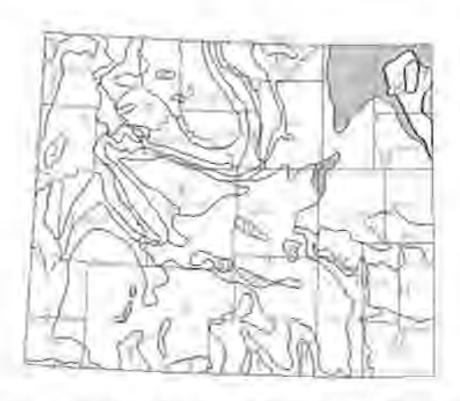
**Ecological Site Identification and Concept** 

Site name: Learny (Ly) 15-17" Northern Plaine Precipitation Zone

Site type: Rangeland Site ID: R088BY222WY

Major land resource area (MLRA): 0588-Northern Rolling High Plaine, Southern Part

Principitation Zones for Rangillanif Ecological Site Diescriptions



# **Physiographic Features**

This site occurs on land nearly level up to 50% slopes.

Landform: (1) Hill

(2) Alluvial fan

(3) Stream terrace

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	3400	4600
Slope (percent):	0	50

Flooding

Frequency: None None

Ponding

Depth (inches): 0 0

Frequency: None None Runoff class: Low Medium Aspect: No Influence on this site

### **Climatic Features**

Annual precipitation ranges from 15-17 inches per year. Wide fluctuations may occur in yearly precipitation and result in more drought years than those with more than normal

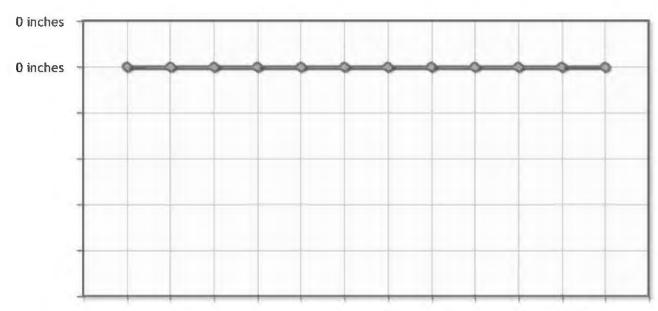
precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums, due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring. Wind speed averages about 8 mph, ranging from 10 mph during the spring to 7 mph during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph. Growth of native cool-season plants begins about April 1 and continues to about July 1. Native warm-season plants begin growth about May 15 and continue to about August 15. Green up of cool season plants may occur in September and October of most years. The following information is from the "Echeta" 2 NW" climate station: Frost-free period (32 F): 70-142 days; (5 yrs. out of 10, these days will occur between June 7 – September 16) Freeze-free period (28 F): 106-154 days; (5 yrs. out of 10, these days will occur between May 14 - September 23) Mean annual precipitation: 15.82 inches Mean annual air temperature: 45.2 F (30.0 F Avg. Min. - 60.4 F Avg. Max.) For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include: "Recluse 14 NNW".

#### **Averaged**

Frost-free period (days): 106
Freeze-free period (days): 130
Mean annual precipitation (inches): 17.00

#### Monthly Precipitation (Inches):

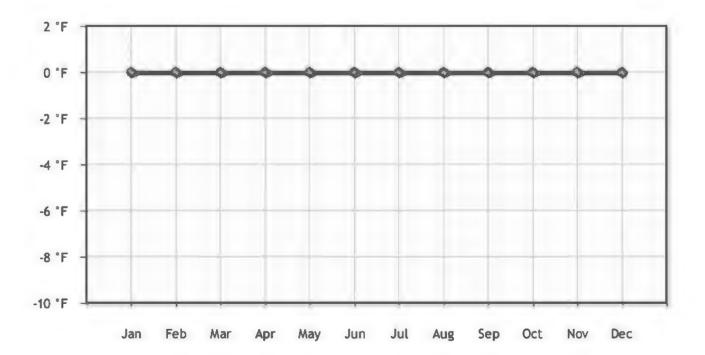
<u>Jan</u> Feb <u>Mar</u> <u>Apr</u> May <u>Jun</u> <u>Jul</u> Aug Sep Oct Nov Dec 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Hiah 0.000.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Low 0.00



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

# Monthly Temperature (°F):

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	May	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	Nov	<u>Dec</u>
High	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



# **Influencing Water Features**

Stream type: None

# **Representative Soil Features**

The soils of this site are deep to moderately deep (greater than 20" to bedrock), well-drained & moderately permeable. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick. These layers consist of the A horizon with very fine sandy loam, loam, or silt loam texture and may also include the upper few inches of the B horizon with sandy clay loam, silty clay loam or clay loam texture.

Major Soil Series correlated to this site include: Deekay, Oldwolf, Iwait, Jaywest, Spotted horse, Ucross and Ziggy.

Other Soil Series correlated to this site in MLRA 58B include: Cedarbutte, Cedak dry, Soda wells, Emigrant, Rocky point, Jonpol, Brislawn, Rocky butte, Muleherder, Nuncho, Platmack, Recluse, Oshoto and Kline draw

Surface texture: (1) Loam

(2) Sandy loam

(3) Very fine sandy loam

Subsurface texture group: Loamy

	<u>Minimum</u>	<u>Maximum</u>
Surface fragments <=3" (% cover):	0	0
Surface fragments >3" (% cover):	0	10
Subsurface fragments <=3" (% volume):	0	20
Subsurface fragments >3" (% volume):	0	10
Drainage class: Moderately well drained to well drained		

Permeability class: Moderately slow to moderate

	<u>Minimum</u>	<u>Maxımum</u>
Depth (inches):	20	60
Available water capacity (inches):	2.10	5.50
Electrical conductivity (mmhos/cm):	0	4
Sodium adsorption ratio:	0	5
Calcium carbonate equivalent (percent):	0	10
Soil reaction (1:1 water):	7.8	8.4

#### **Plant Communities**

#### **Ecological Dynamics of the Site**

As this site deteriorates because of a combination of frequent and severe grazing, species such as blue grama and big sagebrush will increase. Grasses such as green needlegrass, needleandthread, big bluestem, little bluestem and western wheatgrass will decrease in frequency and production.

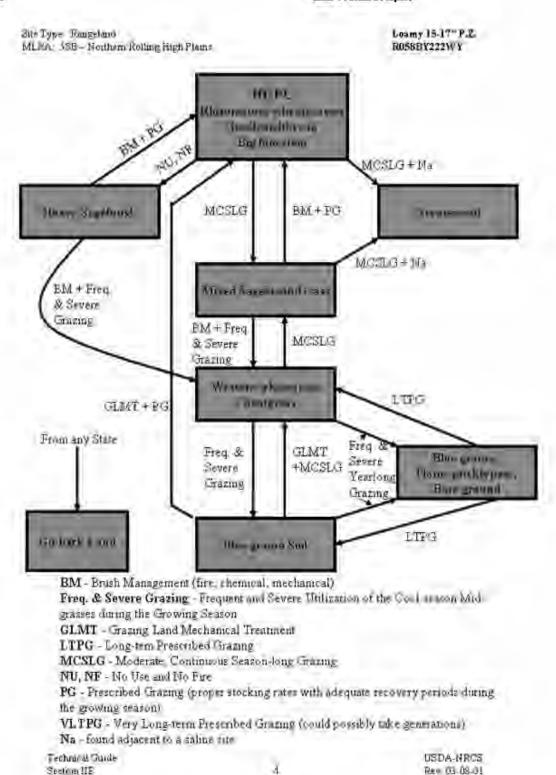
Big sagebrush may become dominant on some areas with an absence of fire. Wildfires are actively controlled in recent times so chemical control using herbicides has replaced the historic role of fire on this site. Recently, prescribed burning has regained some popularity.

Due to the amount and pattern of the precipitation, the big sagebrush component typically is not resilient once it has been removed if a healthy and vigorous stand of grass exists and is maintained. The exception to this is where the herbaceous component is severely degraded at the time of treatment, growing conditions are unfavorable after treatment, and/or recovery periods are inadequate.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.

#### **State-and-Transition Diagram**



# Rhizomatous Wheatgrasses/ Needleandthread/Big Bluestem Plant Community

This plant community is the interpretive plant community for this site and is considered to be the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community can be found on areas that are properly managed with grazing and/or prescribed burning,

and sometimes on areas receiving occasional short periods of rest. The potential vegetation is about 75% grasses or grass-like plants, 15% forbs, and 10% woody plants. A mix of warm and cool season mid-grasses dominates the state.

The major grasses include western wheatgrass, needleandthread, big bluestem, little bluestem, and green needlegrass. Other grasses occurring on the state include threadleaf sedge, Sandberg's bluegrass, bluebunch wheatgrass, blue grama, and sideoats grama. A variety of forbs and half-shrubs also occur, as shown in the preceding table. Big sagebrush is a conspicuous element of this state, occurs in a mosaic pattern, and makes up 5 to 10% of the annual production. Plant diversity is high.

The total annual production (air-dry weight) of this state is about 1,900 lbs./acre, but it can range from about 1500 lbs./acre in unfavorable years to about 2300 lbs./acre in above average years.

This plant community is extremely stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- No use and no fire for 20 years or more will convert this plant community to the Heavy Sagebrush Plant Community.
- Moderate, continuous season-long grazing will convert the plant community to the Mixed Sagebrush/Grass Plant Community.
- Moderate continuous season-long grazing, where greasewood occurs adjacent to the state,
   will convert the plant community to the Greasewood Plant Community.
- When cropped annually and then abandoned without reseeding, the state is converted to the Go-back Land Plant Community.

# Rhizomatous Wheatgrasses/ Needleandthread/Big Bluestem Plant Community Plant Species Composition

Grass	/Grasslike				Annual Production (pounds per acre)				
Group Group name 1	Common name	<u>Symbol</u>	Scientific name	<u>Low</u> 375	<u>High</u> 575				
	streambank wheatgrass, thickspike wheatgrass	ELLAL	Elymus lanceolatus ssp. lanceolatus	375	575				
	western wheatgrass	PASM	Pascopyrum smithii	375	575				
2	green needlegrass	NAVI4	<u>Nassella viridula</u>	225 225	345 345				

3				300	460
	needle and thread, needleandthread	HECO26	<u>Hesperostipa</u> <u>comata</u>	300	460
4				150	230
	big bluestem	ANGE	Andropogon gerardii	150	230
5				150	230
	Cusick's bluegrass, Cusick bluegrass	POCU3	<u>Poa cusickii</u>	150	230
6				150	230
	blue grama	BOGR2	Bouteloua gracilis	150	230
	•		-		
7				375	575
	Indian ricegrass	ACHY	<u>Achnatherum</u> <u>hymenoides</u>	75	115
	sideoats grama	BOCU	<u>Bouteloua</u> <u>curtipendula</u>	75	115
	hairy grama	BOHI2	Bouteloua hirsuta	75	115
	needleleaf sedge	CADU6	Carex duriuscula	75	115
	threadleaf sedge	CAFI	Carex filifolia	75	115
	plains reedgrass	CAMO	<u>Calamagrostis</u> <u>montanensis</u>	75	115
	prairie Junegrass	KOMA	Koeleria macrantha	75	115
	Sandberg bluegrass, big bluegrass, Canby bluegrass, alkali bluegrass	POSE	<u>Poa secunda</u>	75	115
	bluebunch wheatgrass	PSSP6	<u>Pseudoroegneria</u> <u>spicata</u>	75	115
	little bluestem	SCSC	<u>Schizachyrium</u> <u>scoparium</u>	75	115
Forb				Annual Pro (pounds p	
Group Group name 8	Common name	<u>Symbol</u>	Scientific name	<u>Low</u> 225	<u>High</u> 345
	yarrow	ACHIL	<u>Achillea</u>	75	115
	textile onion	ALTE	Allium textile	75	115
	rosy pussytoes, rose pussytoes	ANRO2	Antennaria rosea	75	115
	aster	ASTER	<u>Aster</u>	75	115
	milkvetch	ASTRA	<u>Astragalus</u>	75	115
	tapertip hawksbeard	CRAC2	Crepis acuminata	75	115
	white prairie clover	DACA7	Dalea candida	75	115
	violet prairie clover, purple prairie clover	DAPU5	<u>Dalea purpurea</u>	75	115
	sulphur-flower buckwheat	ERUM	<u>Eriogonum</u> <u>umbellatum</u>	75	115
	scarlet beeblossom, scarlet gaura	GACO5	Gaura coccinea	75	115

SACION S			BSD Printable Report		
	elemiess mock goldenwood	HAAC	Hanlamanus acadis(sva)	75	115
	desertparatey, biscuitroot	LOMAT	Lamation	76	115
	bluebells	MERTE	Martanasa	75	115
	large Indian breadroot, breadroot scuripes	PEE8	Pediamelum esculentum	75	115
	upright prairie consilower, prairie consilower	RACOS	Rallhida columillura	75	115
	Arrentean validi	MAIV	Vida americana	75	115
Shrub/	Vine				roduction oer acre)
Group terms	Common rame	Symbol	Scientific name	Low	Hlah

8hrub/V	lms				roduction per acre)
Group terms	Common reme	Symbol	Scientific name	<u>Low</u> 150	High 230
200	big segebrush	ARTR2	Artemosia tridentata	150	230
10				75	115
	winterlat	KRLA2	Krambanlanilayte lensis	75	115

#### Plant Growth Curve

Growth curve number:

WY1501

Growth curve

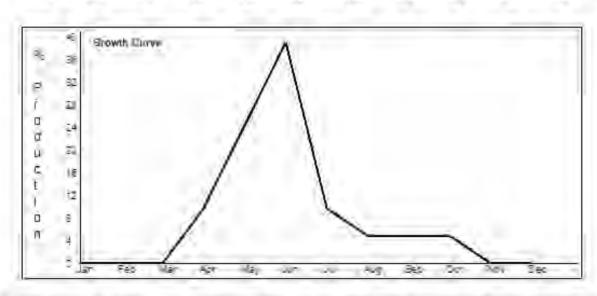
15-17NP Upland sites

name:

Growth curve description:

#### Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
D	0	a	10	25	40	10	5	5	5	a	0



## Mixed Sagebrush/Grass Plant Community

Historically, this plant community evolved under grazing by bison and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock in the absence of fire or brush management. Big sagebrush is a significant component of this plant community. A mix of warm and cool-season grasses make up the majority of the understory with the balance made up of annual cool-season grasses, and miscellaneous forbs.

Dominant grasses include needleandthread, western wheatgrass, little bluestem and green needlegrass. Grasses of secondary importance include blue grama, prairie junegrass, and Sandberg bluegrass. Forbs commonly found in this plant community include plains wallflower, hairy goldaster, slimflower scurfpea, and scarlet globemallow. Sagebrush canopy ranges from 20% to 30%. Fringed sagewort is commonly found. Plains pricklypear can also occur.

When compared to the Historic Climax Plant Community, sagebrush and blue grama have increased. Production of cool-season grasses, particularly green needlegrass, has been reduced. The cool-season mid-grasses are protected by the sagebrush canopy, but this protection makes them unavailable for grazing. Cheatgrass (downy brome) has invaded the state. The overstory of sagebrush and understory of grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as mule deer and antelope.

The total annual production (air-dry weight) of this state is about 1400 pounds per acre, but it can range from about 1000 lbs./acre in unfavorable years to about 1800 lbs./acre in above average years.

This plant community is resistant to change. A significant reduction of big sagebrush can only be accomplished through fire or brush management. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

Transitions or pathways leading to other plant communities are as follows:

• Brush management (chemical, fire, or mechanical), followed by prescribed grazing, will convert this plant community to the Rhizomatous wheatgrasses/ Needleandthread/ Big Bluestem Plant Community. The probability of this occurring is high. When prescribed fire is used, sufficient fine fuels will need to be present. This may require deferment from grazing prior to treatment. Post management is critical to ensure success. This can range from two or more years of rest to partial growing season deferment, depending on the condition of the

understory at the time of treatment and the growing conditions following treatment. In the case of an intense wildfire that occurs when desirable plants are not completely dormant, the length of time required to reach the Rhizomatous wheatgrasses. Needleandthread, Blue grams Plant Community may be increased.

- Brush management, followed by frequent and severe grazing, will convert the plant: community to the Western Wheatorass/Cheetorass Plant Community. The probability of this occurring is high. If bare areas exist after treatment, along with no recovery periods from grazing, cheatgrass will invade and plants not as resistant to grazing as western wheatgrass will be reduced.
- Moderate continuous sesson-long grazing, where gressewood occurs adjacent to the state, will convert the plant community to the Greesewood Plant Community.

#### Plant Growth Curve

Growth curve

WY1501

number:

15-17NP Upland sites

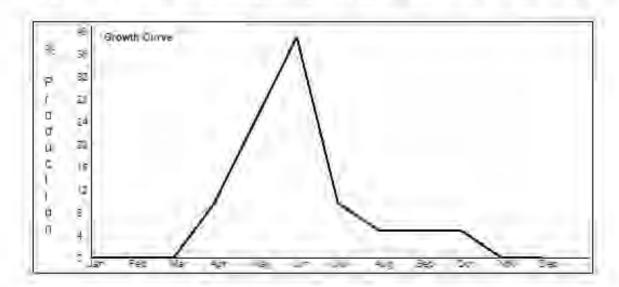
Growth curve name:

Growth curve

description:

Percent Production by Month

							_				
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
										0	



### Heavy Sagebrush Plant Community

This plant community is the result of long-term protection from grazing and fire. Big sagebrush eventually dominates this plant community with canopy cover often exceeding 60%. At first, excessive litter builds up shading out some of the grasses and forbs. Other plants become decadent with low vigor. Bunch grasses often develop dead centers. Eventually, the interspaces between plants increase in size leaving more soil surface exposed. Organic matter oxidizes in the air rather than being incorporated into the soil.

The dominant plants tend to be somewhat similar to those found in the Historic Climax Plant Community. Weedy species, cool-season grasses, and sedges have increased. Blue grama has decreased. Rodent activity has resulted in an increase in soil disturbance. Cactus and sageworts often increase. Noxious weeds such as Dalmatian toadflax, leafy spurge, or Canada thistle may invade the state if a seed source is present. Plant diversity is moderate to high.

The total annual production (air-dry weight) of this state is about 1200 pounds per acre, but it can range from about 900 lbs./acre in unfavorable years to about 1,500 lbs./acre in above average years.

This plant community is not resistant to change and is more vulnerable to severe disturbance than the HCPC. The introduction of grazing or fire quickly changes the plant community.

Soil erosion is accelerated because of increased bare ground. Water flow patterns and pedestaling are obvious. Infiltration is reduced and runoff is increased.

Transitions or pathways leading to other plant communities are as follows:

- Brush management, followed by prescribed grazing, will return this plant community to at or near the Rhizomatous Wheatgrasses/ Needleandthread/ Big Bluestem Plant Community.
- Brush management, followed by frequent and severe grazing, will convert the plant community to the Western Wheatgrass/Cheatgrass Plant Community. The probability of this occurring is high because of the amount of bare ground exposed to cheatgrass invasion.

#### Plant Growth Curve

Growth curve wy1501

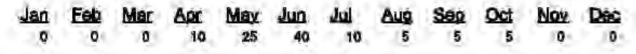
Growth curve

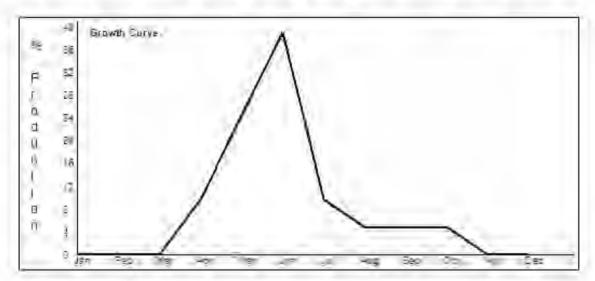
name:

15-17NP Upland sites

Growth curve description:

#### Percent Production by Month





# Western Wheatgrass/Cheatgrass Plant Community

This plant community is created when the Mixed Sagebrush/Grass Plant Community or the Heavy Sagebrush Plant Community is subjected to fire or brush management not followed by prescribed grazing. Rhizomatous wheatgrasses and annuals will dominate the state.

Compared to the HCPC, cheatgrass has increased with western wheatgrass and thickspike wheatgrass maintaining at a similar or slightly higher level. Virtually all other cool-season mid-grasses are severely decreased. Blue grams is the same or slightly less than found in the HCPC. Plant diversity is low.

The total annual production (air-dry weight) of this state is about 900 pounds per acre, but it can range from about 750 lbs./acre in unfavorable years to about 1250 lbs./acre in above average years.

This plant community is relatively stable with the rhizomatous wheatgrasses being somewhat resistant to overgrazing and the cheatgrass effectively competing against the establishment of perennial cool-season grasses.

An increase in bare ground reduces water infiltration and increases soil erosion. The watershed is usually functioning. The biotic integrity is reduced by the lack of diversity in the plant community.

Transitions or pathways leading to other plant communities are as follows:

- Moderate continuous season-long grazing will eventually return this plant community to the Mixed Sagebrush/Grass Plant Community.
- Frequent and severe grazing will convert this plant community to Blue Grama Sod Plant Community.
- Frequent and severe yearlong grazing will convert this plant community to Blue grama,
   Plains Pricklypear/ Bare Ground Plant Community.
- Long-term, prescribed grazing will eventually return this plant community to at or near the Rhizomatous Wheatgrasses/ Needleandthread/ Big Bluestern Plant Community.

#### Plant Growth Curve

Growth curve

WY1501

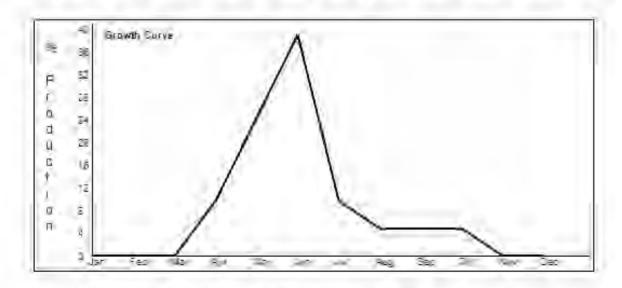
number.

15-17NP Upland sites

Growth curve name:

Growth curve description:

# Percent Production by Month Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec D 0 0 10 25 40 10 5 5 5 0 0



## Blue Grama Sod Plant Community

This plant community is the result of frequent and severe grazing during the growing season of the cool-season mid-grasses. A dense sod of blue grama dominates it. Pricklypear cactus

can become dense enough so that livestock cannot graze forage growing within the cactus clumps.

When compared to the Historic Climax Plant Community, blue grama and threadleaf sedge have increased. All cool-season mid-grasses and forbs have been greatly reduced. Plant diversity is extremely low.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 450 lbs./acre in unfavorable years to about 1100 lbs./acre in above average years.

This sod bound plant community is very resistant to water infiltration. While this sod protects the state itself, off-site areas are affected by excessive runoff that can cause gully erosion. This sod is very resistant to change and may require a grazing land mechanical treatment, such as chiseling, to return the cool-season grass component.

Transitions or pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling, etc.) and pricklypear cactus control (if needed), followed by prescribed grazing, will return this plant community to near Historic Climax Plant Community condition.
- Grazing land mechanical treatment, followed by moderate continuous season-long grazing, will convert this plant community to the Western Wheatgrass/Cheatgrass Plant Community.
- Frequent and severe yearlong grazing will eventually convert this state to the Blue Grama/ Plains Pricklypear/ Bare Ground Plant Community.

#### Plant Growth Curve

Growth curve wy1501

Growth curve

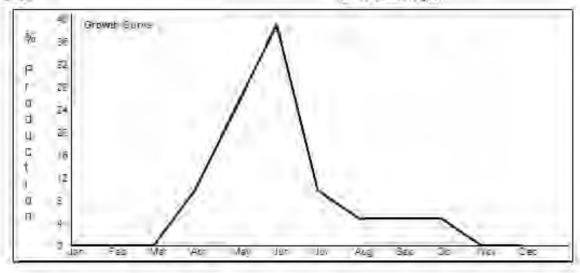
15-17NP Upland sites

Growth curve description:

name:

Percent Production by Month

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	10	25	40	10	5	5	5	0	0



# Greasewood Plant Community

This plant community can occur where states are subjected to continuous season-long grazing at moderate stocking rates and where greasewood occurs adjacent to the state. It is dominated by an overstory of greasewood and possibly big sagebrush. Rhizomatous wheatgrasses, cheatgrass, and inland saltgrass make up the understory. Salts in the surface will increase due to the shedding of the salt-filled leaves of the greasewood. Plant diversity is high.

The total annual production (air-dry weight) of this state is about 950 pounds per acre, but it can range from about 700 lbs./acre in unfavorable years to about 1200 lbs./acre in above average years.

This plant community is resistant to change. A significant reduction of greasewood can only be accomplished through repeated brush control treatments. The herbaceous species present are well adapted to grazing; however, species composition can be attered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

The state is protected from erosion as long as ground cover is maintained. The biotic integrity of this state is somewhat intact because of the woody overstory and perennial grass understory. The watershed is functioning as long as a grass cover is maintained.

 Recovery to near Historic Climax Plant Community condition is difficult due to the resistance of greasewood to herbicides and accumulated effects of salts on the soil.

#### Plant Growth Curve

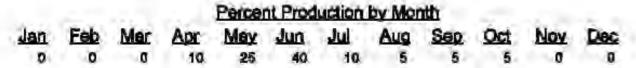
Growth curve

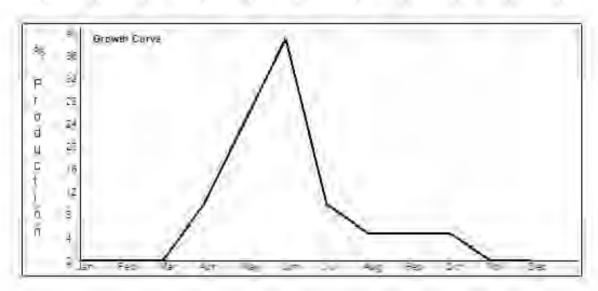
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15-17NP Upland altes

name: Growth curve description:





# Blue Grama/ Plains Pricklypear/ Bare Ground Plant Community

This plant community is the result of frequent and severe yearlong grazing over the longterm. Perennial plants are decreased. Cheatgrass, annual weeds, and bare ground have increased. Plains pricklypear may have increased, rendering much of the forage unusable by livestock.

This plant community is highly variable depending on the severity, frequency, and duration of the grazing and also the condition of the plant community when this level of grazing began. Virtually all plants not resistant to overgrazing may have been eliminated. Dominant plants may include blue grama, threeawns, annuals, and rhizomatous wheatgrasses to a lesser degree. Perennial plant diversity is low.

The total annual production (air-dry weight) of this state is about 600 pounds per acre, but it can range from about 400 lbs./acre in unfavorable years to about 800lbs./acre in above average years.

This state is unhealthy and subject to increased erosion. Runoff is high on these states due

to the sod nature of blue grams and bare ground.

Transitions or pathways leading to other plant communities are as follows:

- Long-term prescribed grazing will convert this plant community initially to the Blue Grama Sod Plant Community, when the state is dominated by blue grams sod at the time of treatment.
- Long-term prescribed grazing will convert this plant community to the Western Wheatgrass
  /Cheatgrass Plant Community, when the state has large amounts of cheatgrass, annual
  weeds, and bare ground at the time of treatment. Control of plains pricklypear cactus may be
  necessary.

Reseading areas with native plant species and proper grazing management may be necessary to accelerate recovery where few desirable plants remain.

#### Plant Growth Curve

Growth curve

number: WY1501

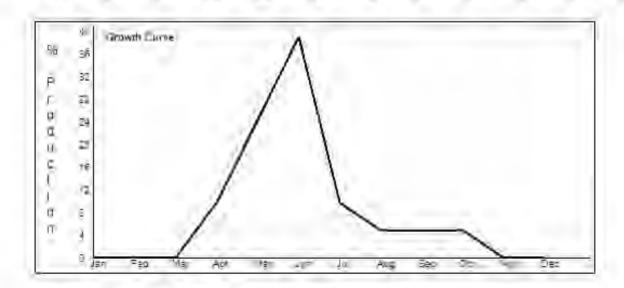
Growth curve

15-17NP Upland sites

пате:

Growth curve description:

# Percent Production by Month Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 0 0 0 10 25 40 10 5 5 5 0 0



# Go-back Land Plant Community

This plant community occurs on land that has been cropped annually in the past and then

abandoned without reseeding. Natural succession has resulted in a plant community dominated by varying combinations of threeawns, cheatgrass, blue grama, Sandberg bluegrass, and some rhizomatous wheatgrasses. Forage production is low since grasses such as threeawns and cheatgrass are not used efficiently by livestock.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 600 lbs./acre in unfavorable years to about 1200 lbs./acre in above average years.

The potential for accelerated erosion can be highly variable depending on amount of bare ground present. Biological diversity is low.

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing may be used to increase desirable native cool-season grass production. It is usually difficult to return to near Historic Climax Plant Community condition in a timely manner because of past soil loss.
- Grazing land mechanical treatment (i.e., chiseling) may improve forage production where significant rhizomatous wheatgrass is present to respond.

Where there is a lack of perennial grasses, reseeding to tame or native species may be necessary to return these lands to production in the form of pastureland. These pastures are normally seeded to crested wheatgrass, pubescent wheatgrass, or Russian wildrye. They require considerable investment to establish and have a variable life expectancy. They do produce up to 50% more than native range, but their value as forage is somewhat limited due to the single species usually seeded. In some cases, the single species or certain groups of species (e.g., wheatgrasses) may be more vulnerable to infestation by associated insects and/or diseases (e.g., black grass bugs).

#### **Plant Growth Curve**

Growth curve number:

WY1501

Growth curve

1.

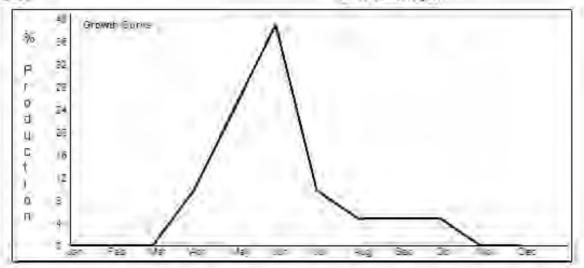
name:

15-17NP Upland sites

Growth curve description:

#### Percent Production by Month

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	10	25	40	10	5	5	5	0	0



# Section II: Ecological Site Interpretations

# **Animal Community**

Animal Community - Wildlife Interpretations

Rhizomatous Wheatgrasses/ Needleandthread/Big Bluestern Plant Community (HCPC): The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouss, as well as lek sites. Other birds that would frequent this plant community include Western meadowlarks, homed larks, and golden eagles. Many grassland obligate small mammals would occur here.

Mixed Sagebrush/Grass Plant Community: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule deer and antelope may use this state for foraging and cover year-round, as would cottontail and jack rabbits. It provides important winter, nesting, brood-rearing, and foraging habitat for sage grouse. Brewer's sparrows' nest in big sagebrush plants, and hosts of other nesting birds utilize stands in the 20-30% cover range.

Heavy Sagebrush Plant Community: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. This community provides excellent escape and thermal cover for large ungulates, as well as nesting and brood rearing habitat for sage grouse.

Western Wheatgrass/Cheatgrass Plant Community: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

Blue Grama Sod and Go-back Land Plant Communities: These communities provide limited foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover and if the Historic Climax Plant Community or the Western Wheatgrass/Cheatgrass Plant Community is limiting. Generally, these are not target plant communities for wildlife habitat management.

Greasewood Plant Community: This plant community exhibits a low level of plant species diversity due to the accumulation of salts in the soil. It may provide some thermal and escape cover for deer and antelope if no other woody community is nearby, but in most cases it is not a desirable plant community to select as a wildlife habitat management objective.

Blue Grama, Plains Pricklypear/Bare Ground Plant Community: Benefits to other wildlife are largely due to the subterranean structure created by the prairie dogs, not the sparse vegetation found on this plant community.

#### Animal Community - Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community Production Carrying Capacity\*
(lb./ac) (AUM/ac)
Rhizomatous WG/ Needleandthread/ Big Bluestem 1500-2300 .5
Heavy Sagebrush 900-1500 .35
Blue Grama Sod 450-1100 .25
Mixed Sagebrush/Grass 1000-1800 .4
Western Wheatgrass/Cheatgrass 750-1250 .3
Blue grama/Plains Pricklypear/ Bare ground 400-800 .1
Greasewood 700-1200 .25
Go-back Land 600-1200 .25

<sup>\* -</sup> Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

#### Plant Preference by Animal Kind

Animal kind: ALL antelope

Common name	Scientific name	<u>Plant</u> part	<u>J</u>	E	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	A	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
yarrow	Achillea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
•	<u>Achnatherum</u>	Entire	_											
Indian ricegrass	<u>hymenoides</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	plant	D	D	D	D	D	D	D	D	D	D	D	D
leadplant	Amorpha canescens	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
big bluestem	Andropogon gerardii	plant	D	D	D	D	D	D	D	D	D	D	D	D
sand bluestem	Andropogon hallii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	Artemisia cana ssp. cana	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
tarragon, green sagewort	Artemisia dracunculus	Entire	IJ	Ш	Ш	IJ	U	Ш	IJ	П	Ш	Ш	U	П
prairie sagewort,		Entire												
fringed sagewort birdfoot	<u>Artemisia frigida</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
sagebrush	Artemisia pedatifida	plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
twogrooved		Entire												
milkvetch	Astragalus bisulcatus	plant	Т	Т	Τ	I	ı	ı	ı	ı	ı	ı	Т	I
milkvetch	<u>Astragalus</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
fourwing saltbush Gardner's	Atriplex canescens	Entire plant Entire	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р

saltbush	Atriplex gardneri	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
sideoats grama	Bouteloua curtipendula	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
blue grama	Bouteloua gracilis	plant	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
nany grama	Buchloe	Entire												
buffalograss	dactyloides(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint		Entire												
reedgrass	<u>canadensis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire	_	_		_		_	_	_	_	_	_	_
threadleaf sedge	<u>Carex filifolia</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
inland sedge	Carex interior	plant	U	U	U	U	U	U	U	U	U	U	U	U
	Carex inops ssp.	Entire												
sun sedge	<u>heliophila</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
prairie sandreed	Calamovilfa longifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Calamagrostis</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
plains reedgrass	<u>montanensis</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
Nebraska sedge	Carex nebrascensis	plant	D	D	D	D	D	D	D	D	D	D	D	D
garden yellowrocket	Campe stricta(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
northern	Calamagrostis stricta	Entire	_		_			_			_		_	
reedgrass	<u>ssp. inexpansa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow rabbitbrush, green rabbitbrush, low rabbitbrush,														
Douglas	<u>Chrysothamnus</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
rabbitbrush	<u>viscidiflorus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
		Entire	_		_	_		_			_	_	_	_
poison hemlock	Conium maculatum	plant Entire	Т	Ī	I	ı	Т	Т	Т	Т	Т	ı	Т	I
tapertip hawksbeard	Crepis acuminata	plant	D	D	D	D	D	D	D	D	D	D	D	D
white prairie	Dalan as well-	Entire	_	_	_	_	_	_	_	_	Ĺ	_	_	_
clover	<u>Dalea candida</u>	plant	Р	۲	Р	Р	۲	۲	۲	Р	۲	Р	Р	Р

violet prairie		Entire												
clover, purple	Daloa purpuroa	plant	D	Р	D	D	D	D	D	D	D	D	D	D
prairie clover	<u>Dalea purpurea</u>	•	Г		Г	Г		Г		Г		Г	Г	Г
	<u>Deschampsia</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
tufted hairgrass	<u>caespitosa(syn)</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
inland saltgrass	<u>Distichlis spicata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
California		<b>Entire</b>												
waterwort	Elatine californica	plant	D	D	D	D	D	D	D	D	D	D	D	D
Canada wilder	Elimino conodonoio	Entire	_	D	Ь	Ь	_	Ь	Ь	Ь	_	_	Ь	<b>D</b>
Canada wildrye	Elymus canadensis	plant	U	ט	ט	ט	ט	ט	ט	ט	ט	ט	D	ט
	-,	Entire												
silverberry	Elaeagnus commutata	plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail,														
bottlebrush	Elymus elymoides ssp.	Entire												
squirreltail	<u>elymoides</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
streambank														
wheatgrass,	-, , , ,													
thickspike	Elymus lanceolatus ssp.		_	_	_	_	_	_	_	_	_	_	_	_
wheatgrass	<u>lanceolatus</u>	plant	D	D	ט	ט	ט	ט	ט	ט	ט	ט	D	ט
slender	-, , , ,	Entire									_			
wheatgrass	Elymus trachycaulus	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
horsetail	<u>Equisetum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
rubber rabbitbrush		plant	_	_	_	_	_	_	_	_	_	_	_	_
	<u>Ericameria nauseosa</u>		D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower	Esta management allations	Entire												
buckwheat	Eriogonum umbellatum	piant	U	U	U	U	U	U	U	U	U	U	U	U
scarlet														
beeblossom,	Carra consissa	Entire												
scarlet gaura	<u>Gaura coccinea</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	o	Entire												
American licorice	Glycyrrhiza lepidota	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>	Entire												
goldenweed	<u>acaulis(syn)</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and														
thread,		Entire	_	_	_	_	_	_	_	_	_	_	_	_
needleandthread	<u>Hesperostipa comata</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
<b>.</b>	, , , , , , ,	Entire												
Baltic rush	<u>Juncus balticus(syn)</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain		Entire		_	_	_	_	_	_	_	_	_	_	
juniper	<u>Juniperus scopulorum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U

prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	<u>Krascheninnikovia</u> <u>lanata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
basin wildrye	Leymus cinereus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
desertparsley,	<u>=0,000.000</u>	Entire	_							_			_	
biscuitroot	<u>Lomatium</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
bluebells	<u>Mertensia</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
plains muhly,	Muhlanharaia ayanidata	Entire	U	U	U	U	U		U	U			U	U
stoneyhills muhly	Muhlenbergia cuspidata Muhlenbergia	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly	<u>richardsonis</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
green		Entire	_	_	_	_	_	_		_	_	_	_	_
needlegrass	Nassella viridula	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western wheatgrass	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian		<b>P</b> 1-11-1		_	_	_	_	_		_	_		_	
breadroot,														
breadroot	<u>Pediomelum</u>	Entire												
scurfpea	<u>esculentum</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
ponderosa pine	<u>Pinus ponderosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg	Poo conhui(oun)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluegrass Cusick's	Poa canbyi(syn)	piant	Г	Г	Γ	Г	Г	Г	Г	Г	Г	Г	Г	Г
bluegrass, Cusick		Entire												
bluegrass	Poa cusickii	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
J	Populus deltoides ssp.	Entire												
plains cottonwood		plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg														
bluegrass, big														
bluegrass, Canby bluegrass, alkali		Entire												
bluegrass	Poa secunda	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg	Poa secunda ssp.	Entire												
bluegrass	juncifolia(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch	<u>Pseudoroegneria</u>	Entire												
wheatgrass	<u>spicata</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's	5 ' " " " " " " " " " " " " " " " " " "	Entire	_	_	_	_	_	_	_		_	_		
alkaligrass	Puccinellia nuttalliana	plant	Р	Р	٢	٢	٢	Р	۲	۲	۲	۲	٢	Р
hur ook	Ouerous meerocorne	Entire	Ь	Ь	D	<b>D</b>	_	Ь	Ь	<b>D</b>	Ь	D	Г	<b>D</b>
bur oak	Quercus macrocarpa	plant	D	D	ט	D	D	D	D	D	D	U	D	D
upright prairie coneflower, prairie	•	Entire												

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coneflower	Ratibida columnifera	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р
skunkbush sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Woods' rose	<u>Rosa woodsii var.</u> <u>woodsii</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
willow	<u>Salix</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
araaaawaad	Sarcobatus	Entire	_	_	_	_	_	_	_	_	_	_	D	_
greasewood	<u>vermiculatus</u> <u>Schizachyrium</u>	plant Entire	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
little bluestem	<u>scoparium</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali sacaton	Sporobolus airoides	Entire plant	ח	ח	D	ח	ח	ח	П	ח	ח	ח	D	ח
arkan sacaton	<u>oporopolas airoides</u>	Entire	0				<b>D</b>			0				ט
sand dropseed	Sporobolus cryptandrus	plant	U	U	U	U	U	U	U	U	U	U	U	U
alkali cordgrass	Spartina gracilis	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
prairie cordgrass	Spartina pectinata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
Pursh seepweed	Suaeda calceoliformis	plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie thermopsis	<u>Thermopsis rhombifolia</u> <u>var. annulocarpa(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca, small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: ALL	cattle													
Common name	Scientific name	<u>Plant</u> <u>part</u>	<u>J</u>	<u>E</u>	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	Α	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	Achnatherum hymenoides	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р

textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
leadplant	Amorpha canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
big bluestem	Andropogon gerardii	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sand bluestem	Andropogon hallii	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	Artemisia cana ssp. cana	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
red threeawn,	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
twogrooved milkvetch	Astragalus bisulcatus	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
milkvetch	<u>Astragalus</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
fourwing saltbush Gardner's	Atriplex canescens	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
saltbush	Atriplex gardneri	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sideoats grama	Bouteloua curtipendula	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue grama	Bouteloua gracilis	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	<u>Bouteloua hirsuta</u> <u>Buchloe</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss bluejoint, bluejoint	dactyloides(syn) Calamagrostis	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
reedgrass	canadensis	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
needleleaf sedge	Carex duriuscula	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D

inland sedge	<u>Carex interior</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sun sedge	<u>Carex inops ssp.</u> <u>heliophila</u>	Entire plant	Ρ	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
prairie sandreed	Calamovilfa longifolia	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains reedgrass	<u>Calamagrostis</u> <u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge	Carex nebrascensis	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
garden yellowrocket	Campe stricta(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
northern reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	Entire plant	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
yellow rabbitbrush, greer rabbitbrush, low rabbitbrush,	1													
Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	Entire plant Entire	Т	T	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock tapertip	Conium maculatum	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
hawksbeard white prairie	Crepis acuminata	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
clover violet prairie	<u>Dalea candida</u>	plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
clover, purple prairie clover	<u>Dalea purpurea</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
inland saltgrass	Distichlis spicata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
California waterwort	Elatine californica	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Canada wildrye	Elymus canadensis	Entire plant Entire	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
silverberry	Elaeagnus commutata	plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush	Elymus elymoides ssp.	Entire												

_	J 10	_		por t											
	squirreltail	<u>elymoides</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
	streambank wheatgrass, thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Entire plant	D	D	D	ח	ח	ח	ח	ח	ח	ח	ח	D
	•	<u>iariceoratus</u>	•	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
	slender wheatgrass	Elymus trachycaulus	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	horsetail	<u>Equisetum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	rubber rabbitbrush	Ericameria nauseosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	sulphur-flower buckwheat scarlet	Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	beeblossom, scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	stemless mock goldenweed needle and	Haplopappus acaulis(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	thread, needleandthread	Hesperostipa comata	Entire plant Entire	Р	Р	Р	Ρ	Р	Р	Р	Р	Ρ	Р	Р	Р
	iris	<u>Iris</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	Baltic rush	Juncus balticus(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
	Rocky Mountain juniper	Juniperus scopulorum	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
	prairie Junegrass	Koeleria macrantha	plant	D	D	D	D	D	D	D	D	D	D	D	D
	winterfat	<u>Krascheninnikovia</u> <u>lanata</u>	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	basin wildrye	<u>Leymus cinereus</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	bluebells plains muhly,	<u>Mertensia</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	stoneyhills muhly	Muhlenbergia cuspidata		D	D	D	D	D	D	D	D	D	D	D	D
	mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

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green	Nassella viridula	Entire	D	Р	Р	D	D	D	D	D	D	Р	D	Р
needlegrass western	<u>INASSEIIA VIIIQUIA</u>	plant Entire	Г	Г	Г	Г	Г	Г	Г	_	Г	Г	Γ	Γ
wheatgrass	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian														
breadroot,	De die ee e leere	<b>-</b> 41												
breadroot scurfpea	<u>Pediomelum</u> <u>esculentum</u>	Entire plant	D	D	D	D	D	D	D	ח	D	D	D	D
oodripod	<u>oodarontam</u>	Entire												
ponderosa pine	<u>Pinus ponderosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg		Entire												
bluegrass	<u>Poa canbyi(syn)</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's														
bluegrass, Cusick		Entire												
bluegrass	<u>Poa cusickii</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Populus deltoides ssp.	Entire	_	_	_	_	_	_	_	_	_	_	_	_
plains cottonwood	<u>monilifera</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big														
bluegrass, Canby														
bluegrass, alkali		Entire												
bluegrass	Poa secunda	plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg	Poa secunda ssp.	Entire	_	_	_	_	_	_	_	_	_	_	_	_
bluegrass	juncifolia(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebunch	<u>Pseudoroegneria</u>	Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
wheatgrass	<u>spicata</u>	plant	۲	٢	٢	۲	۲	٢	۲	٢	۲	۲	۲	٢
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant	Р	Р	Р	Р	Р	Р	Р	P	Р	Р	Р	P
amangrass	T GOOTTOMA TIALLAMATIA	Entire	•	•	•	•	1	•	•	•	•	•	•	•
bur oak	Quercus macrocarpa	plant	U	U	U	U	U	U	U	U	U	U	U	U
upright prairie	·	•												
coneflower, prairie		Entire												
coneflower	Ratibida columnifera	plant	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush sumac	Phus trilohata	Entire plant	D	D	D	ח	ח	ח	ח	ח	ח	ח	П	D
Skulikbusii Sulliac	Rosa woodsii var.	Entire	ט	ט	U	ט	ט	ט	ט	ט	ט	ט	ט	ט
Woods' rose	woodsii	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire	_	_		_	_	_	_	_	_	_		
willow	<u>Salix</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Sarcobatus</u>	Entire												
greasewood	<u>vermiculatus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
P40 11 4	<u>Schizachyrium</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
little bluestem	<u>scoparium</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue aved grees	Sievrinehium	Entire	D	D	D	D	D	D	D	D	D	D	D	D
blue-eyed grass	<u>Sisyrinchium</u>	plant	ט	ט	ט	ט	ט	ט	U	ט	ט	ט	ט	ט

		Entire	_	_	_	_	_	_			_	_	_	_
alkali sacaton	<u>Sporobolus airoides</u>	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sand dropseed	Sporobolus cryptandrus	plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali cordgrass	Spartina gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
aikaii Colugiass	<u>Spartina graciiis</u>	Entire	U	ט	ט	ט	ט	ט	0	ט	ט	ט	ט	ט
prairie cordgrass	Spartina pectinata	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western	Symphoricarpos	Entire												
snowberry	occidentalis	plant	U	U	U	U	U	U	U	U	U	U	U	U
	Thermopsis rhombifolia	Entire												
prairie thermopsis	var. annulocarpa(syn)	plant	U	U	U	U	U	U	U	U	U	U	U	U
077011/07000	Trialo abin	Entire	_	_	_	_	_	_	_	_	_	_	_	_
arrowgrass	<u>Triglochin</u>	plant Entire	Τ	ı	I	Τ	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
broadleaf cattail	Typha latifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D
American vetch	Viois emericans	Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca,	<u>Vicia americana</u>	plant Entire	Р	۲	۲	۲	٢	٢	٢	٢	۲	۲	۲	٢
small soapweed	<u>Yucca glauca</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: ALL	deer													
	4001	Plant												
Common name	Scientific name	<u>part</u>	<u>J</u>	<u>E</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>0</u>	<u>N</u>	<u>D</u>
	A 1 111	Entire												
yarrow	Achillea	plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	Achnatherum hymenoides	Entire plant	D	D	D	D	D	D	D	D	D	D	Р	D
ilidiaii iloegrass	<u>nymonolado</u>	Entire								Г				
textile onion	Allium textile	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire								_				
leadplant	Amorpha canescens	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
hia hiyootowa	Andronogon gorordii	Entire	_	_	_	_	_	_	_	_	_	_	_	_
big bluestem	Andropogon gerardii	plant Entire	D	ט	ט	ט	ט	ט	ט	ט	ט	ט	D	ט
sand bluestem	Andropogon hallii	plant	U	U	U	U	U	U	U	U	U	U	U	U
rosy pussytoes,	-	Entire												
rose pussytoes	Antennaria rosea	plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	Artemisia cana ssp.	Entire plant	Р	Þ	Þ	Þ	P	Þ	Þ	Þ	Þ	Þ	Р	P
Silver sayeniusii	<u>cana</u>	Piarit	1.	1		1	•	1	1	1 '	•	•	•	•

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tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
twogrooved milkvetch	Astragalus bisulcatus	Entire plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
milkvetch Gardner's	<u>Astragalus</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
saltbush	Atriplex gardneri	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sideoats grama	Bouteloua curtipendula	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
blue grama	Bouteloua gracilis	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	<u>Bouteloua hirsuta</u> Buchloe	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss	dactyloides(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint reedgrass	<u>Calamagrostis</u> <u>canadensis</u>	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
needleleaf sedge	Carex duriuscula	plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
inland sedge	Carex interior	plant	U	U	U	U	U	U	U	U	U	U	U	U
sun sedge	<u>Carex inops ssp.</u> <u>heliophila</u>	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
prairie sandreed	Calamovilfa longifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
plains reedgrass	<u>Calamagrostis</u> <u>montanensis</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
Nebraska sedge	Carex nebrascensis	plant	D	D	D	D	D	D	D	D	D	D	D	D
garden yellowrocket northern	Campe stricta(syn) Calamagrostis stricta	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U

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reedgrass	ssp. inexpansa	plant	U	U	U	U	U	U	U	U	U	U	U	U
yellow rabbitbrush, green rabbitbrush, low rabbitbrush,														
Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock tapertip	Conium maculatum	Entire plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
hawksbeard	Crepis acuminata	plant	D	D	D	D	D	D	D	D	D	D	D	D
white prairie clover	Dalea candida	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
violet prairie clover, purple prairie clover	Dalea purpurea	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
tufted hairgrass	<u>Deschampsia</u> <u>caespitosa(syn)</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
inland saltgrass	<u>Distichlis spicata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
California waterwort	Elatine californica	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	plant	D	D	D	D	D	D	D	D	D	D	D	D
silverberry	Elaeagnus commutata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
squirreltail, bottlebrush squirreltail streambank	Elymus elymoides ssp. elymoides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
wheatgrass, thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	plant	D	D	D	D	D	D	D	D	D	D	D	D
slender wheatgrass	Elymus trachycaulus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
horsetail	<u>Equisetum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Ericameria nauseosa	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower buckwheat scarlet	Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

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beeblossom, scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	Entire plant	11	11	U	11	11	11	11	11	11	11	11	11
	•	•	U	U	J	J	J	J	U	J	J	J	U	O
stemless mock goldenweed needle and	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
thread, needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Ρ	Р	Р	Р	Р	Ρ	Р	Р	Р
iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												
Baltic rush Rocky Mountain	Juncus balticus(syn)	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
juniper	Juniperus scopulorum	plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie Junegrass	Koeleria macrantha Krascheninnikovia	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	<u>lanata</u>	plant	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Ρ	Р	Р
basin wildrye	<u>Leymus cinereus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
desertparsley,		Entire												
biscuitroot	<u>Lomatium</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
bluebells	<u>Mertensia</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
plains muhly, stoneyhills muhly	Muhlenbergia cuspidata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green		Entire												
needlegrass western	Nassella viridula	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
wheatgrass	Pascopyrum smithii	plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian breadroot,														
breadroot	<u>Pediomelum</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
scurfpea	<u>esculentum</u>	plant Entire	D	ט	D	ט	ט	ט	ט	ט	ט	ט	ט	ט
ponderosa pine	Pinus ponderosa	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg	<del></del>	Entire												
bluegrass	Poa canbyi(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's bluegrass, Cusick		Entire												
bluegrass, Cusick	Poa cusickii	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

plains cottonwood	<u>Populus deltoides ssp.</u> <u>monilifera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big bluegrass, Canby														
bluegrass, alkali bluegrass	<u>Poa secunda</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass	<u>Poa secunda ssp.</u> juncifolia(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch wheatgrass	<u>Pseudoroegneria</u> <u>spicata</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bur oak	Quercus macrocarpa	plant	Р	Ρ	Р	Ρ	Р	Р	Ρ	Р	Р	Р	Р	Р
upright prairie coneflower, prairie coneflower	Ratibida columnifera	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
skunkbush sumac	Rhus trilobata	plant	D	D	D	D	D	D	D	D	D	D	D	D
Woods' rose	<u>Rosa woodsii var.</u> <u>woodsii</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
willow	<u>Salix</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
greasewood	Sarcobatus vermiculatus	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
blue-eyed grass	<u>Sisyrinchium</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
alkali sacaton	Sporobolus airoides	plant	D	D	D	D	D	D	D	D	D	D	D	D
sand dropseed	Sporobolus cryptandrus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
alkali cordgrass	Spartina gracilis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie cordgrass	Spartina pectinata	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
Pursh seepweed	Suaeda calceoliformis	plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie thermopsis	<u>Thermopsis rhombifolia</u> <u>var. annulocarpa(syn)</u>	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U

arrowgrass	<u>Triglochin</u>	plant Entire	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca, small soapweed	<u>Yucca glauca</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: ALL	. horses													
Common name	Scientific name	<u>Plant</u> <u>part</u> Entire	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	<u>Achnatherum</u> <u>hymenoides</u>	Entire plant	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
leadplant	Amorpha canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
big bluestem	Andropogon gerardii	Entire plant	Р	Р	Ρ	Р	Р	Р	Ρ	Р	Ρ	Ρ	Р	Р
sand bluestem	Andropogon hallii	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	<u>Artemisia cana ssp.</u> <u>cana</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	<u>Artemisia tridentata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
twogrooved milkvetch	<u>Astragalus bisulcatus</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
milkvetch	<u>Astragalus</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

fourwing saltbush	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Gardner's saltbush	Atriplex gardneri	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sideoats grama	Bouteloua curtipendula	Entire plant	Р	Ρ	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р
blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss	Buchloe dactyloides(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint reedgrass	<u>canadensis</u>	Entire plant Entire	Ρ	Ρ	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р
needleleaf sedge	Carex duriuscula	plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
inland sedge	Carex interior Carex inops ssp.	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
sun sedge	<u>heliophila</u>	plant Entire	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р
prairie sandreed	Calamovilfa longifolia Calamagrostis	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains reedgrass	<u>montanensis</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge garden	Carex nebrascensis	plant Entire	Ρ	Р	Р	Ρ	Р	Р	Ρ	Р	Р	Р	Р	Р
yellowrocket	Campe stricta(syn)	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
northern reedgrass	<u>Calamagrostis stricta</u> <u>ssp. inexpansa</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
yellow rabbitbrush, green rabbitbrush, low rabbitbrush,														
Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т

			-1											
tapertip hawksbeard	Crepis acuminata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
white prairie		Entire												
clover	<u>Dalea candida</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
violet prairie														
clover, purple		<b>Entire</b>												
prairie clover	<u>Dalea purpurea</u>	plant	Ρ	Р	Ρ	Ρ	Р	Р	Ρ	Ρ	Ρ	Ρ	Р	Ρ
	<u>Deschampsia</u>	Entire												
tufted hairgrass	caespitosa(syn)	plant	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р
· ·		Entire												
inland saltgrass	<u>Distichlis spicata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
California		Entire												
waterwort	Elatine californica	plant	Р	Р	Р	P	P	P	P	P	P	Р	P	Р
Waterwort	<u>Liatine camornica</u>	-	•		'	•		'	•	•	•	•		•
م معالم المالية		Entire	Р	Р	Р	Р	_	_	Р	Р	Р	Р	Р	_
Canada wildrye	Elymus canadensis	plant	Р	۲	۲	Р	Р	Р	Р	Р	Р	Р	۲	Р
		Entire												
silverberry	<u>Elaeagnus commutata</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail,														
bottlebrush	Elymus elymoides ssp.	<b>Entire</b>												
squirreltail	<u>elymoides</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
streambank	-	-												
wheatgrass,														
thickspike	Elymus lanceolatus ssp.	Entire												
wheatgrass	lanceolatus	plant	D	D	D	D	D	D	D	D	D	D	D	D
slender		Entire												
wheatgrass	Elymus trachycaulus	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Wildagiado	<u>Liyinao traonyoaanao</u>	Entire	•	•	•	•	•	•	•	•	•	•	•	•
horootoil	Equipotum													11
horsetail	<u>Equisetum</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	<i></i> .	Entire												
	<u>Ericameria nauseosa</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
sulphur-flower		Entire												
buckwheat	Eriogonum umbellatum	plant	U	U	U	U	U	U	U	U	U	U	U	U
scarlet														
beeblossom,		<b>Entire</b>												
scarlet gaura	Gaura coccinea	plant	U	U	U	U	U	U	U	U	U	U	U	U
_		Entire												
American licorice	Glycyrrhiza lepidota	plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>	Entire	_											
goldenweed	acaulis(syn)	plant	- 11	11	U	п	11	ш	П	П	П	П	ш	П
•	<u>acauns(syrry</u>	•	J	J	J	J	J	J	J	J	J	J	J	J
needle and		Entire												
thread, needleandthread	Hosporostino comoto	plant	D	Р	D	D	D	Р	D	D	D	D	P	Р
needieandinead	Hesperostipa comata		_	_	_	_	_	_	_	_	_	_	_	_
		Entire												
iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
		Entire												

Baltic rush Rocky Mountain	Juncus balticus(syn)	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
juniper	Juniperus scopulorum	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	<u>Krascheninnikovia</u> <u>Ianata</u>	Entire plant	Р	Р	Р	Р	Ρ	Ρ	Р	Р	Р	Р	Р	Р
basin wildrye	<u>Leymus cinereus</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
bluebells	<u>Mertensia</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
plains muhly, stoneyhills muhly	Muhlenbergia cuspidata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Р
western wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian breadroot,														
breadroot	<u>Pediomelum</u>	Entire												
scurfpea	<u>esculentum</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
nandarasa nina	Dinus pandaross	Entire	U	U	U	U	U	U	U	U			U	U
ponderosa pine	<u>Pinus ponderosa</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg bluegrass	Poa canbyi(syn)	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's	<u>. oa oamayn,oym</u>	p.a.r.	•	•	-	•	•	•	•	•	-	•	•	-
bluegrass, Cusick		Entire												
bluegrass	<u>Poa cusickii</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains cottonwood	<u>Populus deltoides ssp.</u> <u>monilifera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big bluegrass, Canby														
bluegrass, alkali bluegrass	Dog googlada	Entire	D	D	D	D	Ь	<b>D</b>	D	D	D	D	D	_
Sandberg	<u>Poa secunda</u> <u>Poa secunda ssp.</u>	plant Entire	ט	ט	ט	ט	D	D	ט	ט	ט	ט	ט	D
bluegrass	juncifolia(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebunch	<u>Pseudoroegneria</u>	Entire												
wheatgrass	<u>spicata</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

bur oak	Quercus macrocarpa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
upright prairie coneflower, prairie		Entire												
coneflower	Ratibida columnifera	plant	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Rosa woodsii var.	Entire		_										
Woods' rose	<u>woodsii</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
willow	<u>Salix</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
greasewood	<u>Sarcobatus</u> <u>vermiculatus</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	<u>Schizachyrium</u> <u>scoparium</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali sacaton	Sporobolus airoides	Entire plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sand dropseed	Sporobolus cryptandrus	plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali cordgrass	Spartina gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie cordgrass	Spartina pectinata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie thermopsis	<u>Thermopsis rhombifolia</u> <u>var. annulocarpa(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
broadleaf cattail	Typha latifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca, small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: ALL	sheep													
Common name	Scientific name	<u>Plant</u> <u>part</u>	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>

yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Indian ricegrass	<u>Achnatherum</u> <u>hymenoides</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
leadplant	Amorpha canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
big bluestem	Andropogon gerardii	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sand bluestem	Andropogon hallii	Entire plant	D	D	D	ח	ח	D	ח	ח	ח	D	D	D
rosy pussytoes,		Entire												_
rose pussytoes	Antennaria rosea Artemisia cana ssp.	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	<u>cana</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green sagewort	Artemisia dracunculus	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort, fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
twogrooved milkvetch	Astragalus bisulcatus	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
milkvetch	<u>Astragalus</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
fourwing saltbush	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Gardner's saltbush	·	Entire	D	Р	Р	Р	Р	D	D	D	D	D	Р	D
Salibusii	<u>Atriplex gardneri</u>	plant Entire	•	•	•	•		-	-		-	-	-	-
sideoats grama	Bouteloua curtipendula	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue grama	Bouteloua gracilis	plant	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss	<u>Buchloe</u> <u>dactyloides(syn)</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint reedgrass	<u>Calamagrostis</u> <u>canadensis</u>	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D

2013		ESD FIIIIable R	eport											
needleleaf sedge	Carex duriuscula	plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire												
inland sedge	Carex interior	plant	D	D	D	D	D	D	D	D	D	D	D	D
our codeo	Carex inops ssp.	Entire	D	D	D	D	D	_	_	D	D	D	D	D
sun sedge	<u>heliophila</u>	plant Entire	D	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
prairie sandreed	Calamovilfa longifolia	plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Calamagrostis</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
plains reedgrass	<u>montanensis</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
		Entire	_	_	_	_	_	_		_	_	_	_	_
spike sedge	<u>Carex nardina</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge	Carex nebrascensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
garden		Entire	-	-	-		-	-	-	-	•	-	•	
yellowrocket	Campe stricta(syn)	plant	D	D	D	D	D	D	D	D	D	D	D	D
northern	Calamagrostis stricta	Entire	_	D	D	D	_	_	D	_	D	D	D	Ь
reedgrass yellow	<u>ssp. inexpansa</u>	plant	D	ט	ט	ט	ט	D	ט	ט	ט	ט	ט	D
rabbitbrush, greer	1													
rabbitbrush, low	•													
rabbitbrush,														
Douglas	<u>Chrysothamnus</u>	Entire	_	_	_	_	_	_	_	_	_	_	_	_
rabbitbrush	<u>viscidiflorus</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
water hamlask	Ciouto	Entire	т	_	_	_	_	_	_	_	_	_	_	Т
water hemlock	<u>Cicuta</u>	plant Entire	ı	1	1	ı	1	ı	ı	ı	ı	ı	ı	1
poison hemlock	Conium maculatum	plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip		Entire												
hawksbeard	Crepis acuminata	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
white prairie clover	Dalea candida	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
violet prairie	<u>Daica canalaa</u>	plant	•	•	•	•	•	•	1	•	•	•	•	•
clover, purple		Entire												
prairie clover	<u>Dalea purpurea</u>	plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Deschampsia</u>	<b>Entire</b>												
tufted hairgrass	<u>caespitosa(syn)</u>	plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
inland coltaross	Distinhlis spisoto	Entire	U		U									U
inland saltgrass California	<u>Distichlis spicata</u>	plant Entire	U	U	U	U	U	U	U	U	U	U	U	U
waterwort	Elatine californica	Entire plant	D	D	ח	ח	ח	D	ח	D	ח	D	D	D
TOTAL TOTAL	<u> </u>	Entire	٦	ر	ر	ر	ر	ر	ر	ر	٠	ر	ر	ر
Canada wildrye	Elymus canadensis	plant	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р
		Entire												

-	,10	<u> </u>	ob i illiabio itop	~ .											
	silverberry	Elaeagnus commutata	plant	U	U	U	U	U	U	U	U	U	U	U	U
	squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	streambank wheatgrass, thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	slender wheatgrass	Elymus trachycaulus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	horsetail	<u>Equisetum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	rubber rabbitbrush sulphur-flower	Ericameria nauseosa	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
	buckwheat	Eriogonum umbellatum	plant	U	U	U	U	U	U	U	U	U	U	U	U
	scarlet beeblossom, scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	stemless mock goldenweed	Haplopappus acaulis(syn)	Entire plant											U	
	needle and thread, needleandthread	Hesperostipa comata	Entire plant Entire	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р
	iris	<u>Iris</u>	plant	U	U	U	U	U	U	U	U	U	U	U	U
	Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Rocky Mountain juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	winterfat	<u>Krascheninnikovia</u> <u>lanata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	basin wildrye	<u>Leymus cinereus</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	desertparsley, biscuitroot	<u>Lomatium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	bluebells	<u>Mertensia</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	plains muhly, stoneyhills muhly	Muhlenbergia cuspidata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

12010	_													
mat muhly	<u>Muhlenbergia</u> <u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian breadroot, breadroot	Pediomelum	Entire												
scurfpea	<u>esculentum</u>	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
ponderosa pine	Pinus ponderosa	plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg bluegrass	Poa canbyi(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's bluegrass, Cusick		Entire												
bluegrass	Populus deltoides sen	plant Entire	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains cottonwood Sandberg	<u>Populus deltoides ssp.</u> <u>monilifera</u>	plant	D	D	D	D	D	D	D	D	D	D	D	D
bluegrass, big bluegrass, Canby		F "												
bluegrass, alkali bluegrass	<u>Poa secunda</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass	<u>Poa secunda ssp.</u> juncifolia(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch wheatgrass	<u>Pseudoroegneria</u> <u>spicata</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bur oak		Entire											_	D
LINGUADE DEGLES	Quercus macrocarpa	plant	D	D	D	D	D	D	D	D	D	D	ט	
upright prairie coneflower, prairie coneflower	•		_		_								Р	
coneflower, prairie	Ratibida columnifera	plant Entire	P	Р	Р	Р	Р	Р	Р	Р	Р	Р		Р
coneflower, prairie coneflower	Ratibida columnifera	plant Entire plant Entire	P D	Р	P D									
coneflower, prairie coneflower skunkbush sumac	Ratibida columnifera  Rhus trilobata Rosa woodsii var. woodsii Salix	Entire plant Entire plant Entire plant Entire plant Entire plant	P D	P D	P D	P D	P D D	P D D	P D D	P D D	P D D	P D D	P D	P D D
coneflower, prairie coneflower skunkbush sumac Woods' rose	Ratibida columnifera  Rhus trilobata  Rosa woodsii var. woodsii	Entire plant Entire plant Entire plant Entire plant Entire	P D D											

blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
alkali sacaton	Sporobolus airoides	Entire plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
sand dropseed	Sporobolus cryptandrus	plant Entire	D	D	D	D	D	D	D	D	D	D	D	D
alkali cordgrass	Spartina gracilis	plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie cordgrass	Spartina pectinata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western snowberry	<u>Symphoricarpos</u> <u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie thermopsis	<u>Thermopsis rhombifolia</u> <u>var. annulocarpa(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	T	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca, small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

Legend: P=Preferred; D=Desirable; U=Undesirable; N=Not consumed; E=Emergency; T=Toxic; X=Used, but degree of utilization unknown

### **Hydrology Functions**

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration and runoff potential for this site varies from moderate to high depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses such as bluebunch wheatgrass. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

### **Recreational Uses**

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

### **Wood Products**

No appreciable wood products are present on the site.

### Other Products

None noted.

### **Supporting Information**

### **Associated Sites**

<u>Site name</u> <u>Site ID</u> <u>Site narrative</u>

 Clayey (Cy)
 R058BY204WY

 Lowland (LL)
 R058BY228WY

 Overflow (Ov)
 R058BY230WY

 Sandy (Sy)
 R058BY250WY

 Shallow Loamy (SwLy)
 R058BY262WY

### **Similar Sites**

Site name Site ID Site narrative

Loamy (Ly) R058BY122WY Loamy 10-14" Northern Plains P.Z. has lower

production.

#### **State Correlation**

This site has been correlated with the following states: wy

### **Inventory Data References**

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used. Those involved in developing this site include: Glen Mitchell, Range Management Specialist, NRCS; Chuck Ring, Range Management Specialist, NRCS; and Everet Bainter, Range Management Specialist. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References
Data Source Number of Records Sample Period State County
SCS-RANGE-417 1971-1994 WY Campbell & others

Ocular estimates 1990-1999 WY Campbell & others

### **Original Site Description Approval**

Author Date Approval Date
G. Mitchell 10/31/2002 E. Bainter 3/11/2008

Reference Sheet									
Author(s)/participant(s):									
Contact for lead author:									
<b>Date:</b> 4/1/2005 <b>MLRA:</b> 058B <b>Ecological Site:</b> Loamy (Ly) 15-17" Northern Plains Precipitation Zone R058BY222WY This <i>must</i> be verified based on soils and climate (see Ecological Site Description). Current plant community cannot be used to identify the ecological site.									
Composition (indicators 10 and 12) based on: X Annual Production, Foliar Cover, Biomass									
<ul> <li>Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for each community and natural distrurbance regimes within the reference state, when appropriate and (3) cite data. Continue descriptions on separate sheet.</li> <li>1. Number and extent of rills: Rills should not be present</li> </ul>									
2. Presence of water flow patterns: Barely observable									
3. Number and height of erosional pedestals or terracettes: Essentially non-existent									

standing dead, lichen, moss, plant canopy are not bare ground): Bare ground is 15-25% occurring in small areas throughout site

4. Bare ground from Ecological Site Description or other studies (rock, litter,

- Number of gullies and erosion associated with gullies: Active gullies should not be present
- 6. Extent of wind scoured, blowouts and/or depositional areas: None
- 7. Amount of litter movement (describe size and distance expected to travel): Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces.
- 8. Soil surface (top few mm) resistance to erosion (stability values are averages most sites will show a range of values): Plant cover and litter is at 75% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 5 or greater.
- Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness): Use Soil Series description for depth and color of A-horizon
- 10. Effect on plant community composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Healthy deep rooted native grasses enhance infiltration and reduce runoff. Infiltration is Moderate.
- 11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.
- 12. Functional/Structural Groups (list in order of descending dominance by aboveground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to) with dominants and sub-dominants and "others" on separate lines:

Dominant: Sub-dominant: Other:

Additional: Mid-stature Bunch grasses > Mid-stature Rhizomatous grasses > Short stature grasses/grasslikes > Forbs = Shrubs

- 13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low
- **14. Average percent litter cover (%) and depth (inches):** Average litter cover is 30-40% with depths of 0.25 to 1.0 inches
- 15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1900 lbs/ac
- 16. Potential invasive (including noxious) species (native and non-native). List Species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicator, we are describing what is NOT expected in the reference state for the ecological site: Blue grama, Threadleaf sedge, Fringed sagewort, Prickly Pear, Broom Snakeweed, and Species found on Noxious Weed List
- 17. Perennial plant reproductive capability: All species are capable of reproducing

### Reference Sheet Approval

Approval Date

E. Bainter 3/11/2008



**Ecological Site Description** 



Data Access

FSGD

ESI Forestland ESI Rangeland

#### > Return to Reports

Selection Screen

#### **Report Selections**

- > General
- > Physiographic **Features**
- > Climate Features
- > Water Features
- > Soll Features
- > Plant Communities
- > Site Interpretations
- > Supporting Information
- > Rangeland Health Reference Sheet Complete Report
- > HTML Printable Format

# **United States Department of Agriculture Natural Resources Conservation** Service **Ecological Site Description**

## Section I: Ecological Site **Characteristics**

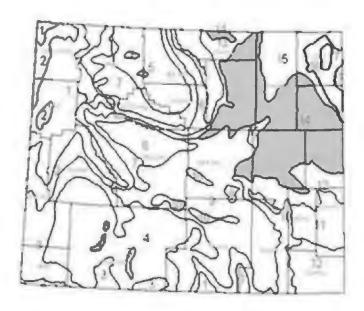
**Ecological Site Identification and Concept** 

Site name: Sandy (Sy) 10-14" Northern Plaine Precipitation Zone

Site type: Rangeland Site ID: R058BY150WY

Major land resource area (MLRA): 058B-Northern Rolling High Plains, Southern Part

Precipitation Zones for Rangeland Ecological Site Descriptions



### **Physiographic Features**

This site occurs on nearly level to 50% slopes.

Landform: (1) Alluvial fan

(2) Plateau (3) Ridge

 Minimum
 Maximum

 Elevation (feet):
 3800
 5100

 Slope (percent):
 0
 30

Flooding

Frequency: None None

**Ponding** 

Depth (inches): 0 0
Frequency: None Rare
Runoff class: Negligible High
Aspect: No Influence on this site

### **Climatic Features**

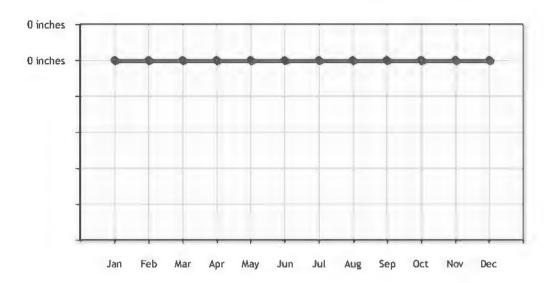
Annual precipitation ranges from 10-14 inches per year. Wide fluctuations may occur in yearly precipitation and result in more drought years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring. Wind speed averages about 8 mph, ranging from 10 mph during the spring to 7 mph during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph. Growth of native cool season plants begins about April 1 and continues to about July 1. Native warm season plants begin growth about May 15 and continue to about August 15. Green up of cool season plants may occur in September and October of most years. The following information is from the "Clearmont 5 SW" climate station: Frost-free period (32 F): 76 - 132 days; (5 yrs. out of 10, these days will occur between May 30 - September 11) Freeze-free period 28 F): 110 - 145 days; (5 yrs. out of 10, these days will occur between May 16 – September 21) Mean annual precipitation: 12.4 inches Mean annual air temperature: 43.2 F (28.4 F Avg. Min. – 57.9 F Avg. Max.) For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include: "Dull Center".

**Averaged** 

Frost-free period (days): 104
Freeze-free period (days): 127
Mean annual precipitation (inches): 14.00

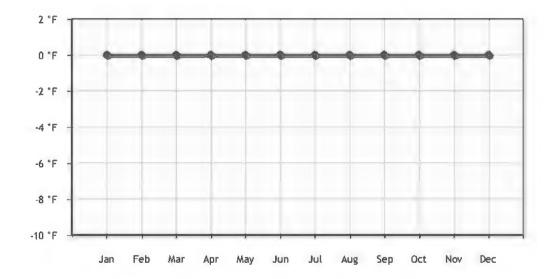
#### Monthly Precipitation (Inches):

Nov Dec <u>Feb</u> Mar Apr May Jun <u>Jul</u> Aug <u>Sep</u> <u>Oct</u> High 0.00



#### Monthly Temperature (°F):

<u>Jan</u> <u>Feb</u> <u>Mar</u> Apr May Jun <u> Jul</u> <u>Aug</u> <u>Sep</u> <u>Oct</u> Nov <u>Dec</u> 0.0 0.0 0.0 0.0 0.0 0.0 High 0.0 0.0 0.0 0.0 0.0 0.0 Low 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0



### **Influencing Water Features**

Stream Type: None

### **Representative Soil Features**

The soils of this site are moderately deep (greater than 20" to bedrock) to very deep, well-drained soils that formed in alluvium or alluvium over residuum. These soils have moderate, moderately rapid, or rapid permeability. The surface soil will vary from 3 to 6 inches deep and have one of the following textures: fine sandy loam, sandy loam, or loamy very fine sand. Coarser topsoils may be included if underlain by finer textured subsoil. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick.

Major Soil Series correlated to this site include: Bowbac, Decolney, Hargreave, Hiland, Julesburg, Keeline, Moskee, Terro, Turnercrest, Vonalee,

Other Soil Series correlated in MLRA 58B to this site include: Absted, Ascalon, Bankard, Bayard, Cambria, Clarkelen, Draknab, Forkwood, FortCollins, Garrett, Glenberg, Keyner, Jayem, Manter, Maysdorf, Noden, Nuncho, Otera, Pugsley, Satanta, Schooner, Southfork, Terry, and Vona

Surface texture: (1) Fine sandy loam

(2) Sandy loam

Subsurface texture group: Sandy

	<u>Minimum</u>	<u>Maximum</u>
Surface fragments <=3" (% cover):	0	0
Surface fragments >3" (% cover):	0	0
Subsurface fragments <=3" (% volume):	0	0
Subsurface fragments >3" (% volume):	0	0
Drainage class: Well drained to excessively drained		
Permeability class: Moderately rapid to rapid		

	<u>iviinimum</u>	<u>iviaximum</u>
Depth (inches):	20	60
Available water capacity (inches):	2.00	5.10
Electrical conductivity (mmhos/cm):	0	4
Sodium adsorption ratio:	0	5
Calcium carbonate equivalent (percent):	0	5
Soil reaction (1:1 water):	6.6	8.4

### **Plant Communities**

#### **Ecological Dynamics of the Site**

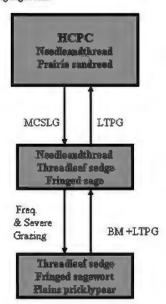
As this site deteriorates, species such as threadleaf sedge, needleandthread, fringed sagewort and silver sagebrush will increase. Mid grasses such as prairie sandreed and Indian ricegrass will decrease in frequency and production.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.

#### **State-and-Transition Diagram**

Site Type: Rangeland MLRA: 58B - Northern Rolling High Plains Sandy 10-14" P.Z. R058BY150WY



BM - Brush Management (fire, chemical, mechanical)

Freq. & Severe Grazing - Frequent and Severe Utilization of the Cool-season Midgrasses during the Growing Season

GLMT - Grazing Land Mechanical Treatment

LTPG - Long-tem Prescribed Grazing

MCSLG - Moderate, Continuous Season-long Grazing

NU, NF - No Use and No Fire

PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)

VLTPG - Very Long-term Prescribed Grazing (could possibly take generations)

Na - found adjacent to a saline site

Technical Guide Section IIE

4

USDA-NRCS Rev. 02-22-01

### Needleandthread/Prairie Sandreed Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Potential vegetation is about 75% grasses or grass-like plants, 15% forbs, and 10% woody plants. The state is a mix of warm and cool season midgrasses. The major grasses include needleandthread, prairie sandreed, little bluestem, and Indian ricegrass. Other grasses occurring in the state include rhizomatous wheatgrasses, Sandberg bluegrass, blue grama, and threadleaf sedge. Silver sagebrush and green rabbitbrush are conspicuous components of this state.

The total annual production (air-dry weight) of this state is about 1200 pounds per acre, but it can range from about 750 lbs./acre in unfavorable years to about 1600 lbs./acre in above average years.

The state is stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- Moderate, Continuous Season-Long grazing will convert the plant community to the Needleandthread/ Threadleaf sedge/ Fringed sagewort Vegetation State.
- Frequent and Severe grazing will convert the plant community to the Threadleaf sedge/ Fringed sagewort/ Plains Pricklypear Vegetation State.

#### Needleandthread/Prairie Sandreed Plant Community Plant Species Composition

Grass/Gr		Annual Production (pounds per acre						
<u>Group</u> <u>Group</u> <u>name</u> 1	Common name	Symbol	Scientific name	<u>Low</u> 75	<u>High</u> 160			
	streambank wheatgrass, thickspike wheatgrass	ELLAL	Elymus lanceolatus ssp. lanceolatus	75	160			
	western wheatgrass	PASM	Pascopyrum smithii	75	160			
2				113	240			
	Indian ricegrass	ACHY	<u>Achnatherum</u> <u>hymenoides</u>	113	240			

3					75	160
		little bluestem	scsc	<u>Schizachyrium</u>	75	160
		nue bidestein	0000	<u>scoparium</u>	70	100
4					400	400
4		needle and thread,			188	400
		needleandthread	HECO26	Hesperostipa comata	188	400
5					75	160
		Cusick's bluegrass, Cusick bluegrass	POCU3	Poa cusickii	75	160
		Cusick bluegrass				
6					150	320
		prairie sandreed	CALO	Calamovilfa longifolia	150	320
7					75	160
		threadleaf sedge	CAFI	Carex filifolia	75	160
8					188	400
Ü		blue grama	BOGR2	Bouteloua gracilis	38	80
		hairy grama	BOHI2	Bouteloua hirsuta	38	80
		needleleaf sedge	CADU6	Carex duriuscula	38	80
		prairie Junegrass	KOMA	Koeleria macrantha	38	80
		Sandberg bluegrass,				
		big bluegrass, Canby	POSE	Poa secunda	38	80
		bluegrass, alkali bluegrass				
		2.203.202				
	Forb				Annual Pr	
					(pounds p	oer acre)
Grou	<u>Group</u> p name	Common name	Symbol	Scientific name	Low	<u>High</u>
9			<u>-,</u>		113	240
		yarrow	ACHIL	<u>Achillea</u>	38	80
		textile onion	ALTE	Allium textile	38	80
		rosy pussytoes, rose pussytoes	ANRO2	Antennaria rosea	38	80
		prairie sagewort, fringed sagewort	ARFR4	Artemisia frigida	38	80
		aster	ASTER	<u>Aster</u>	38	80
		milkvetch	ASTRA	<u>Astragalus</u>	38	80
		tapertip hawksbeard	CRAC2	Crepis acuminata	38	80
		white praine clover	DACA7	Dalea candida	38	80
		violet prairie clover, purple prairie clover	DAPU5	<u>Dalea purpurea</u>	38	80
		sulphur-flower buckwheat	ERUM	<u>Eriogonum</u> umbellatum	38	80
		scarlet beeblossom,	GACO5	Gaura coccinea	38	80
		scarlet gaura stemless mock		Haplopappus		
		goldenweed	HAAC	acaulis(syn)	38	80
		desertparsley, biscuitroot	LOMAT	<u>Lomatium</u>	38	80
		bluebells	MERTE	<u>Mertensia</u>	38	80
		large Indian	DEEC	Pediomelum Pediomelum	20	00
		breadroot, breadroot scurfpea	PEES	<u>esculentum</u>	38	80
		upright prairie coneflower, prairie	RACO3	Ratibida columnifera	38	80
		coneflower			30	
		American vetch	VIAM	<u>Vicia americana</u>	38	80
	Shrub/Vine				Annual Pr (pounds p	
Gm.	Group	Common name	Symbol	Scientific name	-	-
<u>Grou</u> 10	Group p name	Common name	<u>Symbol</u>	Scientific name	<u>Low</u> 38	<u>High</u> 80

Ariemisia trideniais

ARTR2

11				113	240
	aliversagebrush	ARCAGS	édemieis cane sec. Cans	38	80
	yellow rabbilbrush, green rabbilbrush, low rabbilbrush, Chouglas rabbilbrush	CHVIB	Chrosolhemnia vlecialilicas	38	ėq
	winterful	ICRLA2	Kraecheninnikovia lanate	38	80
	жеейет елембету	SYOC	Symphodoeroos occidentalis	38	ea
	ecepwood yucce, email ecepwood	YUGL	Yucca glauca	38	90

#### Plant Growth Curve

Growth curve

WY1401

hig sagahrush

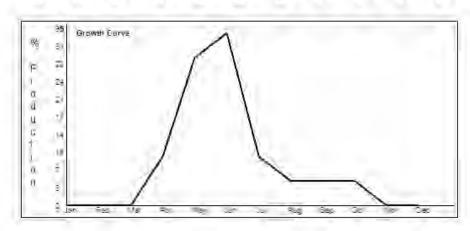
number:

Growth curve name: 10-14NP upland without

Growth curve description:

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ø										a	



### Needleandthread/Threadleaf Sedge/Fringed Sagwort Plant Community

This plant community is the result of moderate season long grazing. The understory of grass includes needleandthread, threadleaf sedge, and prairie junegrass. Fringed segewort has increased. When compared to the Historic Climax Plant Community, prairie sandreed and Indian degrass have decreased. Threadleaf sedge, needleandthread and fringed segewort have increased. This community is well suited to grazing by both domestic livestock and wildlife, during the spring, summer and fall.

The total annual production (air-dry weight) of this state is about 800 pounds per acre, but it can range from about 600 lbs./acre in unfavorable years to about 1000 lbs./acre in above average years.

The communities' soil blotic integrity and watershed is intect, although more than normal runoff may occur due to the sod forming vegetation.

Transitional pathways leading to other plant communities are as follows:

- Long-Term Prescribed grazing will return this state to near Historic Climax Plant Community condition. The sod forming nature of threadless sedge and needleandthread will make the transition to Historic Climax Plant Community difficult.
- Frequent and Severe grazing will convert this state to the Threadleaf sedge/ Fringed sagewort/ Plains pricklypear Vegetation State.

#### Plant Growth Curve

Growth curve

WY1401

number:

Jan

0

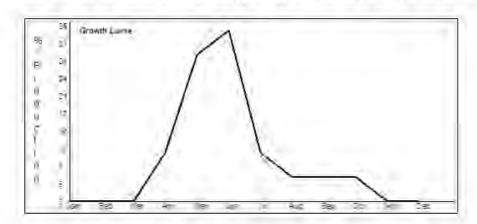
Growth curve name: 10-14NP upland alter

Growth curve description:

Feb

0

# Percent Production by Month Mar Apr May Jun Jul Aug Sep Oct Nov Des



# Threadleaf Sedge/Fringed Sagewort/Plains Pricklypear Plant Community

This plant community is the result of frequent and severe grazing. A sod of threadleaf sedge and needleandthread dominates it. Pricklypear cactus can become dense enough so that livestock

cannot graze forege growing within the cectus clumps. When the historic climax community is replaced by sod forming communities, grass production is reduced.

The total annual production (air-dry weight) of this state is about 650 pounds per acre, but it can range from about 500 lbs./acre in unfavorable years to about 800 lbs./acre in above average years.

The soil is generally well protected in this state. The blotic integrity may be reduced due to low vegetative production. The sod formed by these grasses is resistant to water inflitration. While this sod protects the site, off-site areas are affected by excessive runoff that may cause gully erosion. This sod is resistant to change and may require practices such as long-term prescribed grazing to return to a mid grass community.

Transitional pathways leading to other plant communities are as follows:

 Long-term Prescribed grazing with Brush Management will return this plant community to near Historic Climax Plant Community.

#### Plant Growth Curve

Growth curve

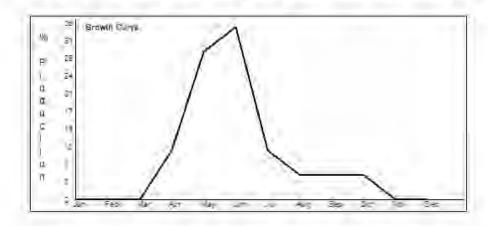
WY1401

number.

Growth curve name: 10-14NF upland alter

Growth curve description:

				Percei	nt Proc	uction	by Mor	nth.			
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
73	0	tt	100	30	35	10	.5		3	a	



# Section II: Ecological Site Interpretations

### **Animal Community**

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Needleandthread/Threadleaf sedge/Fringed sagewort: These communities provide foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover.

Threadleaf sedge/Fringed sagewort/Cactus: These communities provide limited grazing for antelope and other herbivores due to low production. They may be used as a foraging site by sage grouse if proximal to woody cover.

#### Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community Production Carrying Capacity\* (lb./ac) (AUM/ac)
Historic Climax Plant Community 750-1600 .4
Threadleaf sedge/Needleandthread/Fringed sagewort 600-1000 .33
Threadleaf sedge/Fringed sagewort/Cactus 500-900 .2

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

#### Plant Preference by Animal Kind

Animal kind: All antelope														
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
yarrow	<u>Achillea</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Achnatherum</u>													
Indian ricegrass	<u>hymenoides</u>	Leaves	Ν	Ν	Ν	Р	Р	Р	Ν	Ν	Ν	D	D	D
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
big bluestem	Andropogon gerardii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sand bluestem	Andropogon hallii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rosy pussytoes,														
rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	Artemisia cana	Leaves	Ρ	Ρ	Ρ	Р	Ρ	Ρ	Р	Ρ	Ρ	Ρ	Ρ	Ρ
tarragon, green														
sagewort	<u>Artemisia dracunculus</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort,														
fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot														
sagebrush	<u>Artemisia pedatifida</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

<sup>\* -</sup> Continuous, season-long grazing by cattle under average growing conditions.

Fendler threeawn, red threeawn	<u>Aristida purpurea var.</u> <u>Iongiseta</u>	Entire plant	U	U	U	U	u	U	u	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	_	_	_	_	_	_	_	D	_	_	_	D
twogrooved milkvetch	Astragalus bisulcatus	Entire plant	т	т	Т	Т	т	т	т	т	т	т	т	Т
aster	<u>Aster</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	Р	Р	Р	Р	Р	Р	D	D	D
fourwing saltbush	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Ρ	Ρ	Р	Р	Ρ
Gardner's														
saltbush	Atriplex gardneri	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sideoats grama	Bouteloua curtipendula	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
blue grama	Bouteloua gracilis	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss	Buchloe dactyloides(syn)	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint reedgrass	<u>Calamagrostis</u> <u>canadensis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U		_	U	U	U	U	U
threadleaf sedge	Carex filifolia	Leaves	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
inland sedge	Carex interior	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sandreed	Calamovilfa longifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	<u>Calamagrostis</u>													
plains reedgrass	<u>montanensis</u>	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Nebraska sedge	Carex nebrascensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
yellow rabbitbrush, green rabbitbrush, low rabbitbrush,														
Douglas rabbitbrush	<u>Chrysothamnus</u> <u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	Ь	Ь	D	Ь
water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	T	T	÷	÷	Ť	Ť	T	T	T	, T	Ť	Ť
•	Conium maculatum	Entire plant	•	•	•	•	'	•	1	•	I	•	•	ı
tapertip hawksbeard	Crepis acuminata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
white prairie clover	Dalea candida	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
violet prairie	<u>Daroa Garraraa</u>	Zitaro piarit	•	•	•	•	•	•	•	•	•	•	•	•
clover, purple														
prairie clover	<u>Dalea purpurea</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Deschampsia</u>													
tufted hairgrass	caespitosa(syrı)	Entire plant	D	D	D	_		D	_	D	D	D	D	D
inland saltgrass	<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
bearded	<b>5</b> h		_	_	_	_	_	_	_	_	_	_	_	_
wheatgrass	Elymus caninus	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
streambank wheatgrass,														
thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
slender wheatgrass	Elymus trachycaulus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

	Ecological Oito Bood	i ipaon Cyclom												
horsetail	<u>Equisetum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rubber rabbitbrush	Ericameria nauseosa	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower buckwheat	Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
scarlet					_		_	_	_			_		_
beeblossom,														
scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock	<u>Haplopappus</u>													
goldenweed	acaulis(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and thread,														
needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant	Ū	Ū	Ū	Ū	Ū	Ū	Ū	Ū	Ū	Ū	Ū	Ū
Rocky Mountain	<del></del>	•												
juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	Krascheninnikovia lanata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
basin wildrye	<u>Leymus cinereus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
desertparsley,			_	_	_	_	_	_	_	_	_	_	_	_
biscuitroot	<u>Lomatium</u>	Entire plant	D	D	_	D	D	D	D	D	D	D	D	D
bluebells	<u>Mertensia</u>	Entire plant	D	ט	ט	ט	ט	D	ט	D	D	D	D	D
plains muhly, stoneyhills muhly	Muhlenbergia cuspidata	Entire plant	П	ы	IJ	П	П	IJ	П	П	П	IJ	U	П
Storie yriiis marily	Muhlenbergia cuspidata  Muhlenbergia	Little plant	J	J	J	Ü	Ü	Ü		J	J	٠	J	Ü
mat muhly	<u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green		-												
needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western	<b>D</b>	E . C	_			_	_			_			_	_
wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	ט	ט	D	ט	D	D	D	D	D
large Indian breadroot,														
breadroot														
scurfpea	Pediomelum esculentum	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
ponderosa pine	Pinus ponderosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg	December (form)	F-6	_	_	_	_						_		
bluegrass Cusick's	<u>Poa canbyi(syn)</u>	Entire plant	۲	۲	۲	۲	۲	Ρ	۲	۲	۲	۲	Р	۲
bluegrass, Cusick														
bluegrass	Poa cusickii	Entire plant	Ρ	Р	Р	Ρ	Р	Р	Ρ	Р	Р	Р	Р	Р
	Populus deltoides ssp.													
plains cottonwood	<u>monilifera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg														
bluegrass, big bluegrass, Canby														
bluegrass, alkali														
bluegrass	Poa secunda	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg	Poa secunda ssp.		_				_	_		_			_	_
bluegrass	juncifolia(syn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluebunch wheatgrass	Pseudoroegneria spicata													
ioutgiuos	. Journa opioata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's						_								
alkaligrass	Puccinellia nuttalliana	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
upright prairie														
coneflower,														

	Ecological Site Desc	inpuon system												
prairie coneflower	Ratibida columnifera	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
skunkbush sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Rosa woodsii var.													
Woods' rose	<u>woodsii</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
willow	<u>Salix</u>	Entire plant	U	U	U		U	U	U	U	U	U	U	U
greasewood	Sarcobatus vermiculatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Schizachyrium</u>													
little bluestem	<u>scoparium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
blue-eyed grass	Sisyrinchium	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali sacaton	Sporobolus airoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sand dropseed	Sporobolus cryptandrus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
alkali cordgrass	Spartina gracilis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western	Symphoricarpos	•												
snowberry	<u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Thermopsis rhombifolia													
-	var. annulocarpa(syn)	Entire plant	U	U	U	U	U	U	_	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Τ	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	U	U	_	U	U	U	U	U	U	U	U	U
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca,	Vivos alavia	Entine plant	_	_	_	_	_	_	_	_	_	_	_	_
small soapweed	<u>Yucca glauca</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All o	cattle													
Common name	Scientific name	Plant part	J	F	М	Α	м	.I	J	Α	<u>s</u>	O	N	D
yarrow	Achillea	Entire plant	_	_									U	
yanon	<u> </u>	Erraro piarre	Ū	•	Ū	Ū	Ŭ	Ū	Ū		Ū		Ū	Ū
Animal kind: all o	attle													
Common name	Scientific name	Plant part	<u>J</u>	Ε	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	Α	<u>s</u>	<u>O</u>	N	D
	<u>Achnatherum</u>	-												
Indian ricegrass	<u>hymenoides</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	44													
Animal kind: All o			_	_		_			_	_	_	_		_
Common name	Scientific name	Plant part	_								<u>S</u>		И	_
textile onion	Allium textile	Entire plant	D	D	D	_		D		D	D	D	D	D
big bluestem	Andropogon gerardii	Entire plant	Р	Р		Р	Р	Р	Р	Р	Р	Р	Р	Р
sand bluestem	Andropogon hallii	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant				п			п				U	
tarragon, green	Antennana 1036a	Little plant	U	U	U	U	U	U	U	U	U	U	U	U
sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort,														
fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot	Automoinia madatifida	Catina alaat												
sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rendier inreeawn, red threeawn	Aristida purpurea var. Iongiseta	Entire plant	U	u	U	U	U	U	U	U	U	U	U	u
big sagebrush	Artemisia tridentata	Entire plant	U		U		U	U	_	U	U	U	U	U
aster	Aster	Entire plant	_	_	U	_	_	U	_	U	U	U	U	U
milkvetch	<u>Astragalus</u>	Entire plant	D	_	D	_	D	D	D	D	D	D	D	D
	Atriplex canescens	Entire plant	_		Р		_	Р			Р	_	Р	Р
Gardner's		Pidirt	•	-	-	-	•	-	-	•	•	•	•	•
saltbush	Atriplex gardneri	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р

	Ecological Site Desc	inplion System												
sideoats grama	Bouteloua curtipendula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue grama	<u>Bouteloua gracilis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss	Buchloe dactyloides(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint reedgrass	: <u>Calamagrostis</u> canadensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
inland sedge	Carex interior	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
prairie sandreed	Calamovilfa longifolia	Entire plant	Ρ	Р	Р	Р	Ρ	Р	Ρ	Р	Р	Р	Р	Р
plains reedgrass	<u>Calamagrostis</u> <u>montanensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge	Carex nebrascensis	Entire plant	Ρ	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р
yellow rabbitbrush,		·												
green rabbitbrush, low rabbitbrush,														
Douglas	<u>Chrysothamnus</u>		_	_	_	_	_	_	_	_	_	_	_	_
rabbitbrush	<u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip hawksbeard	<u>Crepis acuminata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
white prairie	•	-												
clover violet prairie	<u>Dalea candida</u>	Entire plant	Р	Ρ	Р	Ρ	Ρ	Р	Ρ	Ρ	Р	Ρ	Р	Р
clover, purple														
prairie clover	Dalea purpurea	Entire plant	Ρ	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р
	<u>Deschampsia</u>													
tufted hairgrass	caespitosa(syn)	Entire plant	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р
inland saltgrass	<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
bearded			_	_	_	_	_	_	_	_	_	_	_	_
wheatgrass	Elymus caninus	Entire plant	_							P		P	•	P -
Canada wildrye	Elymus canadensis	Entire plant	Р	-		Р	-		-	P	P	Р	P	P
silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush	Elymus elymoides ssp. elymoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
squirreltail		•												
streambank														
wheatgrass, thickspike	Elymus lanceolatus ssp.													
wheatgrass	lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
slender					_				_					
wheatgrass	Elymus trachycaulus	Entire plant	Ρ	Р	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р
horsetail	<u>Equisetum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rubber														
rabbitbrush	Ericameria nauseosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
sulphur-flower	<b>-</b> :													
buckwheat	Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
scarlet beeblossom,														
scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	Entire plant								U			-	-
stemless mock	<u>Haplopappus</u>	F	-	-	-	-	-	-	•	-	•	-	-	
goldenweed	acaulis(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

	Eddiogram Citic Bood	i paon dyotom												
needle and thread, needleandthread	Hesperostipa comata	Entire plant	Р	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Р	Р	Ρ	Ρ	Р
iris	<u>Iris</u>	Entire plant	U	u	U	u	u	U	u	U	u	u	u	u
Baltic rush	Juncus balticus(syn)	Entire plant	D	ח	D	D	D	D	D	D	D	D	D	D
	<u>buncus balacus(syrij</u>	Little plant												
Rocky Mountain juniper	Juniperus scopulorum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie Junegrass	Koeleria macrantha	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	Krascheninnikovia lanata	Entire plant	Ρ	Р	Р	Ρ	Р	Р	Ρ	Ρ	Ρ	Р	Р	Ρ
basin wildrye	Leymus cinereus	Entire plant	Ρ	Р	Р	Р	Ρ	Р	Ρ	Ρ	Ρ	Р	Р	Ρ
desertparsley,		•												
biscuitroot	<u>Lomatium</u>	Entire plant	D	D	D	ח	D	D	D	D	D	D	D	D
		-	_	_	_	_	D	_	_	D	_	_	_	_
bluebells	<u>Mertensia</u>	Entire plant	D	ט	ט	ט	ט	ט	D	ט	D	D	D	D
plains muhly,			_			_								
stoneyhills muhly	Muhlenbergia cuspidata	Entire plant	D	D	D	ט	D	ט	ט	D	D	D	D	D
	<u>Muhlenbergia</u>													
mat muhly	<u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green														
needlegrass	Nassella viridula	Entire plant	Ρ	Р	Р	Ρ	Р	Р	Ρ	Р	Ρ	Р	Р	Ρ
western														
wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian	• •	•												
breadroot,														
breadroot														
scurfpea	Pediomelum esculentum	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
ponderosa pine	Pinus ponderosa	Entire plant	Ū	IJ	П	П	П	П	Ū	U	Ū	Ū	IJ	U
•	r mus ponderosa	Little plant	Ü	Ü	J	J	U	Ü	0	J	J	J	J	0
Sandberg	Pag canhyi(ayn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
bluegrass	<u>Poa canbyi(syn)</u>	Entire plant		Г	Г	_	_	_	_	_	_	_	г	_
Cusick's														
bluegrass, Cusick		Cating alast	ь	Р	_	_	_	_	_	Р	Р	Р	_	Р
bluegrass	Poa cusickii	Entire plant	٢	٢	٢	٢	٢	٢	۲	۲	۲	۲	٢	٢
	Populus deltoides ssp.		_	_	_	_	_	_	_	_	_	_	_	_
plains cottonwood	<u>monilitera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg														
bluegrass, big														
bluegrass, Canby														
bluegrass, alkali			_	_	_	_	_	_	_	_	_	_	_	_
bluegrass	<u>Poa secunda</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all o	attle													
Common name	Scientific name	Plant part	.I	F	М	Δ	м	.1	.J	Δ	S	Ω	N	D
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	Α	<u>s</u>	<u>0</u>	<u>N</u>	D
Sandberg	Poa secunda ssp.													
<u> </u>		Plant part Entire plant	D 7							<u>A</u> D				
Sandberg bluegrass	Poa secunda ssp. juncifolia(syn)													
Sandberg bluegrass  Animal kind: All of	Poa secunda ssp. juncifolia(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass  Animal kind: All of Common name	Poa secunda ssp. juncifolia(syn)		D	D	D	D	D	D	D		D	D	D	D
Sandberg bluegrass  Animal kind: All of Common name bluebunch	Poa secunda ssp. juncifolia(syn) cattle Scientific name	Entire plant  Plant part	D	D	D	D	D	D	<u>J</u> D	D <u>A</u>	D <u>S</u>	D <u>O</u>	D <u>N</u>	D <u>D</u>
Sandberg bluegrass  Animal kind: All of Common name	Poa secunda ssp. juncifolia(syn)	Entire plant  Plant part	D	D	D	D	D <u>M</u>	D	<u>J</u>	D	D <u>S</u>	D <u>O</u>	D	D <u>D</u>
Sandberg bluegrass  Animal kind: All of Common name bluebunch	Poa secunda ssp. juncifolia(syn) cattle Scientific name	Entire plant  Plant part	<u>J</u>	D E	D <u>M</u>	D A	D <u>M</u>	<u>J</u>	<u>J</u>	D <u>A</u>	D <u>S</u>	D <u>O</u>	D <u>N</u>	D <u>D</u>
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass	Poa secunda ssp. juncifolia(syn) cattle Scientific name	Entire plant  Plant part	<u>J</u>	D E P	D <u>М</u> Р	D A	D <u>М</u> Р	D <u>J</u> Р	D J	D <u>A</u>	D <u>S</u> P	D <u>О</u> Р	D <u>N</u> P	D <u>D</u> Р
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass Nuttall's alkaligrass	Poa secunda ssp. juncifolia(syn) cattle Scientific name Pseudoroegneria spicata	Entire plant  Plant part  Entire plant	<u>Ј</u>	D E P	D <u>М</u> Р	D <u>A</u> P	D <u>М</u> Р	D <u>J</u> Р	D J	D <u>A</u> P	D <u>S</u> P	D <u>О</u> Р	D <u>N</u> P	D <u>D</u> Р
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass Nuttall's	Poa secunda ssp. juncifolia(syn) cattle Scientific name Pseudoroegneria spicata	Entire plant  Plant part  Entire plant	<u>Ј</u>	D E P	D <u>М</u> Р	D <u>A</u> P	D <u>М</u> Р	D <u>J</u> Р	D J	D <u>A</u> P	D <u>S</u> P	D <u>О</u> Р	D <u>N</u> P	D <u>D</u> Р
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass Nuttall's alkaligrass upright prairie coneflower,	Poa secunda ssp. juncifolia(syn) cattle Scientific name Pseudoroegneria spicata	Entire plant  Plant part  Entire plant	<u>Ј</u>	D <u>F</u> P	D <u>М</u> Р	D <u>A</u> P	D <u>М</u> Р	D <u>J</u> Р	D D	D <u>A</u> P	D <u>S</u> P	D <u>О</u> Р	D <u>N</u> P	D <u>D</u> Р
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass Nuttall's alkaligrass upright prairie coneflower, prairie coneflower	Poa secunda ssp. juncifolia(syn) cattle Scientific name Pseudoroegneria spicata Puccinellia nuttalliana Ratibida columnifera	Entire plant  Plant part  Entire plant  Entire plant  Entire plant	D J P D	D <u>E</u> P D	D <u>M</u> P D	D <u>A</u> P D	D <u>M</u> P D	D	D J P D	D A P D	D <u>S</u> P D	D Q P D	D N P D	D D P
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass Nuttall's alkaligrass upright prairie coneflower,	Poa secunda ssp. juncifolia(syn) cattle Scientific name Pseudoroegneria spicata Puccinellia nuttalliana Ratibida columnifera Rhus trilobata	Entire plant  Plant part  Entire plant  Entire plant	D J P D	D <u>E</u> P D	D <u>M</u> P D	D <u>A</u> P D	D <u>M</u> P D	D D	D J P D	D <u>A</u> P	D <u>S</u> P D	D Q P D	D N P D	D D P P D
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass Nuttall's alkaligrass upright prairie coneflower, prairie coneflower skunkbush sumao	Poa secunda ssp. juncifolia(syn) cattle Scientific name  Pseudoroegneria spicata  Puccinellia nuttalliana  Ratibida columnifera Rhus trilobata Rosa woodsii var.	Entire plant  Plant part  Entire plant  Entire plant  Entire plant  Entire plant  Entire plant	D J P D D	D E P D D	D M P D D D	D A P D D	D M P D D D	D D	D J P D D D	D A P D D	D <u>S</u> P D D	D Q P D D	D N P P D D	D D P P D D
Sandberg bluegrass  Animal kind: All of Common name bluebunch wheatgrass Nuttall's alkaligrass upright prairie coneflower, prairie coneflower	Poa secunda ssp. juncifolia(syn) cattle Scientific name Pseudoroegneria spicata Puccinellia nuttalliana Ratibida columnifera Rhus trilobata	Entire plant  Plant part  Entire plant  Entire plant  Entire plant	D J P D	D E P D D	D M P D D D	D <u>A</u> P D	D <u>M</u> P D	D D D	D J P D	D A P D	D <u>S</u> P D	D Q P D	D N P D D D	D D P P D D D

greasewood	Sarcobatus vermiculatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Schizachyrium</u>													
little bluestem	<u>scoparium</u>	Entire plant	Ρ	Р	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Ρ	Р
alkali sacaton	Sporobolus airoides	Entire plant	Р	Ρ	Ρ	Ρ	Ρ	Ρ	Р	Ρ	Ρ	Р	Ρ	Р
sand dropseed	Sporobolus cryptandrus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

Animal kind: all cattle

Common name	Scientific name Spartina gracilis	Plant part Leaves	<u>J</u>								<u>S</u> D		N	<u>D</u> D
aikaii corugiass	<u>Sparuria gracilis</u>	Leaves	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
Animal kind: All o	cattle													
Common name	Scientific name	Plant part	<u>J</u>									<u>0</u>	<u>N</u>	<u>D</u>
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western	<u>Symphoricarpos</u>													
snowberry	occidentalis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
nrairie thermonsis	<u>Thermopsis rhombifolia</u> <u>var. annulocarpa(syn)</u>	Entire plant	U	U	IJ	П	П	IJ	U	IJ	U	U	U	U
arrowgrass	Triglochin	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
broadleaf cattail	Typha latifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca,		-												
small soapweed	Yucca glauca	Fruits/Seeds	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All o	door													
Common name	Scientific name	Plant part	J	F	N.A	٨	<u>M</u>		J	Α	s	0	N	D
varrow	Achillea	Entire plant	Ω Σ	Ü			U	_	_	Ū	U	U	U	U
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	ח	D
big bluestem	Andropogon gerardii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sand bluestem	Andropogon hallii	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rosy pussytoes,	7 THORODOGOTT HOME	Little plant	Ŭ			Ŭ	Ŭ		Ŭ		Ŭ	Ŭ	Ū	Ŭ
rose pussytoes														
•	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
tarragon, green sagewort	Artemisia dracunculus	Entire plant	Ш	U	Ш	П	П	П	П	П	U	П	П	u
prairie sagewort,	Artorniola di acuriculus	Little plant	Ü	J	J	Ü	Ü	Ü	Ü	Ü	J	Ü	Ü	J
fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot	-	-												
sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	Aristida purpurea var.													
red threeawn	Iongiseta	Entire plant	_	U	U	_	_	U	_	U	U	_	U	U
big sagebrush	Artemisia tridentata	Entire plant	ט	D	D	ט	ט	ט	ט	D	D	D	ט	D
Wyoming big sagebrush	Artemisia tridentata ssp. wyomingensis	Entire plant	Р	Р	Р	Р	Р	Р	D	D	D	D	D	D
twogrooved	<u>,</u>	p.c	•	•	•	•	•	•	_	_	_		_	_
milkvetch	Astragalus bisulcatus	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т

	Ecological Site Desc	ripuori System												
aster	<u>Aster</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
_	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Gardner's saltbush	Atrinlay gardnari	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Atriplex gardneri	Entire plant	_	_	<b>P</b>	_	_	_	D	D	D	_	D	D
sideoats grama	Boutelous curtipendula	Entire plant	D	D D	D	D	D	D	D	D	D	D D	D	D
blue grama	Bouteloua gracilis	Entire plant Entire plant	D D	D	D	D	D	D D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Entire plant	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט
buffalograss	Buchloe dactyloides(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint														
reedgrass	<u>canadensis</u>	Entire plant	U	U	U	U	U	_	U	U	U	U	_	U
needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U		U	U	U	_	_	U
threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
inland sedge	Carex interior	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sandreed	Calamovilfa longifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
plains reedgrass	<u>Calamagrostis</u> montanensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
		•	U	_	ט	ט	ט	ט	ט	ט	ט	0	ט	ט
spike sedge	Carex nardina	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Nebraska sedge	Carex nebrascensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
yellow rabbitbrush,														
green														
rabbitbrush, low														
rabbitbrush, Douglas	Chrysothamnus													
rabbitbrush	<u>viscidiflorus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
water hemlock	<u>Cicuta</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
tapertip														
hawksbeard	<u>Crepis acuminata</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
white prairie	Dolog condido	Catico plant	Ь	Р	Ь	Ь	Ь	Р	P	P	Ь	Р	Р	Р
clover	Dalea candida	Entire plant	Р	-	۲	۲	۲	-	۲	-	٢	Ρ	٢	۲
violet prairie clover, purple														
prairie clover	Dalea purpurea	Entire plant	Р	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Deschampsia</u>	-												
tufted hairgrass	caespitosa(syn)	Entire plant	D	D	_	D	_	D	_	D	D	D	_	D
inland saltgrass	<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
bearded	_, .		_	_	_	_	_	_	_	_	_	_	_	_
wheatgrass	Elymus caninus	Entire plant	D	D	D	D	D	_	D	D	D	D	D	D
Canada wildrye	Elymus canadensis	Entire plant	D	D	D	D	D	_	D	D	D	D	D	D
silverberry	Elaeagnus commutata	Entire plant	D	D	D	ט	ט	D	ט	D	D	D	D	D
squirreltail, bottlebrush	Elymus elymoides ssp.													
squirreltail	<u>elymoides</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
streambank	<del></del>	•												
wheatgrass,														
thickspike	Elymus lanceolatus ssp.	<b>=</b>	_			_	_		_		_			_
wheatgrass	<u>lanceolatus</u>	Entire plant	ט	ט	ט	ט	ט	ט	ט	ט	D	ט	ט	ט
slender wheatgrass	Elymus trachycaulus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
horsetail	<u>Equisetum</u>	Entire plant	_	U	_	_	_	_	_	_	_	_	U	_
rubber	<u>quiootuiii</u>	= marc plant	5	J	_	,	<u> </u>	J	,	J	,	_	,	,
rabbitbrush	Ericameria nauseosa	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sulphur-flower		•												
buckwheat	Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U

	Loological Cite Dooc	i ipaon Oyotom												
scarlet beeblossom,														
scarlet gaura	Gaura coccinea	Entire plant									U			
American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock goldenweed	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and thread,														
needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Ρ	Р	Ρ	Р	Р	Р	Р	Ρ
iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Rocky Mountain	t	Fating along	_	_	_	_	_	_	_	_	_	_	_	_
juniper prairie Junegrass	Juniperus scopulorum Koeleria macrantha	Entire plant Entire plant	D D	D D	D D	D D	D	D D	D	D D	D D	D D	D D	D D
winterfat	Krascheninnikovia lanata	•	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
basin wildrye	<u>Leymus cinereus</u>	Entire plant	D	D	D	D	D	-	D	D	D	D	•	D
desertparsley,														
biscuitroot	<u>Lomatium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluebells	<u>Mertensia</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
plains muhly,														
stoneyhills muhly	Muhlenbergia cuspidata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
mat muhly	<u>Muhlenbergia</u> richardsonis	Entire plant	u	u	u	u	U	U	U	U	U	U	u	U
green	<u> </u>	zm.o plant	Ŭ	Ū	Ū	Ū	Ū	Ū	Ū	Ū	Ŭ	Ū	Ŭ	Ū
needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western	D	Father alout	_	_	_	_	_	_	_	_	_	_	_	_
wheatgrass	Pascopyrum smithii	Entire plant	D	ט	ט	ט	D	ט	D	ט	D	D	D	D
large Indian breadroot,														
breadroot														
scurfpea	<u>Pediomelum esculentum</u>	-	D	_	_	D	D		D	D	D	D	_	D
ponderosa pine	<u>Pinus ponderosa</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg bluegrass	Poa canbvi(svn)	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's	<u>r oa oanoyiloyny</u>	Little plant	•	•	•	•	•	•	•	•	•	•	•	•
bluegrass, Cusick														
bluegrass	<u>Poa cusickii</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Populus deltoides ssp.													
plains cottonwood	<u>monilifera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big														
bluegrass, Canby														
bluegrass, alkali														
bluegrass	<u>Poa secunda</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass	<u>Poa secunda ssp.</u> juncifolia(syn)	Entire plant	Р	D	D	D	D	D	D	D	Р	D	D	D
bluebunch	<u>jununula (Syrr)</u>	Little plant	_	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г	Г
wheatgrass	Pseudoroegneria spicata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nuttall's														
alkaligrass	<u>Puccinellia nuttalliana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
upright prairie coneflower,														
	Ratibida columnifera	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
prairie coneflower		Entire plant	D	D	D	Р	Р	Р	D	D	D	D	D	D
skunkbush sumac	Rhus trilobata	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Rosa woodsii var.		_	_	_	_	_	_	_	_	_	_	_	_
Woods' rose	<u>woodsii</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D

	Ecological Cito Book	i ipaon Oyotom												
willow	<u>Salix</u>	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Ρ
greasewood	Sarcobatus vermiculatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	<u>Schizachyrium</u>		_	_	_	_	_	_	_	_	_	_	_	_
little bluestem	<u>scoparium</u>	Entire plant	D	D	_	D	D	D	D	D	D	D	D	D
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
alkali sacaton	<u>Sporobolus airoides</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
sand dropseed	Sporobolus cryptandrus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
alkali cordgrass	Spartina gracilis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western	<u>Symphoricarpos</u>													
snowberry	<u>occidentalis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Thermopsis rhombifolia													
prairie thermopsis	var. annulocarpa(syn)	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
broadleaf cattail	Typha latifolia	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American vetch	Vicia americana	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca,		•												
small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
-	-	-												
Animal kind: All h	norses													
Common name	Scientific name	Plant part	J	F	М	Α	м	J	J	Α	s	0	<u>N</u>	D
yarrow	Achillea	Entire plant	_	Ū						U		U		u
yanon	Achnatherum	Zitaro piara	Ū	Ū	Ū	•	Ū	•	•	Ū	•	Ū	•	Ū
Indian ricegrass	<u>hymenoides</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
big bluestem	Andropogon gerardii	Entire plant	P	P	P	P	P	P	P	P	P	P	P	P
sand bluestem	Andropogon hallii	Entire plant	Р	•	•	Р	•		•	•	Р	•	•	Р
	Andropogon nami	Little plant	•	•	•			•		'	•	•	•	•
rosy pussytoes, rose pussytoes	Antennaria rosea	Entire plant	u	u	u	u	u	u	u	u	u	u	u	u
silver sagebrush	Artemisia cana ssp. cana	•	_	_	_	_	_	_	_	_	D	D	D	D
tarragon, green	Artemisia cana sop. cana	Little plant	_	_	_	_	_	_	ט	_	_	_	_	_
sagewort	Artemisia dracunculus	Entire plant	U	U	u	u	u	U	u	U	u	u	u	u
prairie sagewort,	THE OFFICE AND			_	Ī	_	_	_	_	_	_	_	_	
fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot		•												
sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Fendler threeawn,	Aristida purpurea var.	-												
red threeawn	<u>longiseta</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
big sagebrush	Artemisia tridentata	Entire plant	U	U	U	Ν	Ν	Ν	Ν	Ν	Ν	U	U	U
aster	<u>Aster</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
fourwing saltbush	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Gardner's		•												
saltbush	Atriplex gardneri	Entire plant	D	D	D	U	U	U	U	U	U	D	D	D
sideoats grama	Bouteloua curtipendula	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss	Buchloe dactyloides(syn)	Entire plant	D	D	D	_	D	D	_	D	_	D	_	D
bluejoint, bluejoint	• • • •	_moplant	_	_	_	_	_	_	_	_	_	_	_	_
reedgrass	canadensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
needleleaf sedge	Carex duriuscula	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
threadleaf sedge	Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	_	D
inland sedge	Carex interior	Entire plant	D	D	D	D	D	D	D	D	D	D	_	D
mana seage	<u>Carca interior</u>	-inine plant	ט	ر	_	ט	_	ט	ט	ט	ט	ט	ט	ט

	Ecological Site Desc	ription System												
prairie sandreed	Calamovilfa longifolia Calamagrostis	Entire plant	Р	Р	Ρ	Р	Ρ	Р	Р	Ρ	Р	Р	Р	Ρ
plains reedgrass	montanensis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
spike sedge	Carex nardina	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Nebraska sedge	Carex nebrascensis	Entire plant	Ρ	Ρ	Р	Р	Р	Р	Ρ	Р	Ρ	Р	Ρ	Ρ
yellow rabbitbrush, green rabbitbrush, low rabbitbrush, Douglas rabbitbrush	Chrysothamnus viscidiflorus			7	D	_	_	D	D	D	D	D	D	D
water hemlock	<u>Viscialiorus</u> <u>Cicuta</u>	Entire plant Entire plant	D T	D T	Т	D T	D T	Т	Т	Т	Т	Т	Т	Т
poison hemlock	Conium maculatum	Entire plant	T	T	Ť	T	Ť	Ť	T	T.	Ť	T	T	T
tapertip											-			
hawksbeard	Crepis acuminata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
white prairie clover	<u>Dalea candida</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
violet prairie		•												
clover, purple	Delea momenta	F-4:14	_	_	_	_	_	_	_	_	_	_	_	_
prairie clover	<u>Dalea purpurea</u> <u>Deschampsia</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
tufted hairgrass	<u>caespitosa(syn)</u>	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р
inland saltgrass	Distichlis spicata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
bearded														
wheatgrass	Elymus caninus	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Canada wildrye	Elymus canadensis	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
silverberry	Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
squirreltail, bottlebrush squirreltail	Elymus elymoides ssp. elymoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
streambank wheatgrass, thickspike	Elymus lanceolatus ssp.													
wheatgrass	lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
slender wheatgrass	Elymus trachycaulus	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
horsetail	<u>Equisetum</u>	Entire plant	-		-	-		-	-	-	-		U	-
rubber		•												
rabbitbrush	Ericameria nauseosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
sulphur-flower buckwheat	Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
scarlet beeblossom,														
scarlet gaura	Gaura coccinea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
American licorice	Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
stemless mock goldenweed	<u>Haplopappus</u> <u>acaulis(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
needle and thread,														
needleandthread	Hesperostipa comata	Entire plant	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р	Р	Р
iris	<u>Iris</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Baltic rush	Juncus balticus(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Rocky Mountain	to make a manage of the state o	Father of t			, .				, .				, .	
juniper	Juniperus scopulorum	Entire plant	_	_	U	_	_	_	_	U	_	_	_	U
prairie Junegrass		Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
winterfat	Krascheninnikovia lanata	-	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	•	Р
basin wildrye	<u>Leymus cinereus</u>	Entire plant	Р	Р	Р	۲	Р	۲	Р	Р	۲	Р	Р	۲

	Ecological Site Desc	ripuon system												
desertparsley, biscuitroot	Lomatium	Entire plant	u						U		u	u		u
bluebells	<u>Mertensia</u>	Entire plant	D		D				D	D	D	D	_	D
plains muhly,	<u> </u>	Entire plant												
	Muhlenbergia cuspidata Muhlenbergia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
mat muhly	<u>richardsonis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
green needlegrass	Nassella viridula	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
western wheatgrass	Pascopyrum smithii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
large Indian breadroot, breadroot														
scurfpea	Pediomelum esculentum	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
ponderosa pine	Pinus ponderosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Sandberg														
bluegrass	<u>Poa canbyi(syn)</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Cusick's bluegrass, Cusick bluegrass														
biucgiass	<u>Poa cusickii</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
plains cottonwood	<u>Populus deltoides ssp.</u> <u>monilifera</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Sandberg bluegrass, big bluegrass, Canby bluegrass, alkali														
bluegrass	<u>Poa secunda</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all h	orses													
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
Sandberg	Poa secunda ssp.		_	_			_				_	_	_	
bluegrass	juncifolia(syn)	Entire plant	D	ט	ט	ט	ט	ט	D	ט	D	D	D	D
Animal kind: All h	orses													
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>0</u>	<u>N</u>	<u>D</u>
bluebunch wheatgrass	Pseudoroegneria spicata	Entire plant	Р	Р	P	Р	P	Р	Р	P	Р	Р	Р	Р
Nuttall's alkaligrass	Puccinellia nuttalliana	Entire plant	Р	Р	Р	Р	Р	-	Р	Р	Р	Р		Р
upright prairie	<u>r uccinella nuttaliana</u>	Little plant	•	•	•	•	•	•	•	•	•	•	•	•
coneflower,	Ratibida columnifera	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
skunkbush sumac		Entire plant	D	_	D	_				_	D	D	_	D
	Rosa woodsii var.	<b>F</b>												
Woods' rose	<u>woodsii</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
willow	<u>Salix</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all h	orses													
Common name	Scientific name	Plant part									<u>S</u>			
greasewood	Sarcobatus vermiculatus	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
Animal kind: All h	orses													
Common name	Scientific name Schizachyrium	Plant part	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	N	<u>D</u>
little bluestem	<u>scoparium</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue-eyed grass	<u>Sisyrinchium</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
biue-eyeu grass		•												

	Ecological Site Desc	ripuori System												
alkali sacaton	Sporobolus airoides	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sand dropseed	Sporobolus cryptandrus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: all h	orses													
Common name	Scientific name	Plant part	<u>J</u>	E	<u>M</u>	Α	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>s</u>	<u>O</u>	<u>N</u>	<u>D</u>
alkali cordgrass	Spartina gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All h	norses													
Common name	Scientific name	Plant part	<u>J</u>	<u>E</u>							<u>s</u>			
Pursh seepweed	Suaeda calceoliformis	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
western	<u>Symphoricarpos</u>													
snowberry	<u>occidentalis</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
<b>,</b>			_	_		_	_				_	_	_	
	Thermopsis rhombifolia													
prairie thermopsis	<u>var. annulocarpa(syn)</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
arrowgrass	<u>Triglochin</u>	Entire plant	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т
narrowleaf cattail	Typha angustifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
broadleaf cattail	Typha latifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
American vetch	<u>Vicia americana</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
soapweed yucca,														
small soapweed	Yucca glauca	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Animal kind: All s	sheep													
Common name	Scientific name	Plant part	J	F	М	Α	М	J	J	Α	<u>s</u>	0	Ν	D
yarrow	Achillea	Entire plant									U			
,	Achnatherum	-												
Indian ricegrass	hymenoides	Entire plant	Ρ	Р	Р	Р	Р	Р	Р	Р	Ρ	Р	Р	Р
textile onion	Allium textile	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
big bluestem	Andropogon gerardii	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
sand bluestem	Andropogon hallii	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
rosy pussytoes,														
rose pussytoes	Antennaria rosea	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
silver sagebrush	Artemisia cana	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
tarragon, green														
sagewort	Artemisia dracunculus	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
prairie sagewort,														
fringed sagewort	Artemisia frigida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
birdfoot	Autominio modelifida	□-tilt												
sagebrush	Artemisia pedatifida	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
rendier inreeawn,	Aristida purpurea var. Iongiseta	Entire plant	u	u	11	U	U	11	U	U	U	u	u	u
big sagebrush	Artemisia tridentata	Entire plant	D	D	D	_		D		D	D	D	_	D
Wyoming big	Artemisia tridentata ssp.	Little plant	ט	0	ט	ט	ט	ט	U	ט	ט	U	U	ט
sagebrush	wyomingensis	Entire plant	Р	Р	Р	D	D	D	D	D	D	Р	Р	Р
twogrooved	<u> </u>		•	•	•	_	_	_	_		_	•	•	
milkvetch	Astragalus bisulcatus	Entire plant	Ν	Ν	Ν	Т	Т	Т	Т	Т	Т	Т	Т	Т
aster	Aster	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
milkvetch	<u>Astragalus</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
fourwing saltbush	Atriplex canescens	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
Gardner's				-		-	-		-				-	-
saltbush	Atriplex gardneri	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
hairy grama	Bouteloua hirsuta	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
buffalograss	Buchloe dactyloides(syn)	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
bluejoint, bluejoint					_	_		_	_	_		-		_
, ,,														

Ecological Site Desc	cription System												
<u>canadensis</u>	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Carex duriuscula	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Carex filifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Carex interior	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Calamovilfa longifolia	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
·	•	D	D	D	D	D	D	D	D	D	D	D	D
<u> </u>		_	_	_	_	_	_	_	_	_	_	_	_
Carex nebrascensis	Entire plant	P	P	P	P	P	P	P	P	P	P	P	P
<u>Chrysothamnus</u>	Futing plant	_	_	_	_	_		_	_	_	_	_	_
	-	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	ט	D
	-	Т	Т	T	Т	Т	Т	Т	Т	Т	Т	Т	Т
Conium maculatum	Entire plant	Т	Т	T	Т	Т	Т	Т	Т	Т	Т	Т	Т
		_	_		_	_	_	_	_	_	_	_	_
Crepis acuminata	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
<u>Dalea candida</u>	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
		_	_	_	_	_	_	_	_	_	_	_	_
• •	Entire plant	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
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	•	•	•	•	Ρ	Ρ	•	•	•	•	-	•	P
<u>Distichlis spicata</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
<b></b>	Futing alout	_	_	_	_	_	_	_	_	_	_	_	_
	-	_	_	_	ט	_	_	_	_	_	_	ט	D
•	-	•	•	•	•	•	•	•	•	•	•	•	Ρ
Elaeagnus commutata	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Elymus elymoides ssp. elymoides	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
Elymus lanceolatus ssp. lanceolatus	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
		_	_	_	_	_	_	_	_	_	_	_	_
<del>-</del>	-	•	•	•	-	•	•	-	-	-	•	•	Р
<u>Equisetum</u>	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Ericameria nauseosa	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Eriogonum umbellatum	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Cours esseines	Entire plant	11	1.1	11									
Gaura coccinea	Entire plant												
Gaura coccinea Glycyrrhiza lepidota	Entire plant Entire plant											U	
Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Glycyrrhiza lepidota Gutierrezia sarothrae	•	U	U	U	U	U	U	U	U	U	U		U
Glycyrrhiza lepidota	Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
Glycyrrhiza lepidota  Gutierrezia sarothrae  Haplopappus	Entire plant Entire plant	U	U	U	U	U	U	U	U	U	U	U	U
	canadensis Carex duriuscula Carex filifolia Carex interior Calamovilfa longifolia Calamagrostis montanensis Carex nardina Carex nebrascensis  Chrysothamnus viscidiflorus Cicuta Conium maculatum  Crepis acuminata  Dalea candida  Dalea purpurea Deschampsia caespitosa(syn) Distichlis spicata  Elymus caninus Elymus canadensis Elaeagnus commutata  Elymus elymoides ssp. elymoides  Elymus lanceolatus ssp. lanceolatus  Elymus trachycaulus Equisetum	Carex duriusculaEntire plantCarex filifoliaEntire plantCarex interiorEntire plantCalamovilfa longifoliaEntire plantCalamagrostisEntire plantCarex nardinaEntire plantCarex nebrascensisEntire plantCicutaEntire plantConium maculatumEntire plantCrepis acuminataEntire plantDalea candidaEntire plantDalea purpureaEntire plantDeschampsiaEntire plantcaespitosa(syn)Entire plantDistichlis spicataEntire plantElymus caninusEntire plantElymus caninusEntire plantElymus elymoides ssp. elymoidesEntire plantElymus lanceolatus ssp. lanceolatusEntire plantElymus trachycaulusEntire plantElymus trachycaulusEntire plantElymus trachycaulusEntire plantEntire plant	canadensis       Entire plant       D         Carex duriuscula       Entire plant       D         Carex filifolia       Entire plant       D         Carex interior       Entire plant       D         Calamovilfa longifolia       Entire plant       D         Calamagrostis       Entire plant       D         Carex nardina       Entire plant       D         Carex nebrascensis       Entire plant       P         Cicuta       Entire plant       T         Conium maculatum       Entire plant       P         Cares acuminata       Entire plant       P         Dalea candida       Entire plant       P         Dalea purpurea       Entire plant       P         Daschampsia       Entire plant       P         Caespitosa(syn)       Entire plant       D         Distichlis spicata       Entire plant       D         Elymus canadensis       Entire plant       D         Elymus elymoides ssp.       Entire plant       D         Elymus lanceolatus ssp.       Entire plant       D         Elymus trachycaulus       Entire plant       D         Elymus trachycaulus       Entire plant       D         Elymus	canadensis       Entire plant       D       D         Carex duriuscula       Entire plant       U       U         Carex filifolia       Entire plant       D       D         Carex interior       Entire plant       D       D         Calamovilfa longifolia       Entire plant       D       D         Calamagrostis       Entire plant       D       D         Carex nardina       Entire plant       D       D         Carex nebrascensis       Entire plant       P       P         Chrysothamnus viscidiflorus       Entire plant       D       D         Cicuta       Entire plant       T       T       T         Coium maculatum       Entire plant       P       P         Dalea candida       Entire plant       P       P         Dalea purpurea       Entire plant       P       P         Dalea purpurea       Entire plant       P       P         Deschampsia       Entire plant       P       P         Caespitosa(syn)       Entire plant       D       D         Elymus caninus       Entire plant       D       D         Elymus canadensis       Entire plant       D       D	canadensisEntire plantDDDCarex duriusculaEntire plantDDDCarex filifoliaEntire plantDDDCalamovilfa longifoliaEntire plantDDDCalamagrostisEntire plantDDDCarex nardinaEntire plantDDDCarex nebrascensisEntire plantDDDChrysothamnus viscidiflorusEntire plantTTTCicutaEntire plantTTTCoiutaEntire plantTTTCrepis acuminataEntire plantPPPDalea candidaEntire plantPPPDalea purpurea Caespitosa(syn)Entire plantPPPDeschampsia caespitosa(syn)Entire plantDDDDistichlis spicataEntire plantDDDElymus caninus Elymus canadensis Entire plantDDDElymus elymoidesEntire plantDDDElymus lanceolatus Elymus trachycaulus 	canadensisEntire plant Entire plant Carex duriusculaEntire plant Entire plant <b< td=""><td>canadensisEntire plant Entire plant Entire plant Carex duriuscula Carex filifolia Carex interior Calamovilfa longifolia Calamovilfa longifolia Calamovilfa longifolia Calamovilfa longifolia Calamovilfa longifolia Calamagrostis montanensis Carex nardinaEntire plant Entire pl</td><td>canadensis       Entire plant       D        D       D       D       D       D       D       D       D       D       D       D       D       D       D       D        D       D       D       D       D       D       D       D       D       D       D       D       D       D       D        D       D       D       D       D       D       D       D<!--</td--><td>Canadensis         Entire plant         D</td><td>Canadensis         Entire plant         D</td><td>Canadensis         Entire plant         D</td><td>Canadensis         Entire plant         D</td><td>Canadensis         Entire plant         D</td></td></b<>	canadensisEntire plant Entire plant Entire plant Carex duriuscula Carex filifolia Carex interior Calamovilfa longifolia Calamovilfa longifolia Calamovilfa longifolia Calamovilfa longifolia Calamovilfa longifolia Calamagrostis montanensis Carex nardinaEntire plant Entire pl	canadensis       Entire plant       D        D       D       D       D       D       D       D       D       D       D       D       D       D       D       D        D       D       D       D       D       D       D       D       D       D       D       D       D       D       D        D       D       D       D       D       D       D       D </td <td>Canadensis         Entire plant         D</td> <td>Canadensis         Entire plant         D</td> <td>Canadensis         Entire plant         D</td> <td>Canadensis         Entire plant         D</td> <td>Canadensis         Entire plant         D</td>	Canadensis         Entire plant         D	Canadensis         Entire plant         D	Canadensis         Entire plant         D	Canadensis         Entire plant         D	Canadensis         Entire plant         D

	Ecological Site Desc	ription System	n											
ltic rush	<u>lris</u> Juncus balticus(syn)	•												U U
•	Juniperus scopulorum	Entire plai	nt l	Jι	. u	U	u	U	u	u	U	u	u	u
· <del>-</del>	•	•		) [	_	D	_			D	D	D	D	D
-		•		> F	P	D	D	D	D	D	D	Р	Р	Р
sin wildrye		•		> F	Р	Ρ	Р	Ρ	Ρ	Ρ	Р	Р	Р	Р
·		•												
	Lomatium	Entire plan	nt [	) Г	ם מ	D	D	D	D	ח	D	D	D	D
		-			_	_	_	_	_	Р	Р	Р	_	Р
	<u></u>			·	•		•		•		•	•	•	•
	Muhlanharria avanidata	Catina alas	_4 F	<b>,</b>		_	_	_	_	_	_	_	_	_
neynilis muniy		Entire plai	nı ı	) L	ט נ	ט	ט	ט	ט	ט	ט	ט	ט	ט
at muhly		Entire plai	nt l	Jι	ιu	U	u	U	u	u	u	u	u	u
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	Nassella viridula	Entire plan	nt F	P F	P	Р	Р	Р	Р	Р	Р	Р	Р	Р
	D ""								_		_	_		_
_	Pascopyrum smitnii	Entire plai	nt l	) L	ט נ	ט	ט	ט	ט	ט	ט	ט	ט	ט
•														
urfpea	<u>Pediomelum esculentum</u>	Entire plai	nt [	) [	D	D	D	D	D	D	D	D	D	D
nderosa pine	Pinus ponderosa	Entire plai	nt l	JL	J U	U	U	U	U	U	U	U	U	U
_	D / '/' )					_			_	_		_	_	_
-	<u>Poa canbyi(syn)</u>	Entire plai	nt H	, L	, P	۲	٢	۲	Р	٢	Р	٢	Р	Р
_	Poa cusickii	Entire plai	nt F	P F	P	Ρ	Ρ	Р	Р	Р	Ρ	Р	Р	Р
	Populus deltoides ssp.				_	_	_	_	_	_	_	_	_	_
	<u>monilifera</u>	Entire plai	nt [	) [	D	D	D	D	D	D	D	D	D	D
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•		Entire plai	nt L	) L	טי	ט	ט	ט	ט	ט	ט	ט	D	ט
		Entire plan	nt F	) F	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
-	<u>junonona(oyn)</u>	Entire plai		·	•	•	•	•	•	•	•	•	•	•
	Pseudoroegneria spicata	Entire plai	nt F	P F	P	Р	Ρ	Р	Р	Р	Р	Р	Р	Р
	<b>5</b>					_	_	_	_	_	_	_	_	_
-	<u>Puccinellia nuttalliana</u>	Entire plai	nt F	, F	, P	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Ratibida columnifera	Entire plai	nt F	P F	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
unkbush sumac	Rhus trilobata	Entire plan	nt [	ם כ	D	D	D	D	D	D	D	D	D	D
	Rosa woodsii var.													
		-		_	_	_				_		_	_	D
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easewood		Entire plai	nt L	) L	ט נ	ט	ט	ט	ט	ט	ט	ט	ט	D
le bluestem		Entire plai	nt F	> F	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
	<u>Sisyrinchium</u>	-		• F	P	Р	Р	Р	Р	Р	Р	Р	Р	Р
	Sporobolus cryptandrus	-		) [	D	D	D	D	D	D	D	D	D	D
rsh seepweed	Suaeda calceoliformis	Entire plan	nt l	J	J U	U	U	U	U	U	U	U	U	U
	<u>Symphoricarpos</u>													
owberry	<u>occidentalis</u>	Entire plai	nt l	JL	J U	U	U	U	U	U	U	U	U	U
	nterfat sin wildrye sertparsley, scuitroot sebells sins muhly, oneyhills muhly sen sedlegrass setern seatgrass ge Indian sadroot, sadroot surfpea sick's segrass, Cusick segrass, Cusick segrass, Cusick segrass, Canby segrass, big segrass, big segrass, big segrass, canby segrass, alkali segrass sindberg sindberg segrass sindberg sindberg segrass	litic rush locky Mountain liper Juniperus scopulorum Acrie Junegrass Interfat Sin wildrye Sertparsley, Icuitroot Iebells Isins muhly, Ioneyhills muhly Ioneyhil	Iris Juncus balticus(syn) Entire pla Intire rush Juniperus scopulorum Entire pla Entire Entire pla Entire	Autic rush Auncus balticus(syn)  Auniperus scopulorum Auniperus scopulorum Auniperus scopulorum Auniperus scopulorum Anterfat Arascheninnikovia lanata Auniperus	Itic rush Juncus balticus(syn) Entire plant Juniperus scopulorum Juniperus Politire plant J	Itic rush Juncus balticus(syn)  Auniperus scopulorum Juniperus scopulorum Junipelant Junip	Itis Itis Itis Entire plant U U U U U U U U U U U U U U U U U U U	Intis Itic rush Juncus balticus(syn) Entire plant U U U U U U U U U U U U U U U U U U U	Iris   Ir	Iris	Iris	Itris	Itilic rush	Itilis

Thermopsis rhombifolia

prairie thermopsis var. annulocarpa(syn) Entire plant UUUUUUUUUUUUUU **Triglochin** Entire plant TTTTTTTTT arrowgrass narrowleaf cattail Typha angustifolia Entire plant UUUUUUUUUUUUUU Typha latifolia broadleaf cattail Entire plant UUUUUUUUUUUU Entire plant PPPPPPPPPPP American vetch Vicia americana soapweed yucca, small soapweed Yucca glauca Entire plant D D D D D D D D D D D

Legend: P=Preferred; D=Desirable; U=Undesirable; N=Not consumed; E=Emergency;

T=Toxic; X=Used, but degree of utilization unknown

## **Hydrology Functions**

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B, with localized areas in hydrologic group C. Infiltration potential for this site varies from moderately rapid to rapid depending on soil hydrologic group and ground cover. Runoff varies from low to moderate. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

## **Recreational Uses**

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

#### **Wood Products**

No appreciable wood products are present on the site.

#### Other Products

None noted.

## **Supporting Information**

**Associated Sites** 

Site name Site ID Site narrative

Shallow Sandy (SwSy) R058BY166WY

**Similar Sites** 

<u>Site name</u> <u>Site ID</u> <u>Site narrative</u>

Sandy (Sy)

<u>R058BY250WY</u> Sandy 15-17" Northern Plains P.Z. has higher production.

#### **State Correlation**

This site has been correlated with the following states: MT

## **Inventory Data References**

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used. Those involved in developing this site include: Glen Mitchell, Range Management Specialist, NRCS; Chuck Ring, Range Management Specialist, NRCS; and Everet Bainter, Range Management Specialist. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References
Data Source Number of Records Sample Period State County
SCS-RANGE-417 12 1971-1994 WY Campbell & others
Ocular estimates 5 1990-1999 WY Campbell & others

#### **Original Site Description Approval**

Author Date Approval Date
G. Mitchell 10/31/2002 E. Bainter 3/7/2008

## Reference Sheet Author(s)/participant(s): Contact for lead author: Date: 4/1/2005 MLRA: 058B Ecological Site: Sandy (Sy) 10-14" Northern Plains Precipitation Zone R058BY150WY This must be verified based on soils and climate (see Ecological Site Description). Current plant community cannot be used to identify the ecological Foliar Cover, Composition (indicators 10 and 12) based on: X Annual Production, **Biomass** Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for each community and natural distrurbance regimes within the reference state, when appropriate and (3) cite data. Continue descriptions on separate sheet. 1. Number and extent of rills: Rills should not be present. 2. Presence of water flow patterns: Barely observable.

Number and height of erosional pedestals or terracettes: Essentially non-existent.

4.	Bare ground from Ecological Site Description or other studies (rock, litter, standing dead, lichen, moss, plant canopy are not bare ground): Bare ground is 20-30% occurring in small areas throughout site.
5.	Number of gullies and erosion associated with gullies: Active gullies should not be present.
6.	Extent of wind scoured, blowouts and/or depositional areas: None
7.	Amount of litter movement (describe size and distance expected to travel): Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces.
8.	Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values): Plant cover and litter is at 70% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 4 or greater.
9.	Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness): Use Soil Series description for depth and color of A-horizon.
10.	Effect on plant community composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Healthy deep rooted native grasses enhance infiltration and reduce runoff. Infiltration is Moderately Rapid to Rapid.
11.	Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.
12.	Functional/Structural Groups (list in order of descending dominance by above- ground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to) with dominants and sub-dominants and "others" on separate lines: Dominant: Mid stature Cool Season Grasses = Mid Stature Warm Season Grasses > Short stature Grasses/Grasslike > Shrubs > Forbs Sub-dominant: Other: Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low.

- **14. Average percent litter cover (%) and depth (inches):** Average litter cover is 25-35% with depths of 0.25 to 1.0 inches
- Expected annual production (this is TOTAL above-ground production, not just forage production): 1300 lbs/ac
- 16. Potential invasive (including noxious) species (native and non-native). List Species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicator, we are describing what is NOT expected in the reference state for the ecological site: Threadleaf sedge, Fringed sagewort, Prickly Pear, Broom Snakeweed, Yucca, and Species found on Noxious Weed List.
- 17. Perennial plant reproductive capability: All species are capable of reproducing.

## **Reference Sheet Approval**

Approval Date
E. Bainter 3/7/2008

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#### **APPENDIX B**

# NATURAL RESOURCES CONSERVATION SERVICE NETWORK EFFECTS DIAGRAM

nrcs\_314\_brush\_management\_NED nrcs\_533\_pumping\_plant\_NED

nrcs\_338\_prescribed\_burning\_NED nrcs\_550\_range\_planting\_NED

 $nrcs\_342\_critical\_area\_planting\_NED \\ nrcs\_561\_heavy\_use\_area\_protection\_NED$ 

 $nrcs\_348\_diversion\_dam\_NED \\ nrcs\_574\_spring\_development\_NED$ 

nrcs\_378\_pond\_NED nrcs\_580\_streambank\_protection\_NED

nrcs\_382\_fence\_NED nrcs\_587\_structure\_water\_control\_NED

 $nrcs\_390\_riparian\_her baceous\_cover\_NED \\ nrcs\_610\_salinity\_sodic\_management\_NED$ 

 $nrcs\_391\_riparian\_forest\_buffer\_NED \\ nrcs\_612\_tree\_shrub\_establishment\_NED$ 

 $nrcs\_396\_fish\_passage\_NED \\ nrcs\_614\_watering\_facility\_NED$ 

nrcs\_410\_grade\_stabilization\_structure\_NED nrcs\_642\_water\_well\_NED

 $nrcs\_430\_irrigation\_water\_conveyance\_pipeline\_NED \\ nrcs\_643\_restoration\_management\_rare\_declining\_habitats\_NED \\$ 

 $nrcs\_436\_water\_harvesting\_catchment\_NED \\ nrcs\_644\_wetland\_wildlife\_habitat\_management\_NED \\$ 

nrcs\_447\_irrigation\_system\_tailwater\_recovery\_NED nrcs\_645\_upland\_wildlife\_habitat\_management\_NED

 $nrcs\_449\_irrigation\_water\_management\_NED \\ nrcs\_656\_constructed\_wetland\_NED$ 

nrcs\_516\_livestock\_water\_pipeline\_NED nrcs\_657\_wetland\_restoration\_NED

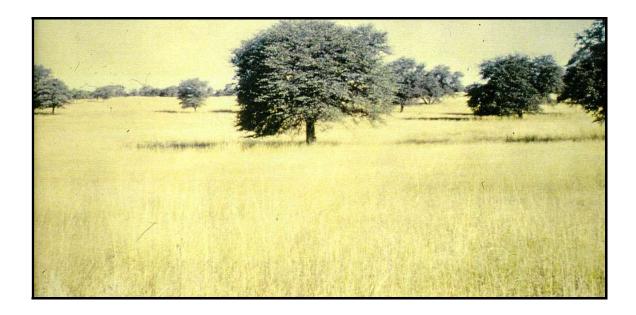
nrcs\_521\_pond\_sealing\_lining\_NED nrcs\_658\_wetland\_creation\_NED

 $nrcs\_528\_prescribed\_grazing\_NED \\ nrcs\_659\_wetland\_enhancement\_NED$ 

## **BRUSH MANAGEMENT**

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 314



#### **BRUSH MANAGEMENT**

Brush management is the removal, reduction, or manipulation of tree and shrub species.

#### PRACTICE INFORMATION

Brush management is designed to achieve the optimum level of control of the target woody species and protection of the desired species. This is accomplished by mechanical, chemical, biological, or a combination of these techniques. The practice is also planned and applied to meet the habitat requirements of fish and wildlife.

Brush management is applied to accomplish one or more of the following:

- Restore natural plant community balance
- Create the desired plant community
- Reduce competition for space, moisture, and sunlight to favor the desired species
- Manage noxious woody plants

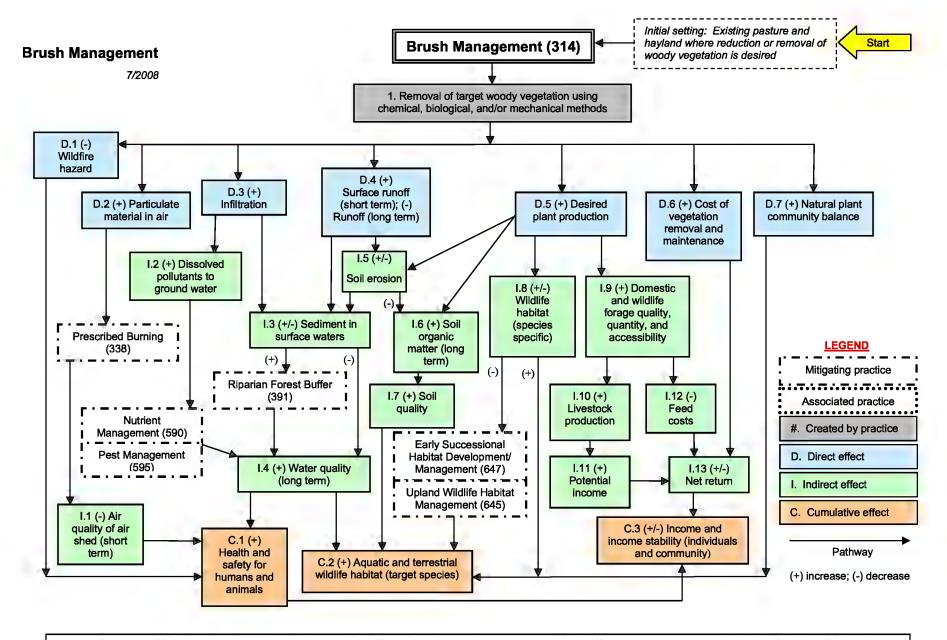
- Restore vegetation to control erosion and sedimentation, improve water quality, and enhance streamflow
- Maintain or enhance wildlife habitat including habitat for threatened and endangered species
- Improve forage accessibility, quality, and quantity for domestic and wild animals
- Protect life and property from wildfire
- Improve visibility and access for handling livestock

#### **COMMON ASSOCIATED PRACTICES**

Brush Management is commonly used in a Conservation Management System with the following practices:

- Pest Management (595)
- Prescribed Grazing (528)

Refer to the practice standard in the local Field Office Technical Guide and associated Job Sheets for further information.



### PRESCRIBED BURNING

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 338



#### PRESCRIBED BURNING

Prescribed burning is applying controlled fire to a predetermined area of land.

#### PRACTICE INFORMATION

This practice applies to all land uses for the following purposes:

- Control undesirable vegetation
- Prepare sites for planting or seeding
- Control plant diseases
- Reduce wildfire hazards
- Improve wildlife habitat
- Improve forage quantity and quality
- Slash and debris removal following forest management activities
- Enhance seed/seedling production
- Facilitate distribution of grazing and browsing animals

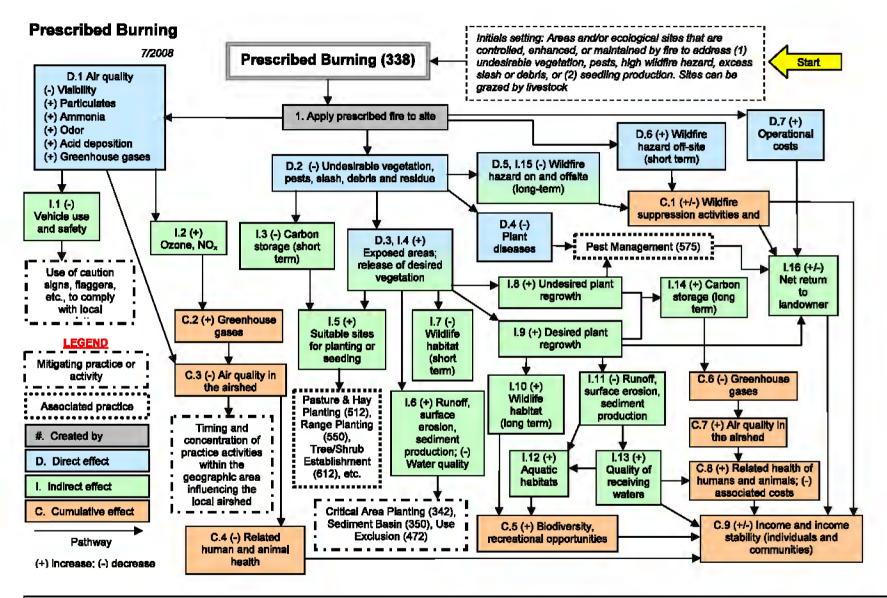
This is a highly specialized practice that requires intensive training and sufficient support personnel

and equipment. A safe successful burn must be timed for proper humidity, wind conditions, air temperature, and fuel conditions (ignitable vegetation). Safety precautions are carefully planned before the burn and monitored during the burn. Existing barriers, such as streams, lakes, roads, wetlands, and constructed firebreaks, are important considerations in planning the practice.

#### **COMMON ASSOCIATED PRACTICES**

Prescribed Burning is commonly used in a Conservation Management System with practices such as Forest Stand Improvement (666), Forest Trails and Landings (655), Pest Management (595), and other associated harvesting, planting, and seeding practices and activities.

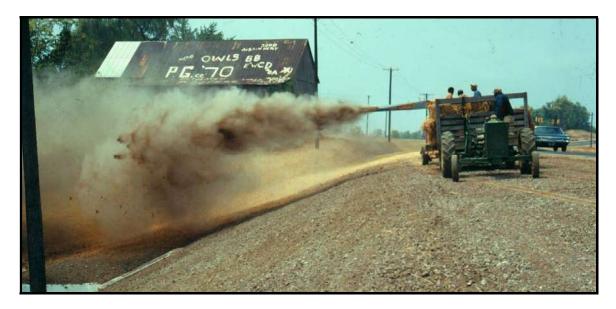
For more information, refer to the practice standard in the NRCS Field Office Technical Guide and associated specifications and design criteria.



## CRITICAL AREA PLANTING

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 342



#### CRITICAL AREA PLANTING

Critical area planting is planting vegetation on critically eroding areas that require extraordinary treatment.

#### PRACTICE INFORMATION

This practice is used on highly erodible areas that cannot be stabilized by ordinary planting techniques and, if left untreated, may cause severe erosion or sediment damage. Examples of critical areas include the following:

- Dams, dikes, levees, and other construction sites with very steep slopes
- Mine spoil and surface-mined land with poor quality soil and possibly chemical problems
- Agriculture land with severe gullies requiring specialized planting techniques and management

Erosion control is the primary consideration for plant material selection. However, a broad choice of grass, trees, shrubs, and vines are usually available and adapted for most sites. Wildlife and beautification are additional considerations that influence planning decisions on a site needing this practice.

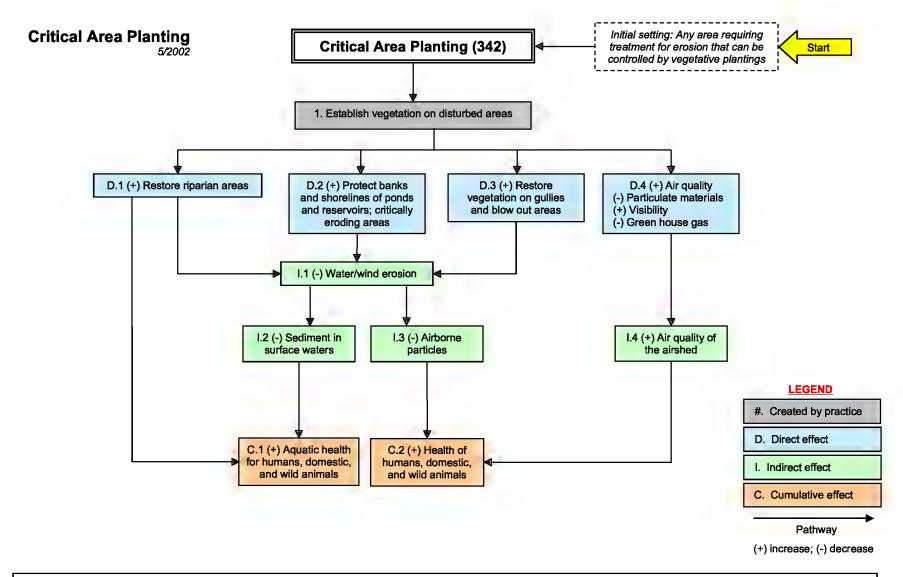
The following decisions must be made when planning this practice:

- Function or use of the site following establishment
- Species of plants to establish
- Methods and rates of planting
- Fertilizer, lime, and soil amendments necessary for establishment and growth of the plants
- Mulching requirements
- Planting site preparation
- Irrigation requirement
- Site management following establishment of the vegetation

#### **COMMON ASSOCIATED PRACTICES**

Critical Area Planting is commonly used in a Conservation Management System on a variety of land uses with practices such as Dam (402), Dike (356), and erosion control practices.

For more information, refer to the practice standard in the NRCS Field Office Technical Guide and associated specifications and design criteria



## **Dam, Diversion PRACTICE INTRODUCTION**

USDA, Natural Resources Conservation Service - practice code 348



#### **DEFINITION**

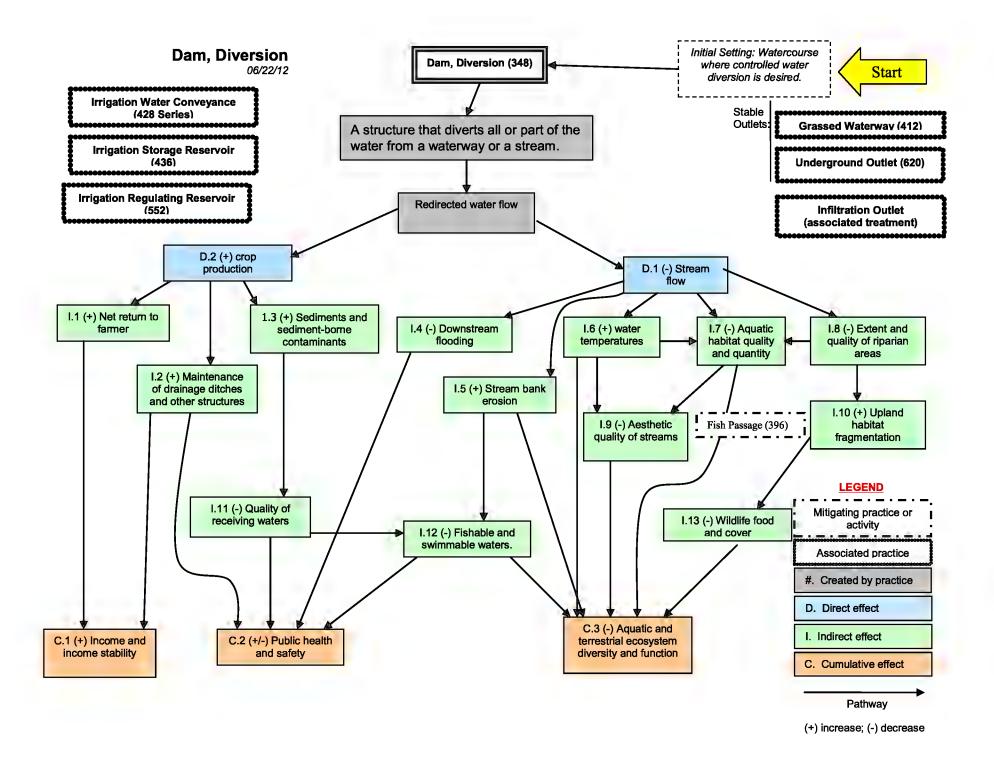
A diversion dam is a structure built to divert all or part of the water from a watercourse into another watercourse for conservation purposes.

#### PRACTICE INFORMATION

A diversion dam is designed to divert water from a watercourse such as a waterway or stream into another watercourse, irrigation canal, stream, water-spreading system, or another waterway.

The purpose of the practice is to improve the beneficial use of water, or divert damaging flows to another watercourse that is more stable or otherwise more capable of reducing damage. One of the more common uses of this practice is diverting water from a stream or river into a canal used for irrigation purposes. The impacts of a proposed diversion dam are evaluated to assure water quality, fish and wildlife, aesthetics, and other environmental concerns are considered in the design and layout of the structure (s). The practice is also carefully evaluated to assure compliance with state and local laws concerning natural watercourses.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.



## **POND**

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 378



#### **POND**

A pond is a water impoundment made by constructing a dam or excavating a pit or dugout.

#### PRACTICE INFORMATION

If a dam is constructed, the pond is referred to as an embankment pond; if the pond storage is achieved solely by excavating material, the pond is referred to as an excavated pond.

The purpose of this type of pond is to provide water for livestock, recreation, and fish and wildlife. Other uses include providing a water supply for things such as fire control and crop or orchard spraying.

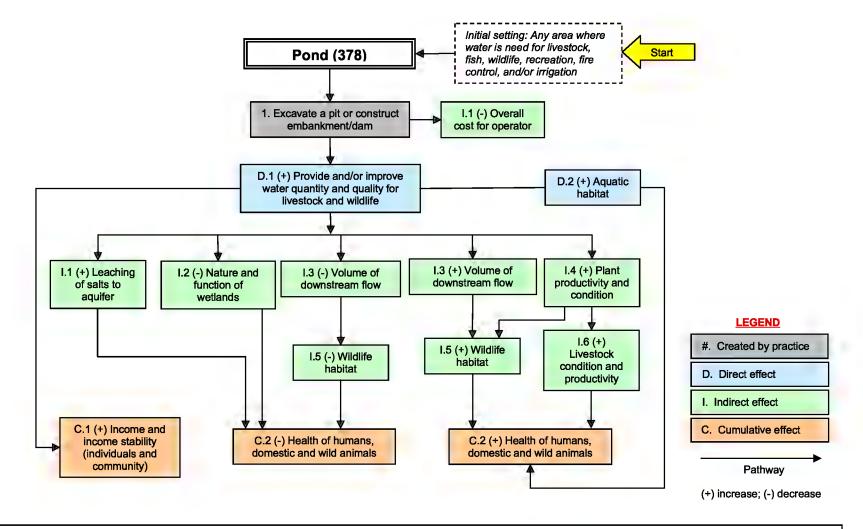
The Pond practice standard applies where failure will not result in loss of life, damage to homes, commercial buildings, main highways, railroads, or interruption of public utilities; the product of the storage (acre/feet) times the effective height of the dam is less than 3,000 and the effective height of the dam is 35 feet or less.

The site must be such that runoff from the design storm can pass safely through a natural or constructed spillway. The drainage area must be protected from erosion that would significantly reduce the expected life of the structure and be large enough so that surface runoff and ground water flow will normally maintain an adequate supply of water in the pond. The water quality must be suitable for the intended use of the water.

#### **COMMON ASSOCIATED PRACTICES**

Pond is commonly planned as part of a Conservation Management System with Prescribed Grazing (528), Fence (382), Access Control (472), and Critical Area Planting (342).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated practice specifications and job sheets.



### **FENCE**

#### PRACTICE INTRODUCTION

## USDA, Natural Resources Conservation Service—Practice Code 382



#### **FENCE**

A fence is a constructed barrier to animals or people.

#### PRACTICE INFORMATION

This practice may be applied to any area where management of animal or human movement is needed.

A wide variety of types of fencing has developed. However, fencing type, materials and construction quality is always designed and installed to assure the fence will meet the intended purpose and longevity requirements of the project.

A standard fence is constructed of either barbed or smooth wire suspended by posts with support structures. Other types include woven wire, electric fence, and suspension fences which are designed with heavy, but widely spaced posts and support structures. Designs for many types of fences are available at the local NRCS field office. Things to consider when planning a fence include:

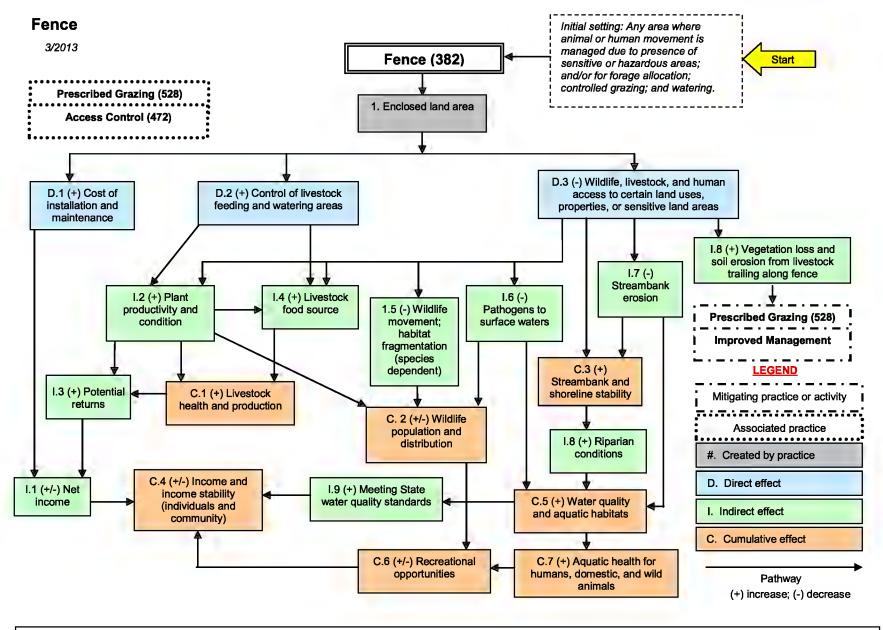
- Topography. For ease of maintenance, avoid as much irregular terrain as possible
- Animal and human movement needs and safety
- State and local laws that may apply to boundary fences
- Animal handling, watering, and feeding requirements
- Soil erosion potential and feasibility of fence construction when planning fences on steep or irregular terrain

#### COMMON ASSOCIATED PRACTICES

Fence is commonly used in a Conservation Management System with the following practices:

- Prescribed Grazing (528)
- Access Control (472)

Refer to the practice standard in the local Field Office Technical Guide and associated Job Sheets for further information.



## RIPARIAN HERBACEOUS COVER

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 390



#### RIPARIAN HERBACEOUS COVER

Riparian herbaceous cover is establishment and maintenance of grasses, grass-like plants, and forbs that are tolerant of intermittent flooding or saturated soils and that are established or managed in the transitional zone between terrestrial and aquatic habitats.

#### PRACTICE INFORMATION

This practice is used on lands along water courses or at the boundary of water bodies or wetlands where the natural or desired plant community is dominated by herbaceous vegetation; the ecosystem has been disturbed and the natural plant community is missing, changed, or has been converted to agricultural crops, lawns, or other high maintenance vegetation; or invasive species dominate.

The purposes of this practice include:

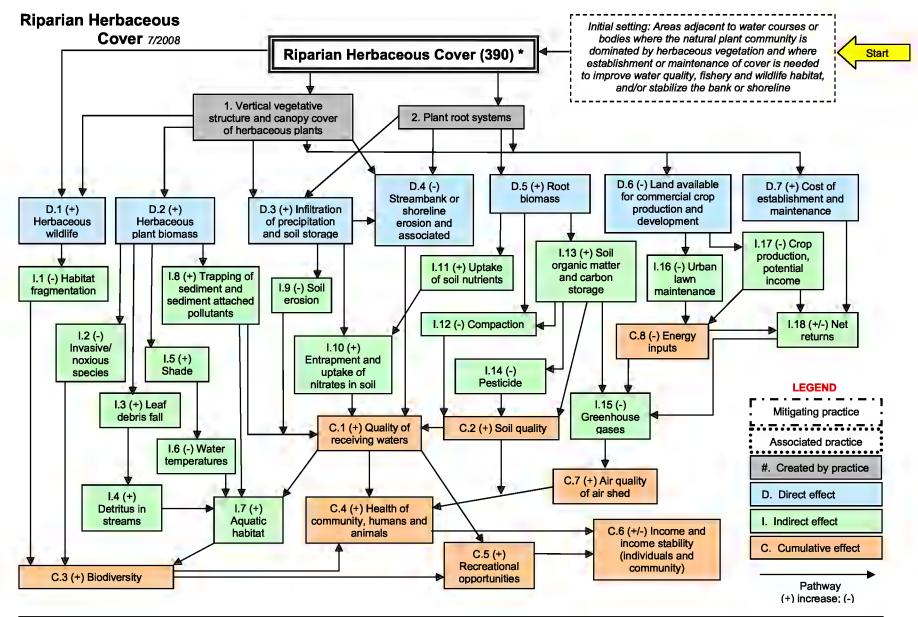
- Provision of food, shelter, shading substrate, access to adjacent habitats
- Nursery habitat and pathways for movement by resident and nonresident

- aquatic, semi-aquatic, and terrestrial organisms
- Improvement and protection of water quality
- Stabilization of streambanks and shorelines
- Increased net carbon storage in the biomass and soil

#### **COMMON ASSOCIATED PRACTICES**

Riparian Herbaceous Cover is commonly used in a Conservation Management System with other practices such as Conservation Cover (327), Fence (382), Use Exclusion (472), Tree/Shrub Establishment (612), Wetland Wildlife Habitat Management (644), Prescribed Grazing (528), Streambank and Shoreline Protection (580), Stream Crossing (578), and Watering Facility (614).

Refer to the practice standard in the local Field Office Technical Guide and associated Job Sheets for further information.



Note: Effects are qualified with a plus (+) or minus (-). These symbols indicate only an increase (+) or a decrease (-) in the effect upon the resource, not whether the effect is beneficial or adverse.

\*Effects start at establishment and continue through to fully functional condition

## RIPARIAN FOREST BUFFER

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 391



#### RIPARIAN FOREST BUFFER

A riparian forest buffer is an area of trees and/or shrubs located adjacent to a body of water. The vegetation extends outward from the water body for a specified distance necessary to provide a minimum level of protection and/or enhancement.

#### PRACTICE INFORMATION

This practice applies to areas adjacent to permanent or intermittent streams, lakes, ponds, wetlands, and areas associated with ground water recharge.

The riparian forest buffer is a multi-purpose practice design to accomplish one or more of the following:

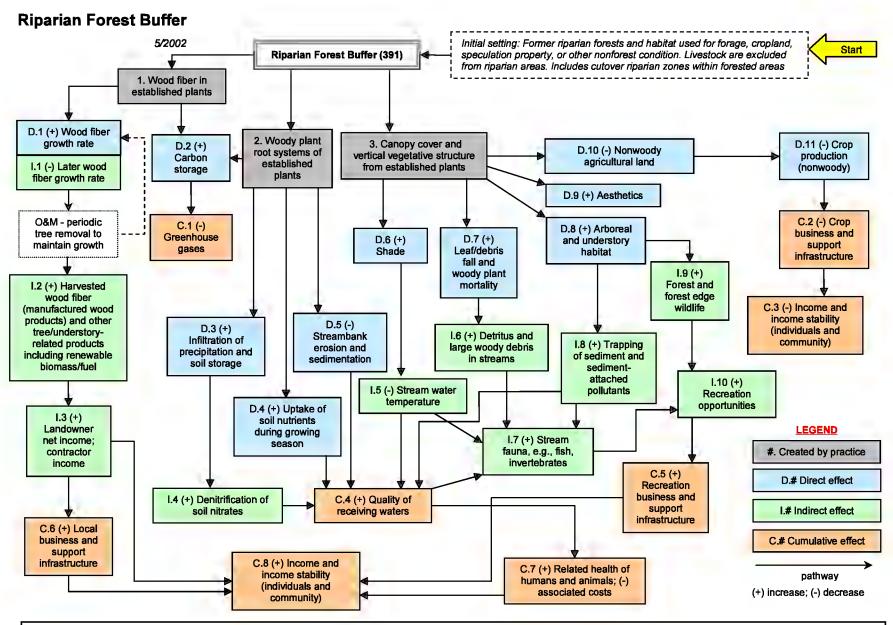
- Create shade to lower water temperatures and improve habitat for aquatic animals
- Provide a source of debris necessary for healthy robust populations of aquatic organisms and wildlife
- Act as a buffer to filter out sediment, organic material, fertilizer, pesticides, and other pollutants that may adversely impact the water body, including shallow ground water

Dominant vegetation consists of existing or planted trees and shrubs suited to the site and purpose(s) of the practice. Grasses and forbs that come in naturally further enhance the wildlife habitat and filtering effect of the practice. Headcuts and streambank erosion should be assessed and treated appropriately before establishing the riparian forest buffer. Specifications for each installation are based on a thorough field investigation of each site.

#### **COMMON ASSOCIATED PRACTICES**

Riparian Forest Buffer is commonly used in Conservation Management Systems on a variety of land uses. Associated practices may include Riparian Herbaceous Cover (390), Stream Habitat Improvement and Management (395), Streambank and Shoreline Protection (580), and Tree/Shrub Establishment (612).

Refer to the practice standard in the local Field Office Technical Guide and associated specifications and Job Sheets for further information



## FISH PASSAGE

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 396



#### **FISH PASSAGE**

Fish passage is the modification or removal of barriers that restrict or prevent movement or migration of fish. A fish passage allows fish to move upstream and downstream.

#### PRACTICE INFORMATION

The purpose of this practice is to allow upstream and downstream movement of fish past barriers where feasible or desirable.

This practice applies to all rivers, streams, and outlets of ponds or lakes where barriers impede desired fish passage. Modification or removal of barriers, particularly on large river systems, may significantly affect hydrology, for example, by creating impoundments or increasing seasonal inundation in the flood plain.

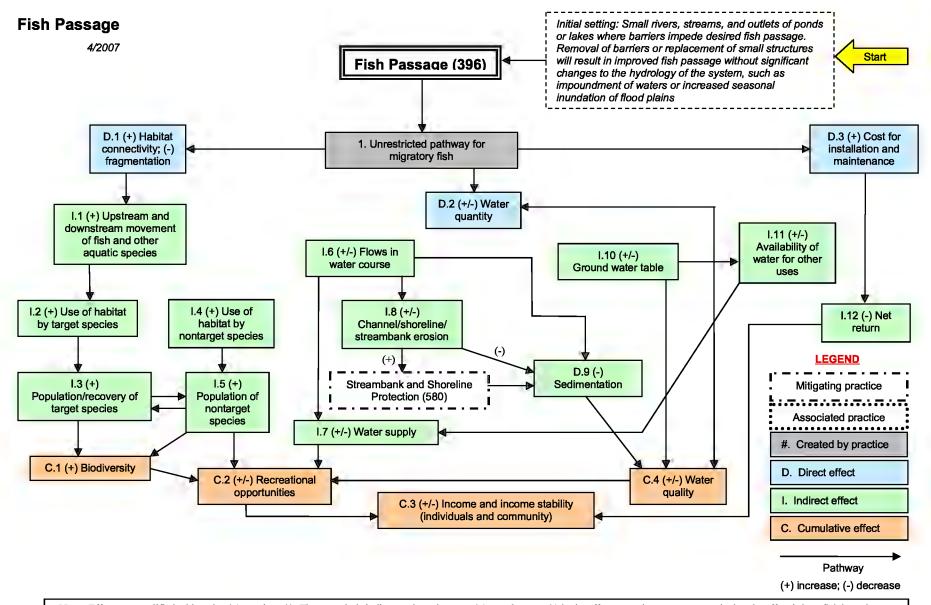
The context and intensity of these impacts must be considered when planning any project involving a fish passage.

#### **COMMON ASSOCIATED PRACTICES**

Fish Passage is commonly used in a Conservation Management System with the following practices:

- Obstruction Removal (500)
- Riparian Forest Buffer (391)
- Streambank and Shoreline Protection (580)
- Stream Habitat Improvement Management (395)

Refer to the practice standard in the local Field Office Technical Guide and associated Job Sheets for further information.



The scope of the practice implementation and resulting effects are limited to those described in the "initial setting." Projects involving larger river systems, impoundment of waters, increased seasonal inundation of flood plains, or any other changes to the hydrologic system may need to be evaluated in a site-specific EA.

## GRADE STABILIZATION STRUCTURE

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 410



#### **GRADE STABILIZATION STRUCTURE**

A grade stabilization structure is used to control the grade and headcutting in natural or artificial channels.

#### PRACTICE INFORMATION

Grade stabilization structures are installed to stabilize the channel grade and control erosion to prevent the formation or advance of gullies and headcuts. The practice is used in areas where structures are necessary to stabilize the site. Grade stabilization structures are not designed to regulate flow or water levels in a channel area.

Special attention is given to enhancing fish and wildlife habitat where enhancement is practical. The practice is also helpful in reducing pollution from sedimentation.

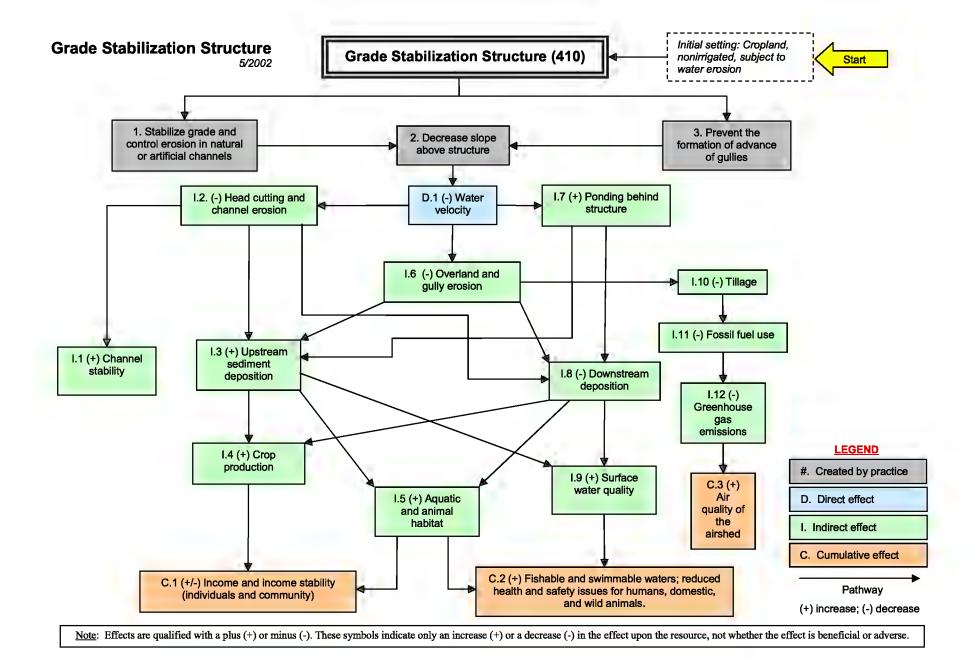
Grade stabilization structures are located so that the elevation of the inlet of the spillway is set at an elevation that will control upstream headcutting.

A wide range of alternative types of structures are available for this practice, and an intensive site investigation is required to plan and design an appropriate grade stabilization structure for a specific site.

#### **COMMON ASSOCIATED PRACTICES**

Grade Stabilization Structure is commonly used in a Conservation Management System on a variety of land uses with practices such as Nutrient Management (590), Pest Management (595), Contour Farming (330), and other erosion control practices.

For more information, refer to the practice standard in the NRCS Field Office Technical Guide and associated specifications and design criteria.



# IRRIGATION WATER CONVEYANCE—PIPELINE

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 430 (AA-GG)



# IRRIGATION WATER CONVEYANCE—PIPELINE

Irrigation water conveyance includes pipelines and appurtenances installed as an integral part of an irrigation system.

#### PRACTICE INFORMATION

The purpose of this practice is to efficiently deliver or convey water from a source of supply to points of application or storage to facilitate management of irrigation water. The practice reduces erosion, conserves water, and protects water quality. Underground pipelines serve as an integral part of the irrigation water distribution system and significantly improve the overall efficiency of the system.

The practice standard applies to water conveyance and distribution pipelines installed above or below ground.

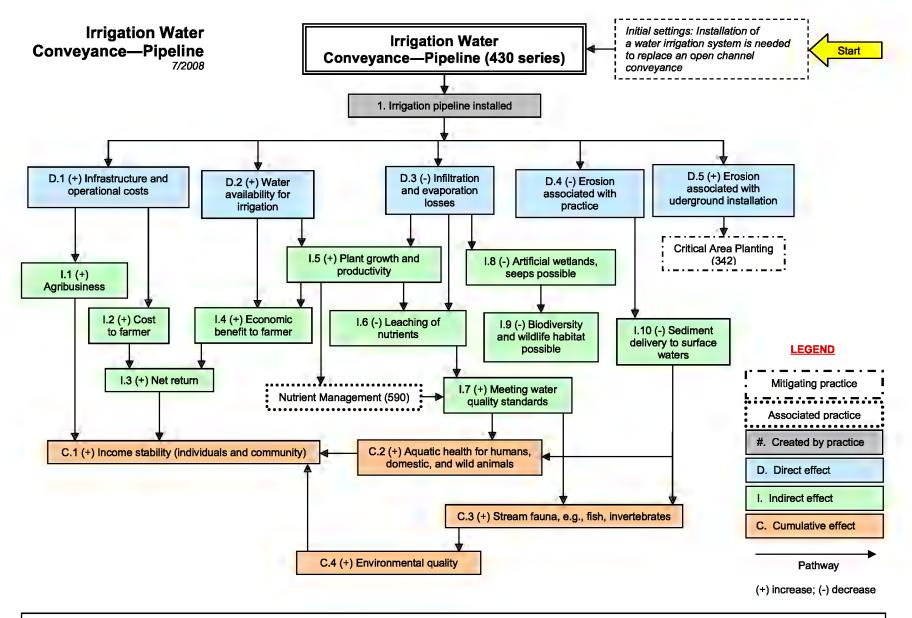
This standard does not apply to multiple outlet pipes, except main line pipes that have multiple risers with distant point of discharge.

This practice requires proper design and installation to function properly.

#### **COMMON ASSOCIATED PRACTICES**

Irrigation Water Conveyance—Pipeline is commonly used in a Conservation Management System with practices such as Irrigation Water Management (449), Pumping Plant (533), Irrigation System (441, 442, 443, 447), Critical Area Planting (342), and Nutrient Management (590).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.



# WATER HARVESTING CATCHMENT

## PRACTICE INTRODUCTION

### USDA, Natural Resources Conservation Service—Practice Code 436



#### WATER HARVESTING CATCHMENT

A water harvesting catchment is a facility for collecting and storing runoff from precipitation.

#### PRACTICE INFORMATION

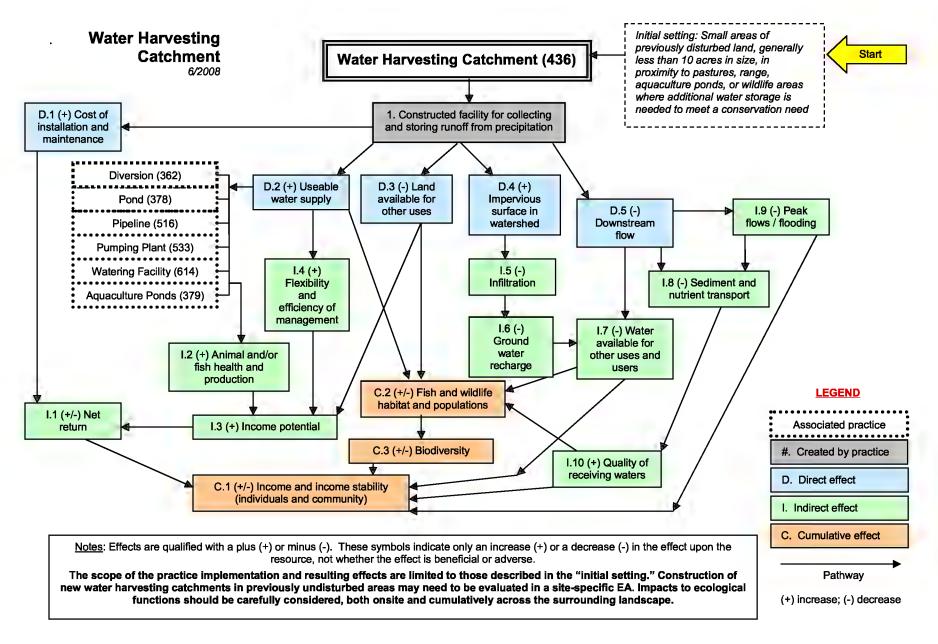
The purpose of a water harvesting catchment is to provide water for livestock, fish, wildlife, and/or other uses by sealing contributing areas to increase, collect, and store runoff water for future use

This practice involves sealing a watershed or portion of a watershed to increase, collect, and store runoff water. It may also involve installing curbs and/or diversions to direct the runoff water to a storage facility. The contributing area may be rock outcrops, paved areas, or other impervious areas that yield high rates of runoff. The contributing area, or apron, may require sealing with material such as asphalt, wax, rubber, plastic, concrete, metal, or other impervious material.

#### **COMMON ASSOCIATED PRACTICES**

Water Harvesting Catchment is commonly used as part of a Conservation Management System with the following practices: Diversion (362), Pipeline (516), Pumping Plant (533), Pond (378), Watering Facility (614), Aquaculture Ponds (379), and Critical Area Treatment (342).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated practice specifications and job sheets.



# IRRIGATION SYSTEM, TAILWATER RECOVERY

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 447



#### **TAILWATER RECOVERY**

An irrigation tailwater recovery system is an irrigation system in which all facilities utilized for the collection, storage, and transportation of irrigation tailwater for reuse have been installed.

#### PRACTICE INFORMATION

Tailwater recovery involves the collection of recoverable irrigation runoff flows and is applied to conserve irrigation water supplies and/or improve offsite water quality. It applies to systems where recoverable irrigation runoff flows can be anticipated under current or expected management practices.

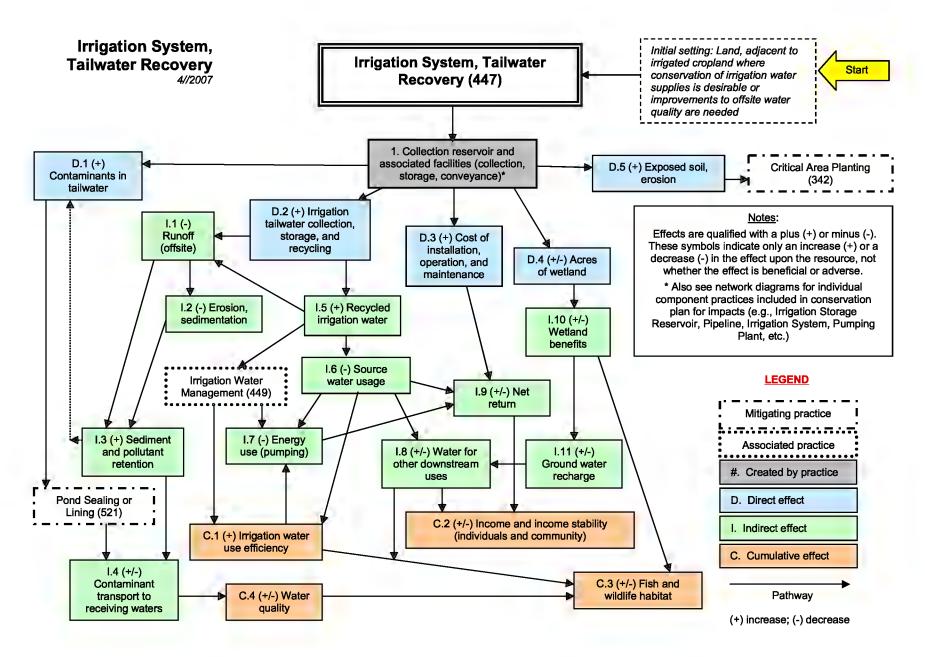
Facilities are needed to store the collected water and to convey water from the storage facility to a point of entry back into the irrigation system. Additional storage may be required to provide adequate retention time for the breakdown of chemicals in the runoff waters or to provide for sediment deposition. Allowable retention times are specific to the particular chemical used.

Seepage from a storage facility is controlled through natural soil or commercial liners, soil additives or other approved methods when chemical-laden waters are stored. Protection of system components from storm events and excessive sedimentation are also considered in the planning and design of a system.

#### **COMMON ASSOCIATED PRACTICES**

Irrigation, Tailwater Recovery is commonly used in a Conservation Management System with practices such as Pumping Plant (533), Irrigation Water Conveyance (428 series), Pond Sealing or Lining (521), and Irrigation Water Management (449).

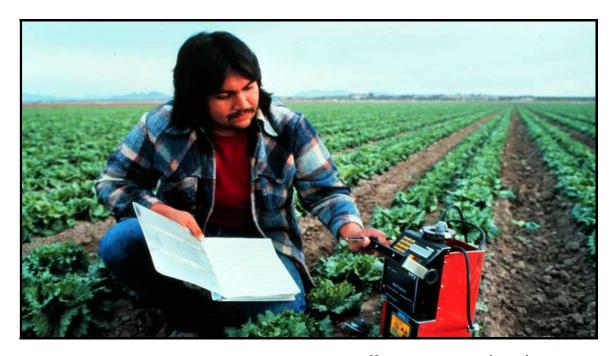
For further information, refer to the practice standard in the local Field Office Technical Guide and associated practice specifications and job sheets.



# IRRIGATION WATER MANAGEMENT

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 449



#### **IRRIGATION WATER MANAGEMENT**

Irrigation and water management is determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner.

#### PRACTICE INFORMATION

The purpose of this practice is to effectively use available irrigation water in managing and controlling the moisture environment of crops and other vegetation. The objectives are to promote a desired response, minimize soil erosion, minimize loss of plant nutrients, and protect both the quantity and quality of water resources.

This practice is applicable to all areas that are suitable for irrigation and have a water supply of suitable quality and quantity. In addition, a suitable irrigation system must be available and the irrigator needs to have the knowledge and capability to manage irrigation water. The following knowledge is required to properly manage irrigation water:

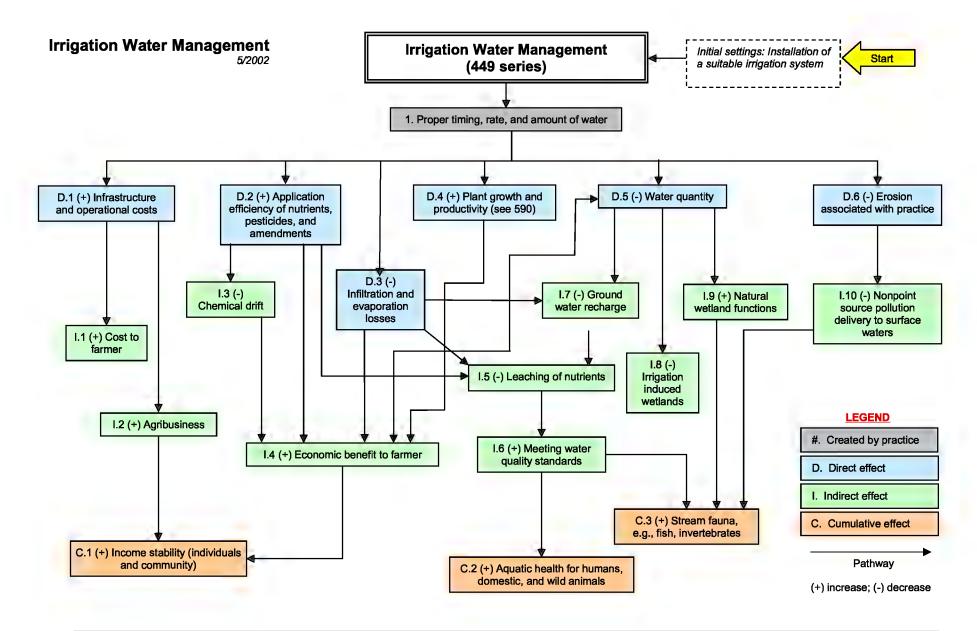
 How to determine when to apply water based on the rate of use by the crops at various stages of growth

- How to measure or estimate the amount of water required for each irrigation
- The time needed for the soil to absorb the required amount of water
- How to detect changes in intake rate
- How and when to adjust stream size, application rate, and irrigation time to compensate for changes in the soil or topography that effect intake rate
- How to recognize erosion caused by irrigation
- How to evaluate the uniformity of water application

#### **COMMON ASSOCIATED PRACTICES**

Irrigation Water Management is commonly used in a Conservation Management System with practices such as Nutrient Management (590), Pest Management (595), Irrigation Water Conveyance practices, and Pumping Plant (533).

For more information, refer to the practice standard in the NRCS Field Office Technical Guide and associated specifications and design criteria.



# **PIPELINE**

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 516



#### **PIPELINE**

The pipeline practice is used when a pipeline is needed to convey water for livestock, recreation or wildlife.

#### PRACTICE INFORMATION

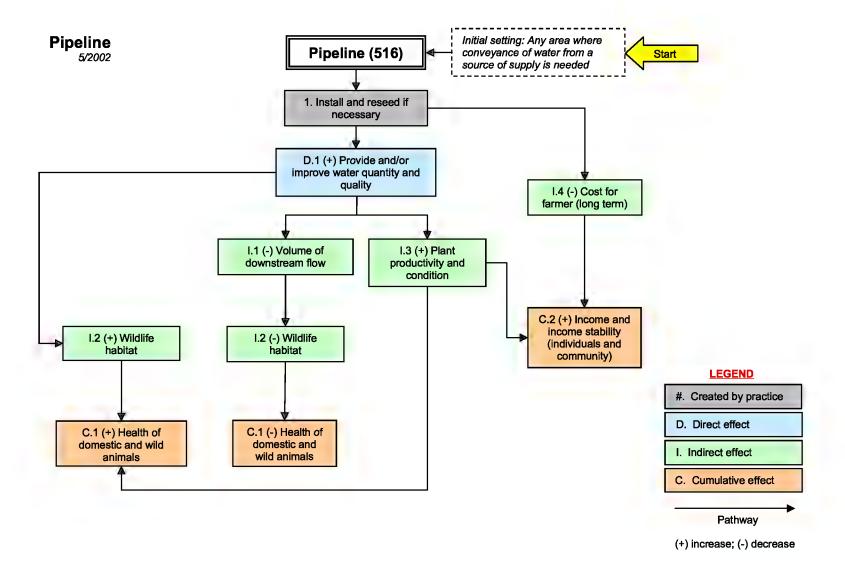
The purpose of this practice is simply to convey water from the source of supply to the point(s) of use. The objective is usually to decentralize the location of drinking or water storage facilities. The practice is applicable where water needs to be piped to another location(s) for management purposes, to conserve the supply, or for reasons of sanitation.

Pipelines installed under this practice are generally for livestock management purposes. A single water source can provide livestock water to several locations and be very effective in improving management of a grazing unit. Pipelines are also used on recreation and wildlife lands to provide or distribute drinking water facilities for humans as well as wildlife.

#### **COMMON ASSOCIATED PRACTICES**

Pipeline is commonly used as part of a Conservation Management System with watering practices such as Water Well (642), Spring Development (574), Pond (378), and Watering Facility (614).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.



# POND SEALING OR LINING

#### PRACTICE INTRODUCTION

### USDA, Natural Resources Conservation Service—Practice Codes 521 A, B, C, D



#### POND SEALING OR LINING

Pond sealing or lining is the installation of a liner for a pond or waste impoundment consisting of a compacted soil-dispersant mixture, soil-bentonite mixture, compacted clay, or a continuous synthetic flexible material.

#### PRACTICE INFORMATION

The purpose of this practice is to control seepage from water and waste impoundments for the purposes of water conservation and environmental protection.

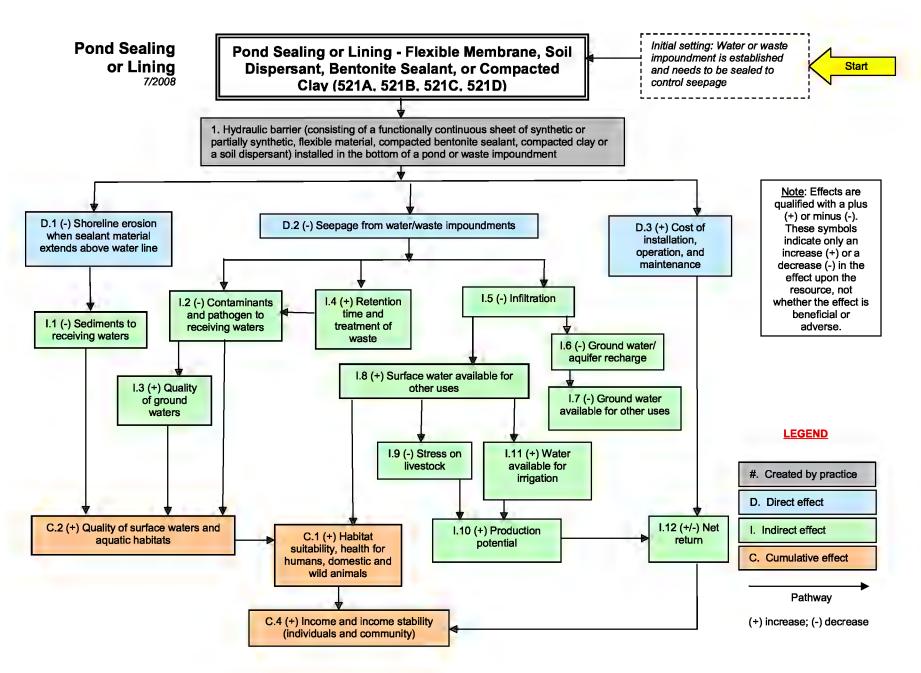
This practice applies on ponds and waste storage structures that require treatment to control seepage rates within acceptable limits and to prevent the migration of contaminants offsite. Select soil materials will be used as cover for liners where required for proper performance, protection, and durability of the installation. Sub-grade materials must not contain sharp, angular stones or any objects that could damage the liner or adversely impact its function.

#### **COMMON ASSOCIATED PRACTICES**

Pond Sealing or Lining is commonly used in a Conservation Management System with the following practices:

- Irrigation Reservoir (436)
- Pond (378)
- Waste Storage Facility (313)
- Waste Treatment Lagoon (359)
- Nutrient Management (590)
- Waste Treatment (629)
- Irrigation Water Management (449)

For further information, refer to the practice standard in the local Field Office Technical Guide and associated practice specifications and job sheets.



# PRESCRIBED GRAZING

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 528



#### PRESCRIBED GRAZING

Prescribed grazing is the controlled harvest of vegetation with grazing animals managed with the intent to achieve a specific objective.

#### PRACTICE INFORMATION

Prescribed grazing may be applied on all lands where grazing and/or browsing animals are managed. A prescribed grazing schedule is prepared for all fields and pastures to be grazed. Removal of herbage by the grazing animals is in conformity with realistic yield goals, plant growth needs, and management goals. Duration and intensity of grazing is based on desired plant health and expected productivity of the forage species to meet management objectives. In all cases, enough vegetation is left to prevent accelerated soil erosion.

Application of this practice manipulates the intensity, frequency, duration, distribution, and season of grazing to:

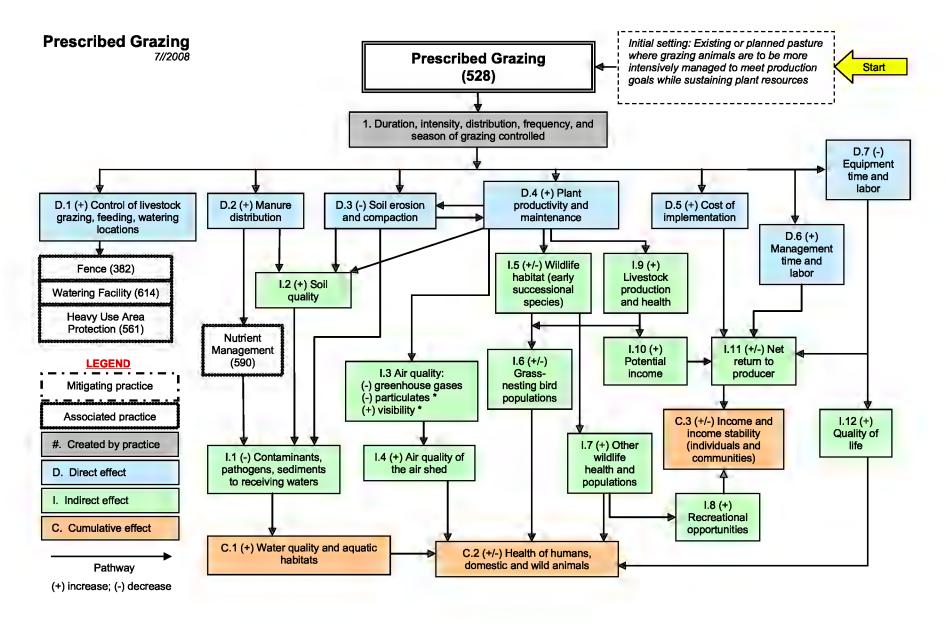
- Improve water infiltration and use
- Maintain or improve riparian and upland area vegetation

- Protect streambanks from erosion
- Manage for uniform deposition of manure away from water bodies
- Promote ecologically and economically stable plant communities which meet landowner objectives

#### **COMMON ASSOCIATED PRACTICES**

Prescribed Grazing is commonly used in a Conservation Management System with the following practices: Pasture and Hay Planting (512), Feed Management (592), Fence (382), Watering Facility (614), Heavy Use Area Protection (422), Pipeline (516), Water Well (642), Pond (378), Spring Development (574), Nutrient Management (590), Pest Management (595), Use Exclusion (472), Animal Trails and Walkways (575), and Stream Crossing (589).

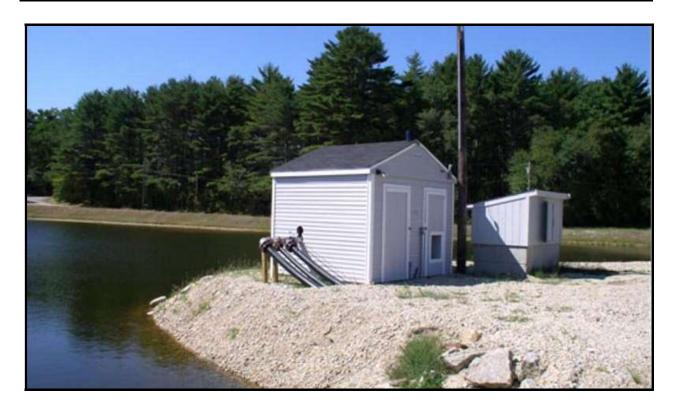
Refer to the practice standard in the local Field Office Technical Guide and associated specifications and Job Sheets for further information.



# **PUMPING PLANT**

## PRACTICE INTRODUCTION

#### **USDA**, Natural Resources Conservation Service-Practice Code 382



#### **PUMPING PLANT**

A Pumping plant is a facility installed to transfer water for a conservation need.

#### PRACTICE INFORMATION

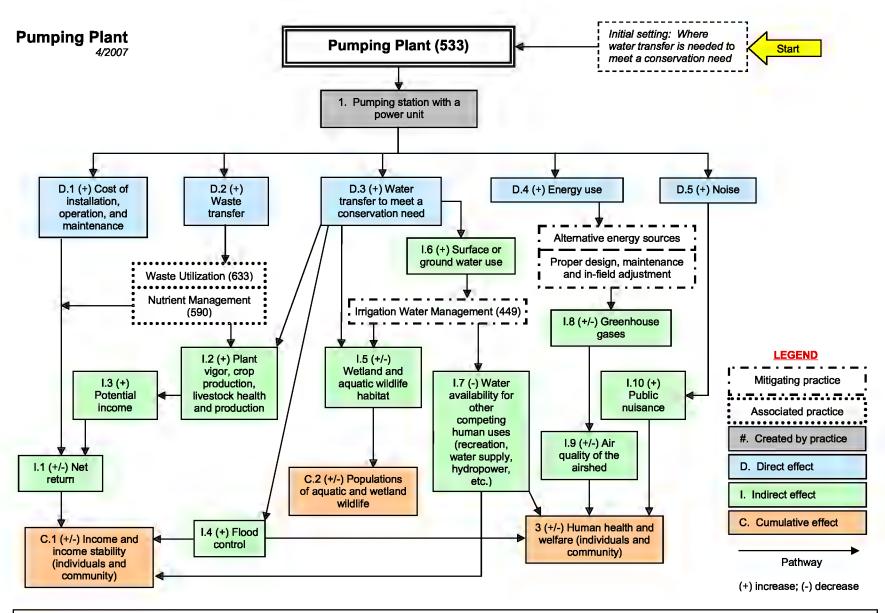
Pumping plants provide a dependable water source or disposal facility for water management. This practice applies wherever water must be pumped to accomplish a conservation objective, which may include but is not limited to:

- Water supply for irrigation, recreation, livestock, or wildlife
- Maintenance of critical water levels in swamps, marshes, open water, or for newly constructed wetlands and ponds
- Transfer of wastewater for utilization as part of a waste management system
- Facilitation of drainage by the removal of surface runoff or ground water

#### COMMON ASSOCIATED PRACTICES

Pumping Plant is commonly used in a Conservation Management System with Irrigation Water Conveyance (428), Irrigation System (441, 442, 443, 447), Pipeline (516), Watering Facility (614), Waste Transfer (634).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.



# RANGE PLANTING

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 550



#### RANGE PLANTING

Range planting is establishment of adapted perennial vegetation.

#### PRACTICE INFORMATION

This practice applies to rangeland, native or naturalized pasture, grazed forest, or other suitable land areas where the principle method of vegetation management is grazing.

Vegetation types might be grasses, legumes, shrubs, forbs, shrubs, and trees.

The practice applies where desirable vegetation is below the acceptable level for natural reseeding to occur or where the potential for enhancement of the vegetation by grazing management is unsatisfactory.

Species, cultivars, or varieties selected must be compatible with management objectives and adapted to climatic conditions, soil, landscape position, and range site. In addition, the selected species for planting must provide adequate cover for erosion control. Plants selected for establishment should also contribute to wildlife and aesthetics when opportunities exist and are in line with planning objectives.

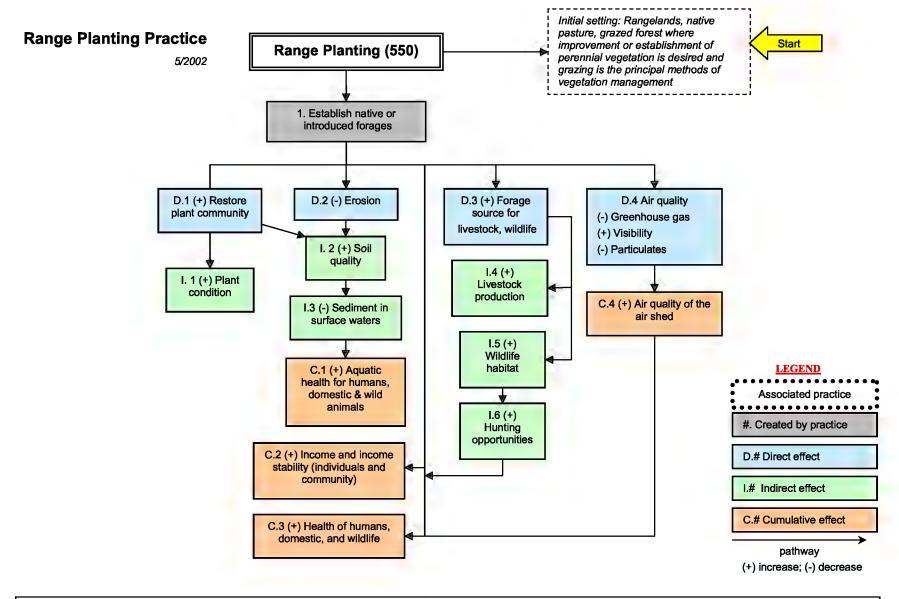
Plant establishment requires the following:

- Proper seedbed preparation
- Observation of recommended planting dates
- Planting at the recommended rate or spacing
- Using quality seed and plant material
- Apply recommended soil amendments and fertilizer
- Control weeds and grazing during establishment period

#### **COMMON ASSOCIATED PRACTICES**

Other conservation practices such as Brush Management (314), Grazing Land Mechanical Treatment (548), Prescribed Burning (338), and livestock watering systems may be needed as part of a Conservation Management System to promote establishment and management of a successful range planting.

Refer to the practice standard in the local Field Office Technical Guide and associated specifications and Job Sheets for further information.



# **HEAVY USE AREA PROTECTION**

#### PRACTICE INTRODUCTION

#### **USDA**, Natural Resources Conservation Service—Practice Code 561



#### **HEAVY USE AREA PROTECTION**

Heavy use area protection is the establishment of a stable surface with suitable materials and any needed structures to protect areas heavily impacted by livestock, vehicles or development.

#### PRACTICE INFORMATION

This practice is usually applied on agricultural land or developed land used intensively by livestock, vehicles, and people. Treatment provided by this practice is primarily for erosion control, but also addresses other types of natural resource degradation including aesthetics.

The prescribed surface treatment is designed to accommodate the specific type of traffic expected to occur. Surface treatment may involve pavement for vehicle traffic, or vegetation may provide sufficient protection for people and animal traffic.

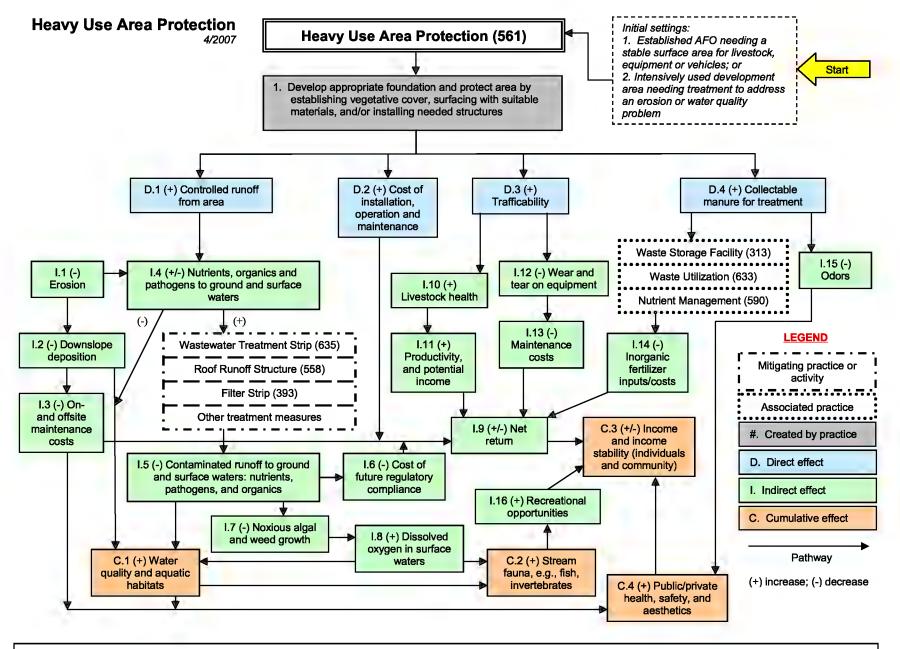
Impermeable surfaces such as pavement increase runoff. Therefore, provision for drainage is always considered when planning this practice.



#### **COMMON ASSOCIATED PRACTICES**

Heavy Use Area Protection is commonly used in a Conservation Management System with practices such as Prescribed Grazing (528), Vegetated Treatment Area (635), Nutrient Management (590), Waste Storage Facility (313), Roof Runoff Structure (558), Filter Strip (393), and practices for erosion and sediment control.

For further information, refer to the practice standard in the local Field Office Technical Guide and associated job sheets.



# SPRING DEVELOPMENT

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 574



#### SPRING DEVELOPMENT

Spring development is improving springs and/or seeps by excavating, cleaning, capping, or providing collection and storage facilities.

#### PRACTICE INFORMATION

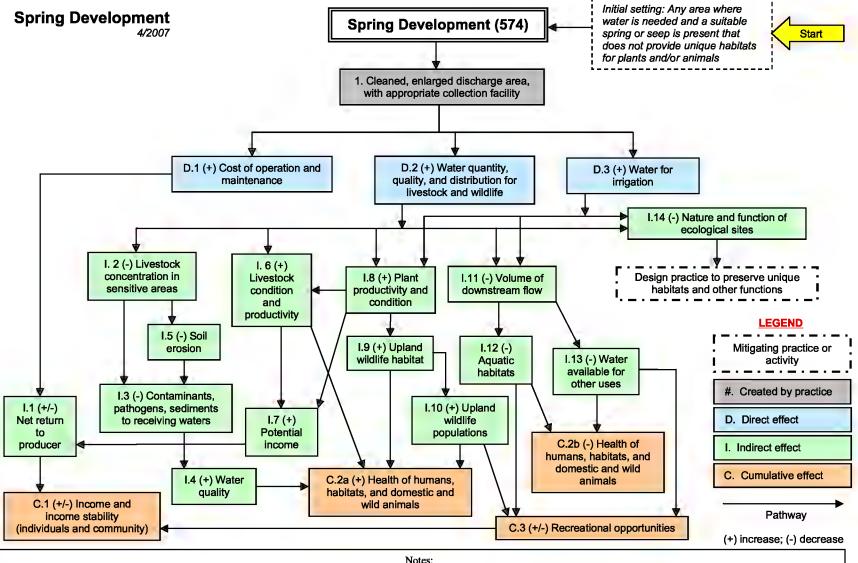
The purpose of spring development is to improve distribution of water for livestock, recreation, and wildlife. The practice also applies to irrigation when the quantity and quality of water are suitable for irrigating crops. Spring development involves cleaning and/or enlarging the discharge opening of the spring. Other appurtenances might be needed such as a collection device to channel the water and a spring box to provide a small amount of storage, as well as a sediment trap and connection point for an outlet pipe(s). The outlet pipe(s) may then lead to a storage facility such as a trough or tank.

Prior to spring development, an investigation of site conditions must be completed including ecological functions and potential losses to these functions that may occur. Consideration should be given to how diversion of water from the spring may affect streamflow in the watershed and whether the spring can be developed to preserve conditions that support unique habitats in the landscape.

#### **COMMON ASSOCIATED PRACTICES**

Spring Development is commonly used in a Conservation Management System with practices such as Watering Facility (614), Pipeline (516), Irrigation Water Management (449), and Critical Area Planting (342).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.



The scope of the practice implementation and resulting effects are limited to those described in the "initial setting." If unique habitats supporting plant and animal species exist in a spring to be developed, particularly where there have been numerous disruptions of similar habitats across the landscape, impacts upon the habitat and options for development to preserve unique ecological functions may need to be evaluated in a site-specific EA. Various regulations and policies for the protection of wetlands should also be considered.

# STREAMBANK AND SHORELINE PROTECTION

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 580



# STREAMBANK AND SHORELINE PROTECTION

Streambank and shoreline protection is the stabilization and protection of streambanks, constructed channels, and shorelines of lakes, reservoirs, or estuaries.

#### PRACTICE INFORMATION

This practice applies to streambanks of natural or constructed channels and shorelines of lakes, reservoirs, or estuaries where they are susceptible to erosion.

The purpose(s) of this practice include:

- Preventing the loss of land or damage to land uses or other facilities adjacent to the banks
- Protecting historical, archeological, and traditional cultural properties, while accommodating the natural fluvial processes within the stream segment and shoreline reach
- Maintaining the flow or storage capacity of the water body
- Reducing the offsite or downstream effects of sediment resulting from bank erosion



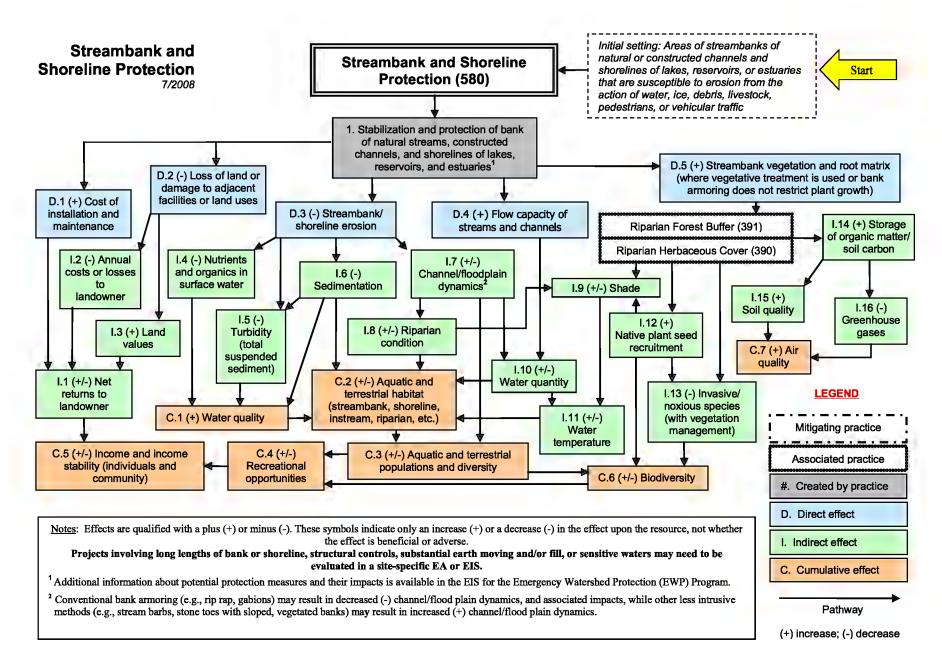
 Improving or enhancing the stream corridor for fish and wildlife habitat, aesthetics, and recreation

Various materials may be used for protection of streambanks and shorelines. An extensive site assessment must be conducted to determine, among other factors, if the causes of instability are local or systemic in nature. This information is used in selecting the most appropriate treatment to achieve the desired objectives. Treatments must be functional and stable for the design flow and sustainable for higher flow conditions.

#### **COMMON ASSOCIATED PRACTICES**

Streambank and Shoreline Protection is commonly used in a Conservation Management System with various conservation practices including Riparian Forest Buffer (391), Riparian Herbaceous Buffer (390), Critical Area Planting (342), Fish Passage (396), Pipeline (516), Fence (382), Use Exclusion (472), and Watering Facility (614).

Refer to the practice standard in the local Field Office Technical Guide and associated Job Sheets for further information.



# STRUCTURE FOR WATER CONTROL

## PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 587



#### STRUCTURE FOR WATER CONTROL

A structure for water control is placed in irrigation, drainage, or other water management systems to convey water, control the direction or rate of flow, or maintain water surface elevation.

#### PRACTICE INFORMATION

Structures for water control are used to control the stage, discharge, distribution, delivery, or direction of flow of water in open channels or water use areas. They are also used for water quality control, such as sediment reduction or temperature regulation, or for protection of fish and wildlife and other natural resources.

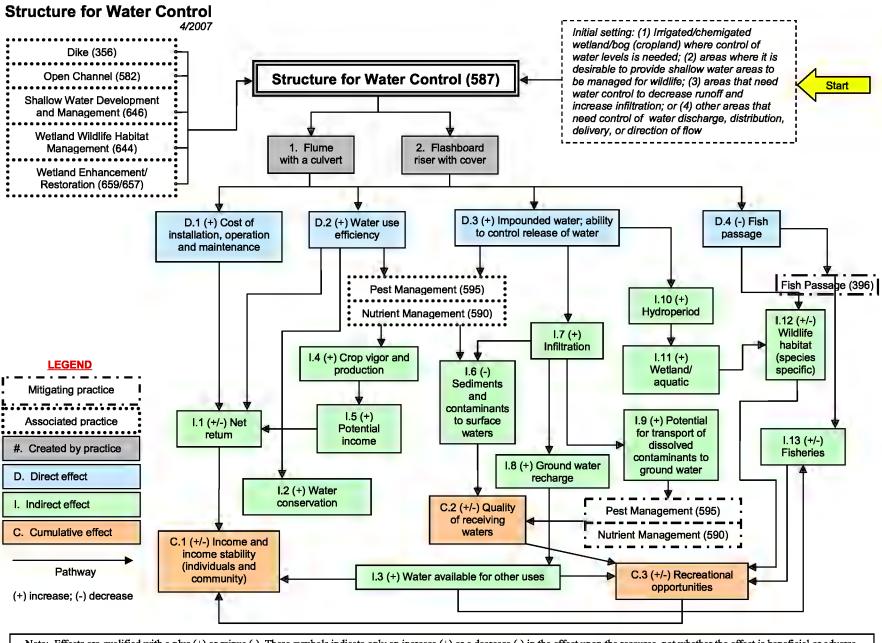
Water control structures are used as outlets on cranberry bogs and irrigation pits to manage the level of water for harvesting, winter flooding, trash removal, pest control or other purposes. When used to control the division of chemigation water, this practice will reduce the amount of suspended chemicals attached to organic material and soil

particles entering surface waters. It allows for the biological treatment of dissolved chemicals when water is detained in the system for the required holding period. Chemicals that remain in the system may be bound up in the soil organic matter; however, soils that are low in organic matter may have a tendency to allow for the leaching of dissolved chemicals into the ground water.

#### **COMMON ASSOCIATED PRACTICES**

Structure for Water Control is commonly used in Conservation Management Systems with Dike (356), Open Channel (582), Land Smoothing (466), Shallow Water Development and Management (646), Wetland Wildlife Habitat Management (644), Wetland Enhancement (659), or Wetland Restoration (657).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.



# SALINITY AND SPODIC SOIL MANAGEMENT

#### PRACTICE INTRODUCTION

# USDA, Natural Resources Conservation Service—Practice Code 610



# SALINITY AND SPODIC SOIL MANAGMEENT

Land, water, and plants are managed to control and minimize accumulations of salts and/or sodium on the soil surface and in the crop rooting zone.

# PRACTICE INFORMATION

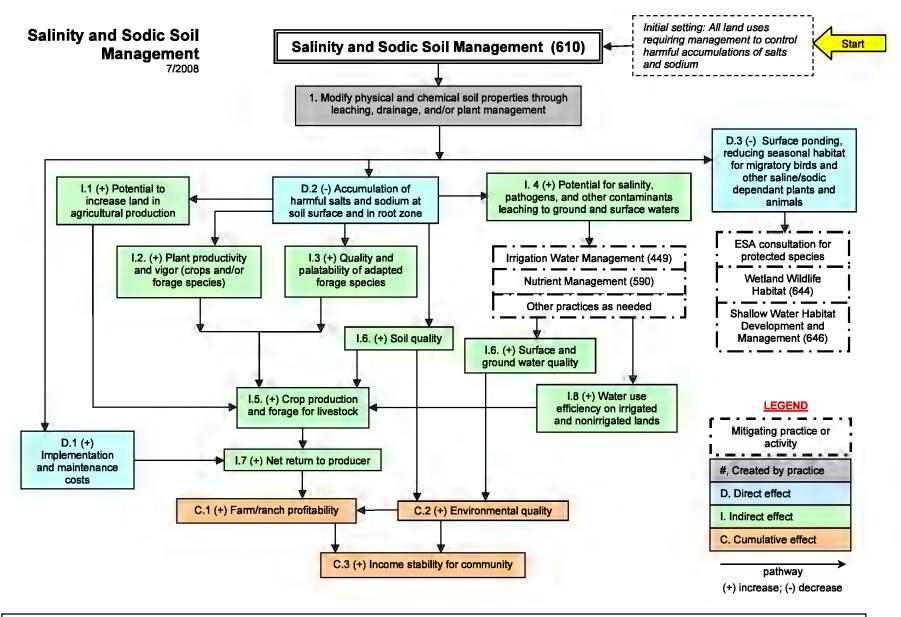
This practice applies to all land uses where the concentration or toxicity of salt limits the growth of desirable plants or where excess sodium causes crusting and permeability problems. This practice also applies to nonirrigated land where a combination of factors such as topography, soils, geology, precipitation, vegetation, land use, and cultural/structural practices can increase the extent and concentration of salts in saline seep areas.

#### COMMON ASSOCIATED PRACTICES

Salinity and Spodic Soil Management is commonly used in a Conservation Management System with practices such as:

- Anionic Polyacrylamide (PAM) Erosion Control (450)
- Conservation Cover (327)
- Conservation Crop Rotation (328)
- Cover Crop (340)
- Deep Tillage (324)
- Irrigation Water Management (449)
- Monitoring Well (353)
- Nutrient Management (590)
- Pest Management (595)
- Pasture and Hay Planting (512)
- Residue Management (344)
- Subsurface Drain (606)
- Surface Drainage (606, 607)
- Drainage Water Management (554)

For more information, refer to the practice standard in the NRCS Field Office Technical Guide and associated specifications and job sheets.



# TREE/SHRUB ESTABLISHMENT

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 612



#### TREE/SHRUB ESTABLISHMENT

Tree and shrub establishment is establishing woody plants by planting seedlings, cuttings, direct seeding or natural regeneration.

#### PRACTICE INFORMATION

The purposes of the practice include:

- Forest products
- Beautification
- Erosion control
- Energy conservation
- Chemical/nutrient sink for water quality improvement
- Wildlife habitat improvement
- Air quality improvement
- Wetland improvement

This practice is applicable on any site where woody plants are suited. Site adaptation is a

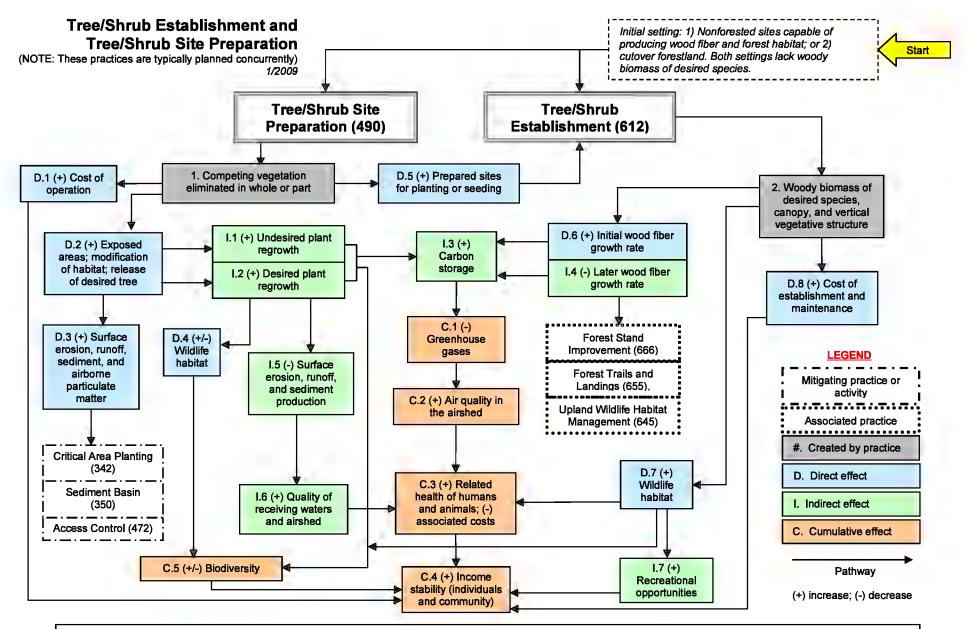
major consideration for success in establishing trees and shrubs. Careful consideration should also be given to the suitability of the selected species for the planned purpose and available space for growth.

#### **COMMON ASSOCIATED PRACTICES**

Tree/Shrub Establishment is commonly applied as part of a Conservation Management System and most always with Tree/Shrub Site Preparation (490) preceding it. Other associated practices may include Forest Stand Improvement (666), Forest Trails and Landings (655), Upland Wildlife Habitat (645), Critical Area Planting (342), Sediment Basin (350), Pest Management (595) and Use Exclusion (472).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.

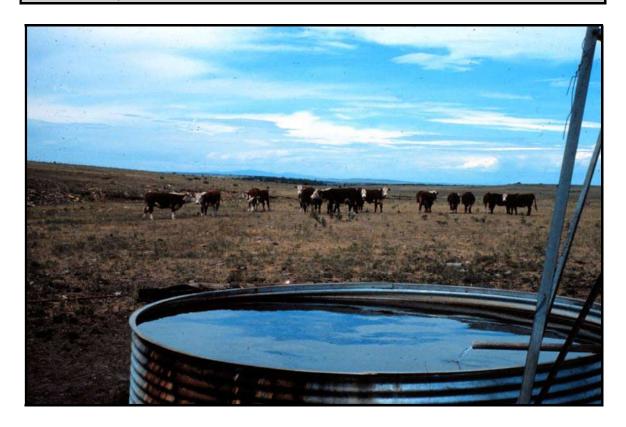
The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.



# WATERING FACILITY

#### PRACTICE INTRODUCTION

# USDA, Natural Resources Conservation Service—Practice Code 614



#### WATERING FACILITY

A watering facility is a trough or tank installed as a livestock watering facility.

#### PRACTICE INFORMATION

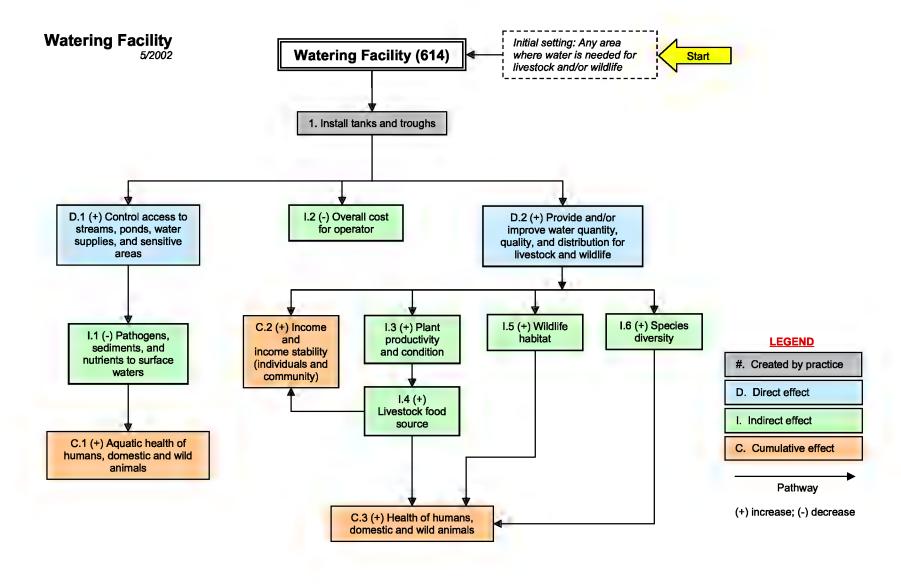
A watering trough or tank provides livestock with drinking water at planned locations that will protect vegetative cover through proper distribution of grazing or other management techniques. The water source(s) may be a well, spring, stream, pond, or other sources including water hauling, in some situations.

In addition to providing livestock water, troughs are sometimes installed to keep cattle out of streams and other surface water areas where water quality is a concern.

#### **COMMON ASSOCIATED PRACTICES**

Watering Facility is commonly used as part of a Conservation Management System with practices such as Water Well (642), Pipeline (516), Spring Development (574), and Prescribed Grazing (528).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.



# WATER WELL

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 642



#### **WATER WELL**

A water well is a hole drilled, dug, driven, bored, jetted, or otherwise constructed to an aquifer to provide water for livestock, wildlife, irrigation, human, and other uses.

#### PRACTICE INFORMATION

This practice applies on all sites where the underground supply of water is sufficient in quantity and quality for the intended purpose. Monitoring or observation wells or wells installed for injection purposes are not included.

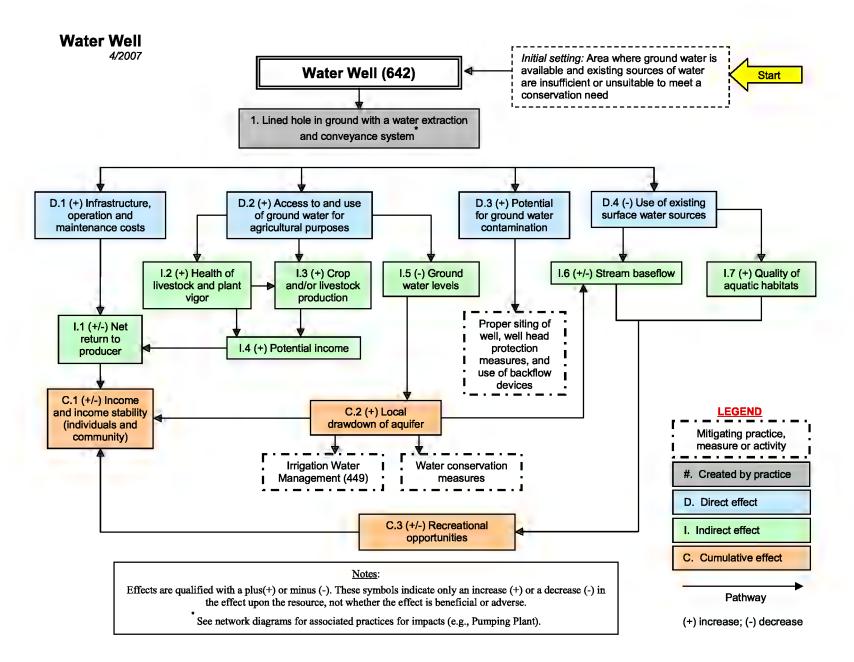
This practice requires proper design and installation to function properly. If practicable, wells should be located in higher ground and up gradient from sources of contamination or flooding. The potential for adverse interference with existing nearby production wells should be evaluated in planning. Other concerns that should be considered in planning include the potential for ground water overdraft; the long-term safe yield of the aquifer and potential effects of installation; and operation of the well on cultural, historical, archeological, or scientific resources at or near the site.

#### **COMMON ASSOCIATED PRACTICES**

Once a well has been installed, a distribution system, watering system, and/or irrigation system are usually needed.

Water Well is commonly used in Conservation Management Systems with practices such as Pumping Plant (533), Pipeline (516), Watering Facility (614), and the Irrigation System practices.

For further information, refer to the practice standard in the local Field Office Technical Guide and associated job sheets.



# RESTORATION AND MANAGEMENT OF RARE OR DECLINING HABITATS

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 643



# RESTORATION AND MANAGEMENT OF RARE OR DECLINING HABITATS

Restoration and management of rare or declining habitats is the re-creation and conservation of rare or declining native vegetated communities and their associated wildlife species.

#### PRACTICE INFORMATION

This practice applies to any landscape which once supported or currently supports the habitat to be restored or managed.

The purposes of this practice are to:

- Restore land or aquatic habitats degraded by human activity
- Provide habitat for rare and declining wildlife species by restoring and conserving native plant communities
- Increase native plant community diversity
- Manage unique or declining native habitats

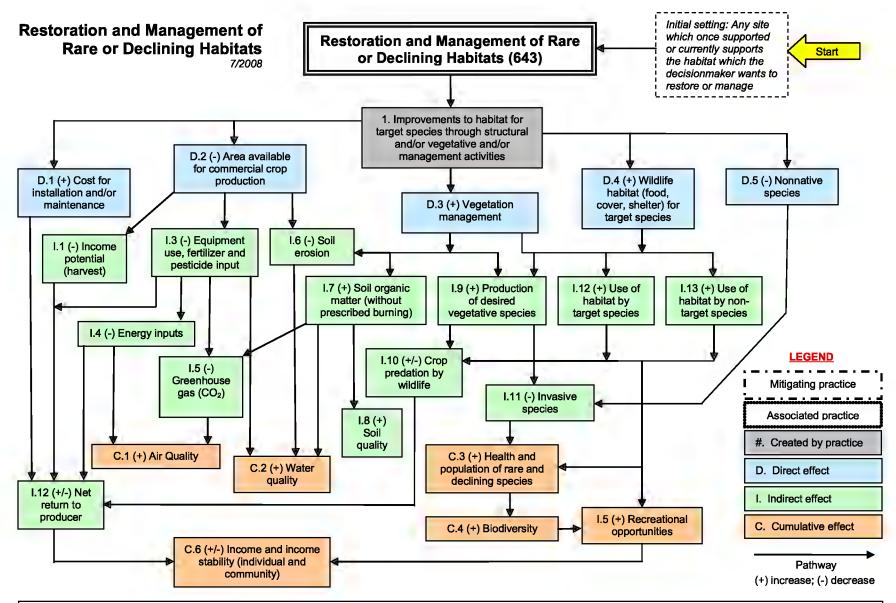
(Note: NRCS uses the term "wildlife" to include all animals, terrestrial and aquatic.)

#### **COMMON ASSOCIATED PRACTICES**

Restoration and Management of Rare or Declining Habitats is commonly used in a Conservation Management System with the following practices:

- Animal Trails and Walkways (575)
- Brush Management (314)
- Conservation Cover (327)
- Early Successional Habitat Development/Management (647)
- Tree/Shrub Establishment (612)
- Prescribed Burning (338)
- Upland Wildlife Habitat Management (645)
- Wetland Wildlife Habitat Management (644)

Refer to the practice standard in the local Field Office Technical Guide and associated Job Sheets for further information.



Note: Effects are qualified with a plus (+) or minus (-). These symbols indicate only an increase (+) or a decrease (-) in the effect upon the resource, not whether the effect is beneficial or adverse.

The diagram above identifies the effects expected to occur when this practice is applied according to NRCS practice standards and specifications. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. All appropriate local, State, Tribal, and Federal permits and approvals are the responsibility of the landowners and are presumed to have been obtained. All income changes are partially dependent upon market fluctuations which are independent of the conservation practices. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

## WETLAND WILDLIFE HABITAT MANAGEMENT

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 644



# WETLAND WILDLIFE HABITAT MANAGEMENT

Wetland wildlife habitat management is retaining, creating, or managing wetland habitat for wildlife.

#### PRACTICE INFORMATION

This practice is used to create or improve habitat for waterfowl, furbearers, or other wildlife. It applies on wetland and other areas where water can be impounded or regulated by diking, ditching, or flooding.

The practice is planned for specific species of wildlife. Specifications for the practice include items such as:

- Practice components, including structures, necessary to meet the requirements of the desired species of wildlife
- The required seasonal water depths necessary to provide adequate habitat during different seasons of the year

- Adapted plant species required for reproduction, food, and cover by target species of wildlife
- Management of vegetation to assure sustainability

## COMMON ASSOCIATED PRACTICES

Wetland Wildlife Habitat Management is commonly used in a Conservation Management System with other wetland and wildlife practices such as Wetland Restoration (657), Wetland Enhancement (659), Restoration and Management of Rare and Declining Habitats (643), Shallow Water Development and Management (646), Upland Wildlife Habitat Management (645), Prescribed Burning (338), and Riparian Forest Buffer (391).

Refer to the practice standard in the local Field Office Technical Guide and associated specifications and Job Sheets for further information.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

#### NRCS CONSERVATION PRACTICE EFFECTS - NETWORK DIAGRAM March 2014 Initial setting: Wetlands, Wetland Restoration (657) Wetland Wildlife Habitat Management (644) rivers, lakes, and other Start water bodies 1. Install and maintain water control structures 2. Manipulate vegetation (disking, burning, mowing, etc.) 3. Manipulate water levels Structure for Water Control (587) Early Successional Habitat Development and Management (647) Dike (356) Prescribed Burning (338) • Shallow Water Development and Management (646) D.2 (+/-) Greenhouse D.4 (+) Habitat quality D.3 (+) Odor D.5 (-) Habitat quality for D.6 (+) Wetland gas emissions for target species some nontarget wildlife vegetation growth D.1 (+) Cost to producer C.5 (+) Migratory bird and other wetland wildlife I.1 (+) Income to I.2 (+) Use of producer from wetland by target populations recreational uses species C.6 (-) Populations of nontarget species I.3 (+) Surface water (-)quality **LEGEND** Mitigating practice (-) (+)I.4 (+) Ground water recharge and quality Associated practice (+/-)C.2 (+/-) Air quality of the air shed #. Created by practice C.1 (+/-) Income and (+)(-) D. Direct effect income stability (individuals AND I. Indirect effect community) C.4 (+/-) Crop depredation by waterfowl and other C. Cumulative effect C.3 (+) Fishable and wildlife swimmable waters Pathway Note: Effects are qualified with a plus (+) or minus (-). These symbols indicate only an

increase (+) or a decrease (-) in the effect upon the resource, not whether the effect is beneficial or adverse.

### UPLAND WILDLIFE HABITAT MANAGEMENT

#### PRACTICE INTRODUCTION

### USDA, Natural Resources Conservation Service—Practice Code 645



# UPLAND WILDLIFE HABITAT MANAGEMENT

Upland wildlife habitat management is creating, maintaining, or enhancing areas to provide food, cover, and habitat connectivity for upland wildlife.

#### PRACTICE INFORMATION

The population dynamics of wildlife are highly dependent on food, water, and cover. The purpose of this practice is to treat habitat concerns identified during the NRCS conservation planning process to enable movement or provide shelter, cover, and food to sustain wild animals that inhabit uplands during a portion of their life cycle. The practice applies to all areas where a need to improve upland wildlife habitat has been identified.

Upland wildlife habitat management usually involves the establishment or manipulation of vegetative communities. Common activities include planting permanent or seasonal vegetation, disking strips within existing vegetation, mowing, burning, and herbicide treatments.

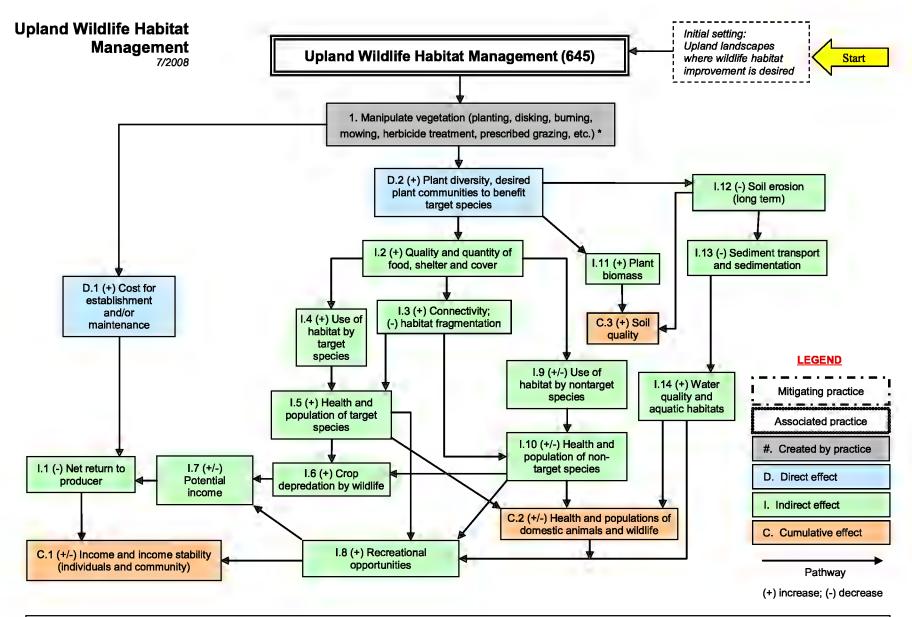
#### **COMMON ASSOCIATED PRACTICES**

Upland Wildlife Habitat Management is commonly used in Conservation Management Systems with one or more of the following component practices:

- Prescribed Burning (338)
- Prescribed Grazing (528)
- Brush Management (314)
- Tree/Shrub Establishment (612)
- Forest Stand Improvement (666)
- Early Successional Habitat
   Development and Management (647)
- Use Exclusion (472)
- Field Border (386)
- Watering Facility (614)

Refer to the practice standard in the local Field Office Technical Guide and associated Job Sheets for further information.

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\* Management activities are species, guild, suite or ecosystem specific; see network diagrams for individual component practices for impacts (e.g., Prescribed Burning

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## CONSTRUCTED WETLAND

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 656



#### **CONSTRUCTED WETLAND**

A constructed wetland is an artificial ecosystem consisting of a shallow basin established with hydrophytic vegetation that is constructed to intersect and treat the flow of a waste stream or contaminated runoff.

#### PRACTICE INFORMATION

Constructed wetlands are used to treat wastewater and contaminated runoff from agricultural processing, livestock, and aquaculture facilities or for improving the quality of storm water or other water flows lacking specific water quality discharge criteria.

For the constructed wetland to work properly, inlet control is provided to prevent debris from entering the wetland, and outlet control is provided to maintain appropriate water depths for wetland vegetation and the design hydraulic retention time.

The constructing wetland is a discharging practice, and therefore, the discharge must either be captured elsewhere in the wastewater treatment system or discharged to the ecosystem in a manner consistent with discharge permit requirements.

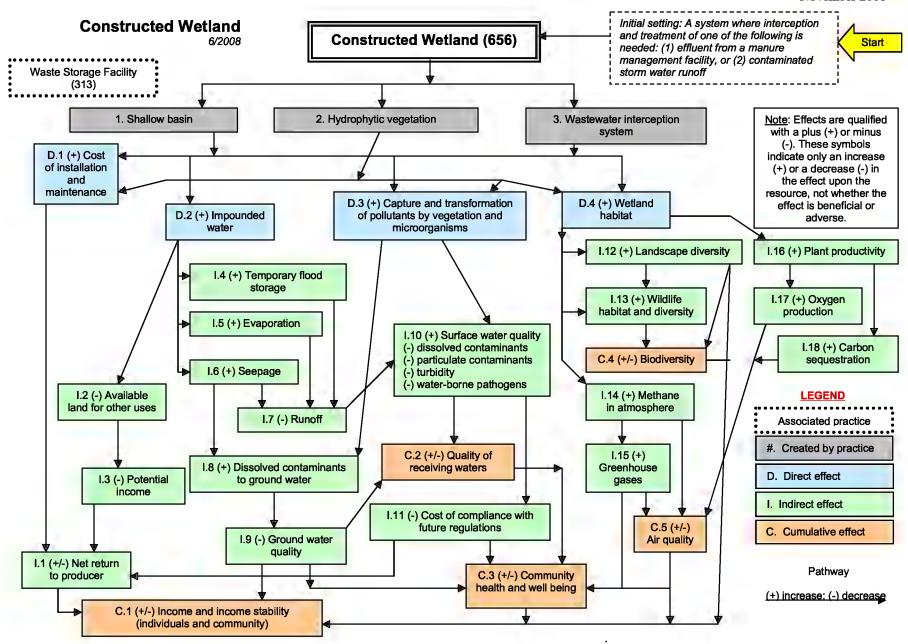
Wetland plants are established that are suitable for local climatic conditions and tolerant of the contaminated flow the wetland is designed to attenuate. Invasive of nonnative species that could become a problem in the native habitat are not used.

#### **COMMON ASSOCIATED PRACTICES**

A constructed wetland is commonly planned as part of a Conservation Management System with Waste Storage Facility (313), Waste Utilization (633), Critical Area Planting (342), Nutrient Management (590), Solid/Liquid Separation Facility (632), and other conservation practices.

For further information, refer to the practice standard in the local Field Office Technical Guide and associated job sheets.

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## WETLAND RESTORATION

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 657



#### WETLAND RESTORATION

Wetland restoration is construction or restoration of wetlands to provide the hydrological and biological benefits of a wetland site.

#### PRACTICE INFORMATION

This practice applies only to areas that were once wetland but were drained to accommodate another land use. Hydric soils must be present, and it must be possible to approximate the natural hydrologic conditions. In most cases, dikes or other water control structures are used to create or improve water storage on the site.

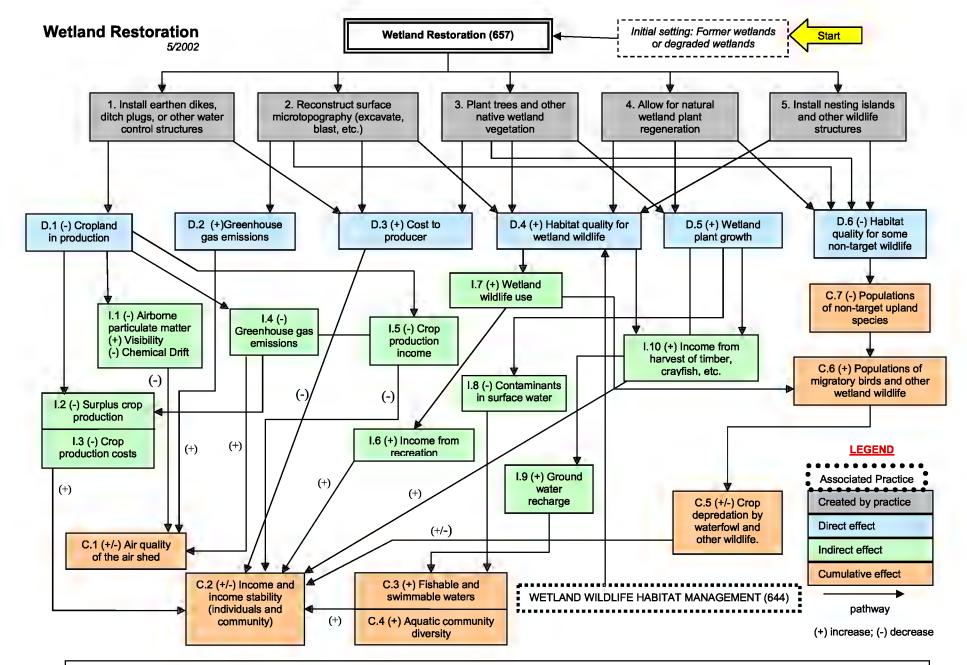
The purpose of this practice is to establish or reestablish wetlands for the benefit of wildlife, to reduce flooding, provide offsite water quality benefits, and increase ground water recharge.

#### **COMMON ASSOCIATED PRACTICES**

Wetland Restoration is commonly used in a Conservation Management System with practices such as Wetland Wildlife Habitat Management (644), Structure for Water Control (587), Dike (356), and Riparian Forest Buffer (391).

Refer to the practice standard in the local Field Office Technical Guide and associated specifications and Job Sheets for further information.

The following page identifies the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.



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## WETLAND CREATION

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 658



#### **WETLAND CREATION**

Wetland creation is the establishment of a wetland on a site that was historically nonwetland.

### PRACTICE INFORMATION

Wetland creation applies to sites where no natural wetland occurred historically. These sites contain soils that are not hydric.

This practice does not apply to:

- a constructed wetland intended to treat point and nonpoint sources of water pollution
- wetland enhancement intended to rehabilitate a degraded wetland
- wetland restoration intended to return the soils, hydrology, vegetative community, and biological habitat to approximate original wetland conditions

The purpose of this practice is to create wetland functions and values.

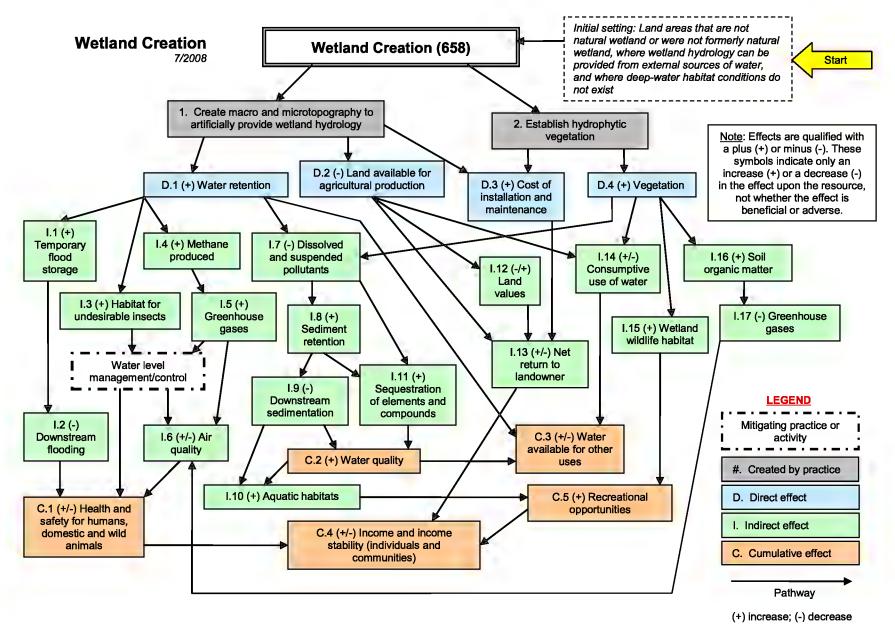
The purposes, goals, and objectives of the creation must be clearly defined, including the appropriate criteria for the site and purposes. The soil, hydrology, and vegetative characteristics existing on the site and the contributing watershed must be documented. Native vegetative species should be used whenever possible. Water levels can be controlled to prevent oxidation of organic soils and for vegetation management.

#### **COMMON ASSOCIATED PRACTICES**

Wetland Creation is commonly used in a Conservation Management System with the following practices: Dike (356), Structure for Water Control (587), Grade Stabilization Structure (410), Pond Sealing and Lining (521 A–D), and Use Exclusion (472).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated practice specifications and job sheets.

The following page identifies the effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. All appropriate local, State, Tribal, and Federal permits and approvals are the responsibility of the landowner and are presumed to have been obtained. Users are cautioned that these effects are estimates that may or may not apply to a specific site.



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### WETLAND ENHANCEMENT

#### PRACTICE INTRODUCTION

#### USDA, Natural Resources Conservation Service—Practice Code 659



#### WETLAND ENHANCEMENT

Wetland Enhancement is the rehabilitation or reestablishment of a degraded wetland, and/or the modification of an existing wetland to favor specific wetland functions.

#### PRACTICE INFORMATION

This practice applies on any degraded or non-degraded existing wetland where the objective is specifically to enhance selected wetland functions. This practice is not used on degraded wetlands when the soils, hydrology, vegetative community, and biological habitat are returned to original conditions or where a wetland is created on a site that historically was not a wetland.

The purpose of this practice is to provide specific wetland conditions by:

 Hydrologic enhancement (depth duration and season of inundation, and/or duration and season of soil saturation)
 and/or • Vegetative enhancement (including the removal of undesired species, and/or seeding or planting of desired species).

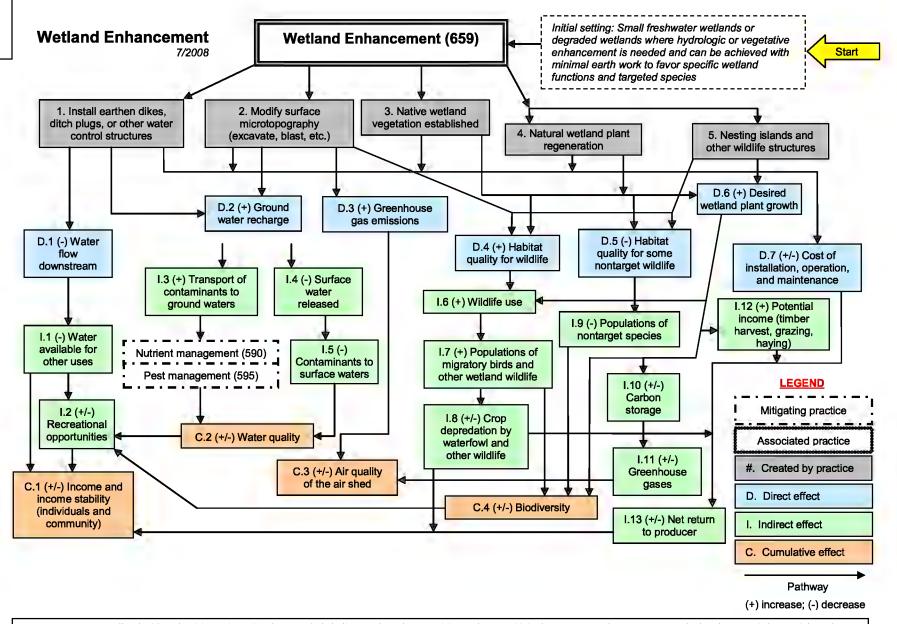
Native vegetative species should be used in the enhancement whenever possible. Manipulation of water levels can be used to control unwanted vegetation. Haying or grazing can also be used to manage vegetation.

#### **COMMON ASSOCIATED PRACTICES**

Wetland Enhancement is commonly used in a Conservation Management System with the following practices: Dike (356), Structure for Water Control (587), Fence (382), Fish Passage (396), Pipeline (516), Pond (378), and Use Exclusion (472).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated job sheets.

The following page identifies the effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. All appropriate local, State, Tribal, and Federal permits and approvals are the responsibility of the landowner and are presumed to have been obtained. Users are cautioned that these effects are estimates that may or may not apply to a specific site.



Note: Effects are qualified with a plus (+) or minus (-). These symbols indicate only an increase (+) or a decrease (-) in the effect upon the resource, not whether the effect is beneficial or adverse.

The scope of the practice implementation and resulting effects are limited to those described in the "initial setting." Larger wetland projects requiring substantial earth work or involving marshes or other brackish waters may need to be evaluated in a site-specific EA.

The diagram above identifies the effects expected to occur when this practice is applied according to NRCS practice standards and specifications. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. All appropriate local, State, Tribal, and Federal permits and approvals are the responsibility of the landowner and are presumed to have been obtained. All income changes are partially dependent upon market fluctuations which are independent of the conservation practices. Users are cautioned that these effects are estimates that may or may not apply to a specific site.