



FOREST SERVICE HANDBOOK INTERMOUNTAIN REGION (REGION 4) OGDEN, UT

FSH 2209.21 – RANGELAND ECOSYSTEM ANALYSIS AND MONITORING HANDBOOK

CHAPTER 20 – RANGELAND ANALYSIS

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Approved: JACK G. TROYER
Regional Forester

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Posting Instructions: Amendments are numbered consecutively by Handbook number and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this Handbook was 2209.21-2003-1 to 2209.21.

New Document	2209.21_20	22 Pages
Superseded Document(s) by Issuance Number and Effective Date	2209.21_20 (Amendment 2209.21-2003-1, 12/19/2003)	6 Pages

Digest:

22.1 – Adds Exhibit 01, Resources Value Ratings Guide (RVRs) and direction on using the guide.

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CHAPTER 20 – RANGELAND INVENTORY AND ANALYSIS

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20.05 – Definitions

Rangeland Analysis. See FSM 2210.5, Range Analysis.

Rangeland Health. Rangeland health (or rangeland condition) is the state of vegetation and soil cover in relation to a standard or ideal for a particular rangeland type.

21 – RANGELAND ECOSYSTEM ANALYSIS

21.1 - Priorities for Analysis

The Forest Supervisor shall establish priorities for analysis considering the following factors:

1. Rangelands placement on the Allotment NEPA Rescission Act of 1995 (P.L. 104-19) schedule.
2. Rangelands with anadromous fisheries or Threatened, Endangered or Sensitive plant or animal habitat subject to consultation.
3. Rangelands not in desired condition. For example, rangelands with water quality limited segments identified on State Total Maximum Daily Loads (TMDL) lists.
4. Rangelands without a current rangeland management decision.
4. Rangelands needing to meet Forest Plan direction (standards and guidelines).
6. Rangelands with wild horse and burro and livestock conflicts.
7. Rangelands with controversial issues.

21.2 – Procedures for Analysis

Rangeland analysis should be done on a priority basis or as there is a need for information to meet Forest Plan standards, for rangeland project decisions, for management, and/or for maintenance and improvement of rangeland health. The degree of information analyzed will depend upon the purpose of the analysis and the issues relevant to the analysis.

21.3 – Analysis Procedure Outline

1. Identify location and purpose for analysis, including a description of desired conditions.
2. Identify issues relevant to the analysis.

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3. Determine makeup of interdisciplinary team and intensity of analysis.
4. Compile base information about the resources and issues identified for analysis.
 - a. Locate existing maps or create Geographic Information System (GIS) maps from digital ortho-quads, digital raster graphics, satellite imagery, or aerial photos. Append associated tabular data from corporate databases. Consider the following map layers for inclusion if warranted by issues:
 - (1) Land area, ownership, and rangeland management unit boundaries.
 - (2) Vegetation cover types, community types, and complexes. Layers may include historic, existing, and potential descriptions.
 - (3) Ecological unit inventory, soil types and geology at appropriate mapping scales.
 - (4) Streams, lakes, ponds, seeps and springs, wells, or other water resources.
 - (5) Biological resources including threatened, endangered, and sensitive species or habitat, and known wildlife grazing.
 - (6) Cultural or heritage resources.
 - (7) Recreation areas and uses, including roads, trails, gates, campgrounds, and so forth.
 - (8) Monitoring sites.
 - b. Compile other documentation relevant to the analysis area, including but not limited to Forest Plan guidance, previous environmental analyses, watershed assessments, allotment management plans, annual operating instructions, permits, resource assessments and inventories, monitoring reports, and photos.
 - c. If warranted, map rangelands using available technology. Different types of maps may be produced, depending on the issues. Contact the Regional Office Rangeland Management staff or Engineering staff for assistance in producing vegetation maps. Local expertise in vegetation is needed to produce these maps. Compare these maps with old digitized site analysis maps and the early 1910 and 1920 allotment maps for long term trend determinations.
 - d. Map rangelands that are functioning, functioning-at-risk, or not functioning regarding desired condition in relation to rangeland health and sustainability. Express trend regarding desired conditions determined from changes in repeated measurements of attributes as meeting, moving toward, or not meeting.

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5. Verify mapped information, for example, present plant community or vegetative cover types.
6. **For each rangeland vegetation type within the analysis area:**
 - a. **Describe current conditions.**
 - b. **Describe reference conditions.**
 - c. **Interpret information for functionality and trend. Map interpreted information as needed, for example,** area's functional rating and trend, desired condition descriptive elements or attributes, areas meeting or not meeting Forest Plan Standards and Guidelines, and management alternatives.

22 – RANGELAND HEALTH (SEC. 20.05)

Describe rangeland health through the desired condition of vegetation, soils and associated resources for which objectives have been stated. Objectives could be stated by what desired vegetative status is needed to achieve certain specified resource values, or it could be a description of plant community. **The desired health is the result of all combined resource values desired on a rangeland type.**

Rangeland health is defined using the terms functioning, functioning-at-risk, or not functioning rangelands. **Rangelands are functioning when they are meeting a desired condition identified in long term specified** management objectives, standards, and/or guidelines; and have the capability across the landscape for renewal, for recovery from a wide range of disturbances, and for retention of its ecological resilience. Rangelands are functioning-at-risk when short-term objectives are being met but functionality criteria are not yet present. For example: if the objective is to achieve 90 percent ground cover with the desired plants present and these objectives are met, the rangeland is functioning. If the short-term objective is to move from 40 to 70 percent ground cover in five years (while moving toward the long term objective of 90 percent ground cover) and the desired plants are increasing with no noxious weeds present, then satisfactory progress is being made toward meeting the long-term objective, but the rangeland is functioning-at-risk because those long-term objectives are not yet present.

Non-functioning rangeland health occurs when the desired condition is not being met and short-term objectives are not being achieved to move the rangeland toward the desired conditions, and the rangeland has lost the capability across or in critical areas of the landscape for ecological resilience.

Stable state communities in an altered health from a desired community may mean readjusting the health and functionality criteria to what can be achieved under the current ecological conditions.

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22.1 – Upland Rangeland Health Criteria

Consider a minimum of four criteria when determining the functionality of upland rangelands:

1. Non-Native Invasive Plant Species. If non-native invasives or noxious weeds are present, the rangeland is functioning-at-risk at best, and if the non-native invasives plant population is abundant and/or dense, the rangeland is not functioning, even if adequate ground cover is present. This interpretation is made because of the aggressive nature of non-native invasives in both pristine and disturbed landscapes.

2. Ground Cover. If ground cover is greater than a described threshold to prevent adverse soil impacts, the rangeland is functioning from a watershed sustainability standpoint. A minimum of 60 percent ground cover is a general standard for limiting water erosion for the Region, except for certain geologic and soil types that this criterion cannot be achieved; for example, like the Mancos Shale. Ground cover is **basal vegetation**, litter, moss/lichen, or rock greater than three-fourths inch diameter.

The minimum ground cover needed for proper functioning sustainable ecosystems for primary vegetation cover types in the Region are (revise these for site-specificity for rangeland project analysis or Forest Plan analysis):

<u>Cover Type</u>	<u>Percent Ground Cover For Functionality</u>
Alpine	90
Aspen	80
Mountain Big Sagebrush	70
Tall Forb	80
Pinyon-Juniper	60
Mountain Mahogany	75
Gamble Oak	75
Mountain Brush	70

3. Shrub Cover. This rangeland health indicator only assesses the properly functioning aspect of an entire shrub cover type and is essentially a landscape level indicator. The desired mix of cover classes for sustainable and functional sagebrush ecosystems for all ecological purposes and needs is:

- 10 percent of the sagebrush area has 0-5 percent shrub canopy cover.
- 50 percent of the sagebrush area has 6-15 percent shrub canopy cover.
- 40 percent of the sagebrush area has greater than 15 percent shrub canopy cover.

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If the mix of sagebrush cover is outside the desired cover class distribution, the cover type may be functioning at risk for the overall ecological health and diversity of a sustainable sagebrush community at a landscape level.

4. Species Composition. Determining if the proper vegetation is present on a site is the most difficult question in determining rangeland health. A general evaluation may be conducted using a basic species composition list or a community or cover type; however, species lists may need to be revised to adequately assess a site's ability to meet more specific health or other management objectives if the site is in a depressed stable state or if the site is occupied by invasive species.

A rangeland site is functioning when all the desired plants are present in the desired amount. The interpretation of desired species and amounts will change when goals change for specific purposes, like watershed sustainability, forage production, sage grouse habitat, low risk wildfire community, or a pleasing wildflower setting in a sagebrush community.

Exhibit 01 displays resource values ratings (RVRs) for Intermountain Region plants to assist in determining what a desired plant community is. A watershed stability rating and forage preference ratings are given by season and a yearlong value. To determine the current plant community status in relation to a desired plant community a similarity analysis may be performed.

Information from the Range Inventory Standardization Committee Report (1983) suggests that a value of 75 percent similar or greater may be used to differentiate between meeting and not meeting management objectives.

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22.1 – Exhibit 01

REGION 4 RANGE MANAGEMENT RESOURCE VALUE RATINGS GUIDE

Column Descriptions

	Genus and Species	-	followed with a P, the plant is poisonous
Y	Forage preference	-	yearly
S	Forage preference	-	spring
S	Forage preference	-	summer
F	Forage preference	-	fall
W	Forage preference	-	winter

Column heading identifies type of animal rated.

E Erosion Control potential (watershed protection)

Abbreviations Used

H = High
M = Medium
L = Low

Definition of Codes

Preference of plant by cattle, sheep, horses, mule deer and elk - The relish and degree of use shown by selected ungulates for a plant or plant part.

- a. HIGH - highly relished and consumed to a high degree.
- b. MODERATE - moderately relished and consumed to a moderate degree.
- c. LOW - not relished and normally consumed to only a small degree or not at all.

Watershed - Erosion Control Potential - A plant exhibits growth habit, plant structure, high potential biomass, and/or a root system that has the potential to reduce soil erosion.

- a. HIGH - A plant that has aggressive growth habits, persistent plant structure, high potential biomass, and/or a good soil-binding root-rhizome-runner system in established stands.
- b. MODERATE - A plant that has moderately aggressive growth, moderately persistent plant structure, moderate potential biomass, and/or a moderate soil-binding root-rhizome-runner system in established stands.
- c. LOW - A plant that has poor growth, persistence, biomass and/or a soil-binding root system that makes it generally inadequate for erosion control.

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22.1 – Exhibit 01--Continued

GRASS AND GRASSLIKE

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSF	Sheep YSSF	Horse YSSF	MDeer YSSF	Elk YSSF	E W	
Achnatherum nelsonii ssp. dorei	HHHHM	MHMMM	HHHHM	MHMMM	HHHHM	M	Dore's needlegrass
Achnatherum pinetorum	M	M	M	H	H	M	pine needlegrass
Achnatherum scribneri	MMMLL	MMMLL	MHMLL	MMMLL	MHMMML	M	Scribner needlegrass
Agropyron cristatum	MHMMM	MHMMM	HHHHH	MHLLM	MHMMM	M	crested wheatgrass
Agropyron smithii	MHMMM	MMMLL	MHMMM	MHLLM	MHMMM	H	western wheatgrass
Agropyron spicatum	HHMMM	MMMLL	MHMMM	MMMLL	HHMMM	M	bluebunch wheatgrass
Agropyron trachycaulum	MHMMM	MMMMM	HHHHM	MMMMM	HHHHM	M	slender wheatgrass
Agrostis exarata	MMMLL	LMLLL	MHMMM	LMLLL	MHMMML	M	spike bentgrass
Agrostis idahoensis	MHMLL	LMLLL	MHMMM	LMLLL	LMLLL	M	Idaho bentgrass
Agrostis scabra	MHMLL	LMLLL	MMMLL	LMLLL	MMMLL	M	rough bentgrass
Agrostis stolonifera	MMMLL	LMLLL	MHMMM	LMLLL	MHMMML	M	creeping bentgrass
Agrostis variabilis	MHMLL	LMLLL	MMHLL	MMHLL	MMMLL	M	mountain bentgrass
Alopecurus pratensis	MMMMMMMLM	MMMMM	MLLLM	MMMMMM			meadow foxtail
Andropogon hallii	MMMMMMMLM	MMMMM	MLMML	MLMML	H		sand bluestem
Aristida longiseta	LMLLL	LMLLL	MMMLL	LLLLL	LLLLL	M	Fendler threeawn
Aristida oligantha	LMMLL	LMMLL	LMMLL	LMMLL	LLLLL	L	prairie threeawn
Aristida purpurea	MMMLL	LMLLL	MMMLL	LMLLL	LLLLL	L	purple threeawn
Aristida purpurea var. fendleriana	LMLLL	LMLLL	MLLLL	LLLLL	LLLLL	M	Fendler's threeawn
Arrhenatherum elatius	MMMMMMMLL	MHMMM	MMMLL	H	M		tall oatgrass
Avena fatua	MHM-M	MHL-M	MHM-M	LML-L	LML-L	L	wild oat
Avena sativa	MHM-L	MHL-L	MHM-L	LML-L	LML-L	L	common oat
Beckmannia syzigachne	MMLLL	LMLLL	LMLLL	LMLLL	LLLLL	M	American sloughgrass
Bothriochloa barbinodis	MLMLM	LLLLL	MMMMMLLLM	LLLLL	H		cane bluestem
Bouteloua aristidoides	LMMLL	LLLLL	LMMLL	LMMLL	LLLLL	M	needle grama
Bouteloua barbata	LLM--	LLM--	LLM--	LLL--	LLL--	L	sixweeks grama
Bouteloua curtipendula	MHMMM	MMMLM	MMMMMLM	LMLLL	M		sideoats grama
Bouteloua eriopoda	MHMMM	MMMLM	MMMMMLM	MMMLL	M		black grama
Bouteloua gracilis	MHMMM	MMMLM	MMMMMLM	MMMLL	M		blue grama
Bouteloua hirsuta	MHMLL	MMMLM	MMMMMLM	LMLLL	M		hairy grama
Bouteloua simplex	LMMLL	LLLLL	LMMLL	LLLLL	LLLLL	L	matted grama
Bromus briziformis	HHL--	MML--	HHL--	MML--	MHM--	L	rattlesnake brome
Bromus carinatus	HHHMM	MHMMM	MHMMM	MMMLL	HHHMM	M	California brome
Bromus ciliatus	HHHMM	MHMMM	HHHMM	MHMMM	MHMMM	M	fringed brome
Bromus diandrus	LML--	LLL--	LML--	LML--	MML--	L	ripgut brome
Bromus hordeaceus ssp. hordeaceus	HHM--	HHM--	HHM--	MMM--	MHM--	L	soft brome
Bromus inermis	HHHMM	MHMMM	HHHMM	MMMLM	HHHMM	H	smooth brome
Bromus japonicus	HHM--	HHM--	HHM--	MMM--	MMM--	L	Japanese brome
Bromus porteri	MHMMM	MHMMM	HHHMM	MHMMM	MHMMM	M	Porter brome
Bromus rubens	MML--	MML--	MML--	LLL--	L		red brome
Bromus tectorum	MHLLH	MHLLH	MHLLM	MHLLH	MHLLH	L	cheatgrass
Buchloe dactyloides	HHHMM	HHHMM	HHHMM	LMMLL	HHHMM	H	buffalograss
Calamagrostis canadensis	HHHMM	MMHLL	MHMMM	MMMLL	MMHMM	H	bluejoint
Calamagrostis montanensis	MMHMM	MMMMM	MMMMMLM	MMHMM	M		plains reedgrass
Calamagrostis purpurascens	LMLLL	LMLLL	MMMMMMMMML	MMMLL	M		purple reedgrass
Calamagrostis rubescens	MMHMM	LMMLL	MHMMM	MMMLL	MLMML	H	pinegrass
Calamagrostis stricta	HHHMM	MMMLL	HHHHH	MMMLM	M	H	slimstem reedgrass
Calamovilfa longifolia	HHMLH	MHLLM	HHMLH	LMMLL	MMMLL	H	prairie sandreed
Carex albonigra	H	H	H	H	H	M	blackandwhite sedge
Carex aquatilis	HHHHM	MMMMM	MHMMM	MMMMM	MHMMH	H	water sedge
Carex atherodes	H	M	H			M	wheat sedge
Carex aurea	MHMMH	MMMLL	MMMMMMMMMM	MHMMH			golden sedge
Carex douglasii	MHMLL	LMMLL	MHMLL	MMMLL	MMMLL	M	Douglas' sedge
Carex duriuscula	MHMMH	MMMLL	MMMMMMMMMM	MHMMH		M	needleleaf sedge
Carex ebenea	MHMMH	MMMLL	MMMMMMMMMM	MHMMH		M	ebony sedge
Carex egglestonii	MHMMH	MMMLL	MMMMMMMMMM	MHMMH		M	Eggleston's sedge
Carex elynoides	MHMMH	MMMLL	MMMMMMMMMM	MHMMH		H	blackroot sedge
Carex filifolia	MMMLL	MMMLL	MMMMMLM	MMMLL	H		threadleaf sedge
Carex geyeri	HHHMM	LMMLL	HHHMM	MHMMM	HHHMM	M	Geyer's sedge

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22.1 – Exhibit 01--Continued

GRASS AND GRASSLIKE

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
Carex heteroneura	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	M		different nerve sedge
Carex inops ssp. heliophila	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	L		sun sedge
Carex lanuginosa	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	H		woolly sedge
Carex microptera	HHHHM	MHHMM	HHHHM	MMMML	MHHMM	M	smallwing sedge
Carex nebrascensis	HHHHM	MMMMMM	HHHHM	MMMMMM	MHHMM	H	Nebraska sedge
Carex nigricans	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	H		black alpine sedge
Carex obtusata	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	M		obtuse sedge
Carex paysonis	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	M		Payson's sedge
Carex praegracilis	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	H		clustered field sedge
Carex raynoldsii	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	H		Raynolds' sedge
Carex rossii	MLLLL	LMMLL	LMLLL	LMLLL	MMMLL	H	Ross' sedge
Carex rostrata	LLMML	LMLLL	LMLLL	LMLLL	MMMLL	H	beaked sedge
Carex rupestris	MHHMM	MMMML	MMMMMMMMMMMM	MHHMM	M		curly sedge
Catabrosa aquatica	HHHHM	MMMMMM	HHHHM	MMMMMM	MMMMM		water whorlgrass
Cenchrus longispinus	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	mat sandbur
Dactylis glomerata	HHHHM	HHHHM	HHHHM	HHHHM	HHHHM	M	orchardgrass
Danthonia californica	MHHMM	MMMMMM	MMMMMM	MMMMMM	MHHMM	M	California oatgrass
Danthonia intermedia	HHHHL	MMMML	HHHHL	HHHHL	HHHHL	M	timber oatgrass
Danthonia parryi	MMMML	MMMML	MMMML	MMMML	HHHML	M	Parry's oatgrass
Danthonia unispicata	MMMML	MMMML	HHHML	MMMML	MMMML	M	onespike danthonia
Deschampsia cespitosa	HHHHM	MHHMM	HHHHM	MMMML	MHHMM	H	tufted hairgrass
Distichlis spicata	MMMML	LLLLL	MMMML	LLLLL	LLLLL	H	inland saltgrass
Echinochloa crus-galli	MMMLL	MMMML	MMMML	MMMLL	MMMLL	L	barnyardgrass
Eleocharis acicularis	MMMML	MMMML	MMMLL	MMMLL	MMMLL	H	needle spikerush
Eleocharis palustris	MMMML	MMMML	MMMLL	LMLLL	MMMLL	H	common spikerush
Elymus canadensis	MMMMMM	MMMLL	MHHMM	LMLLL	MMMLL	M	Canada wildrye
Elymus cinereus	HHMMH	MMMLL	HHLLM	MHHMM	HHHMM	H	basin wildrye
Elymus glaucus	MHMLM	MMMLL	HHMLM	MMMLM	HHMMH	H	blue wildrye
Elymus lanceolatus ssp. lanceolatus	MHHMM	MMMLL	HHMMH	MHLLM	MHHMM	H	streambank wheatgrass
Elymus scribneri	LMLLL	LMLLL	HHHHL	LMLLL	MMMLL	M	spreading wheatgrass
Elytrigia repens	MMMLL	LMLLL	MHHMM	MMMLM	HHHMM	H	quackgrass
Eragrostis cilianensis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	stinkgrass
Eragrostis trichodes	HHHHM	MMMML	HHHHM	MMMMML	LMML	M	sand lovegrass
Festuca arizonica	MHHMM	LMMLL	HHHHM	MMMLL	MMMLL	M	Arizona fescue
Festuca campestris	HHHHM	MHHMM	HHHHM	MMMLM	HHHMM	M	rough fescue
Festuca idahoensis	HHHHH	MHHMM	HHHHH	MHHMM	HHHMH	M	Idaho fescue
Festuca ovina	HHHHM	HHHHM	HHHHM	MHHMM	HHHMM	M	sheep fescue
Festuca rubra	HHHHM	MHMLM	HHHHM	MMMMMM	HHHMM	H	red fescue
Festuca thurberi	HHHHM	MMMLL	HHHHM	MMMLL	HHHMM	H	Thurber's fescue
Festuca viridula	HHHHM	HHHHM	HHHHM	MHHMM	HHHMM	H	greenleaf fescue
Glyceria elata	HHHHM	MLMML	HMHHM	LLLLL	HHHHM	H	fowl mannagrass
Glyceria grandis	HMHHM	MLMML	HMHHM	HMHHM	HHHHM	H	American mannagrass
Helictotrichon hookeri	H	M	H			M	spikeoat
Hilaria jamesii	HHHHM	MHHM	HHHHM	MMHHM	MMHHM	H	James' galleta
Hordeum brachyantherum	MMLLL	LMLLL	MHLLL	MHLLL	MMMLL	M	meadow barley
Hordeum jubatum	MHLML	LMLLL	MHLML	MHLML	MHLML	L	foxtail barley
Juncus balticus	MHHMM	LMLLL	MHLLL	LMLLL	LMLLL	H	Baltic rush
Juncus longistylis	MHHMM	LMLLL	MHLLL	LMLLL	LMLLL	H	longstyle rush
Juncus parryi	MHHMM	LMLLL	MHLLL	LMLLL	LMLLL	H	Parry's rush
Kobresia myosuroides	MMMML	MMMML	LLLLL	LMLLL	LMMLL	H	Bellardi bog sedge
Kobresia sibirica	MMMML	MMMML	MMMML	LLLLL	MMMML	M	Siberian bog sedge
Koeleria cristata	MHHMM	MHHMM	MHHMM	MHHMM	MHHMM	M	prairie Junegrass
Leersia oryzoides	MMMML	MMMLL	MMMML	MMMLL	MMMLL	L	rice cutgrass
Leymus salinus ssp. salinus	LMLLL	LLLLL	MMMLL	LLLLL	LLLLL	H	saline wildrye
Leymus simplex	MMMLL	LLLLL	MMMLL	LLLLL	MMMLM	M	alkali wildrye
Leymus triticoides	MMMLM	LLLLL	MMMLM	LMLLL	MMMLM	M	beardless wildrye
Lolium arundinaceum	HHHHM	MMMMMM	HHHHM	MMMLM	MHHMM	H	tall fescue
Lolium perenne	HHHHM	HHHHM	HHHHM	MMMLL	HHHHM	M	perennial ryegrass

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22.1 – Exhibit 01--Continued

GRASS AND GRASSLIKE

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSF	Sheep YSSF	Horse YSSF	MDeer YSSF	Elk YSSF	E W	
Melica bulbosa	HHHHM	MHMMM	HHHHH	MHMMM	MHHMM	M	oniongrass
Melica spectabilis	HHHHM	MHMMM	HHHHH	MHMMM	MHHMM	M	purple oniongrass
Monroa squarrosa	LMLLL	LMMLL	LMLLL	LMLLL	LMLLL	L	false buffalograss
Muhlenbergia asperifolia	M	M	M	M	M	L	scratchgrass
Muhlenbergia cuspidata	MMMLM	MMMLM	MMMLM	MMMLM	MMMLM	M	plains muhly
Muhlenbergia Montana	MHMMM	MMMMM	MHMMM	MMMMM	HHHMM	M	mountain muhly
Muhlenbergia porteri	HHHMH	MMMMM	HHHMH	MLMML	MLMML	M	bush muhly
Muhlenbergia pungens	M	M	M	L		L	sandhill muhly
Muhlenbergia racemosa	HHHMM	MMMLL	HHHMM	MMMLL	MMMLL	M	marsh muhly
Muhlenbergia richardsonis	MMMLL	LMLLL	MMMLL	MMMLL	MMMLL	M	mat muhly
Muhlenbergia torreyi	MMMLL	MLMML	MMMLL	MMMLL	MMMLL	M	ring muhly
Nassella viridula	HHHHM	MHMMM	HHHHM	MHMMM	HHHMH	M	green needlegrass
Oryzopsis hymenoides	HHHMH	HHHMH	HHHMH	MHMMH	MHMMH	H	Indian ricegrass
Panicum capillare	MMMLL	LMLLL	MMMLL	LMLLL	LMLLL	L	witchgrass
Panicum virgatum	MMMLL	LMLLL	MMMLL	LMLLL	LMLLL	M	switchgrass
Pennisetum glaucum	MMMLL	LMLLL	MMMLL	LMLLL	LMLLL	L	pearl millet
Phalaris arundinacea	MHMLL	MMMLL	MMMLL	MMMLL	MMMLL	H	reed canarygrass
Phleum alpinum	HHHHL	MHHML	HHHHM	MMMHM	MMMHM	M	alpine timothy
Phleum pretense	HHHHM	MMHHM	MMLLM	MMHHM	MMHHM	M	timothy
Piptatherum micranthum	HHHMH	MHMMH	HHHMH	MHMMH	MHMMH	M	littelseed ricegrass
Pleuraphis rigida	HHHML	MHMLL	HHHML	MHMLL	LMLLL	M	big galleta
Poa alpina	HHHHL	HHHHL	HHHHL	HHHHL	HHHHL	M	alpine bluegrass
Poa arida	MMMMM	MMMLL	MHMMM	MMMLL	MMMLL	M	plains bluegrass
Poa bulbosa	MHMLM	MHMLM	MHMLM	MHMLM	MHMLM	L	bulbous bluegrass
Poa compressa	HHHHM	HHHHM	HHHHM	HHHHM	HHHHM	M	Canada bluegrass
Poa fendleriana	HHHHM	HHHHM	HHHHM	MHMMM	HHHMM	M	muttongrass
Poa glauca	H	M	H	M	H	M	glaucous bluegrass
Poa nevadensis	HHHMH	MMMMM	HHHHM	MMMMM	HHHMM	M	Nevada bluegrass
Poa palustris	HHHMM	MMMMM	HHHHM	MMMMM	HHHMM	H	fowl bluegrass
Poa pratensis	HHHHH	HHHHM	HHHHM	HHHMH	HHHMH	H	Kentucky bluegrass
Poa reflexa	HHHMM	MHHML	HHHHM	MHMMM	HHHMM	M	nodding bluegrass
Poa secunda	MHLMM	MHLMM	MHLMM	MHLMM	MHLMM	M	Sandberg bluegrass
Poa wheeleri	HHMMM	MMMMM	HHHHM	MMMLL	HHHMM	M	Wheeler's bluegrass
Psathyrostachys juncea	HHMMH	HHMMH	HHMMH	HHMMH	HHMMH	M	Russian wildrye
Redfieldia flexuosa	MMMLL	LMLLL	MMMLL	LMLLL	LLLLL	H	blowout grass
Schizachyrium scoparium	HHHML	HHHML	HHHML	HHHML	HHHML	M	little bluestem
Schoenoplectus acutus var. acutus	MLMML	LLMML	LMMLL	LLLLL	LLLLL	M	hardstem bulrush
Schoenoplectus maritimus	MLMML	LLMML	LMMLL	LLLLL	LLLLL	M	cosmopolitan bulrush
Schoenoplectus pungens	MLMML	LLMML	LMMLL	LLLLL	LLLLL	M	common threesquare
Schoenoplectus tabernaemontani	MLMML	LLMML	LMMLL	LLLLL	LLLLL	M	softstem bulrush
Secale cereale	HHHML	MMMLL	HHHML	LMLLL	MMMLL	L	cereal rye
Setaria italica	MMMLL	LMLLL	MMMLL	LMLLL	LMLLL	M	foxtail bristlegrass
Setaria viridis	MMMLL	LMLLL	MMMLL	LMLLL	LMLLL	L	green bristlegrass
Sitanion hystrix	MHLLM	MHLLL	MHLLM	MHLLM	HHHMH	M	squirreltail
Sorghastrum nutans	HHHMM	HHHMM	HHHMM	LMLLL	LMLLL	M	Indiangrass
Sorghum bicolor	H	H	H		M	H	perennial sweet Sudan
Spartina gracilis	LMLLL	LLLLL	LMLLL	LLLLL	LLLLL	H	alkali cordgrass
Spartina pectinata	MMMLL	LMLLL	MMMLL	LMLLL	LMLLL	H	prairie cordgrass
Sporobolus airoides	MHMMM	MMMLL	HHHMM	LMLLL	MMMLL	H	alkali sacaton
Sporobolus contractus	MHMMML	LMMLL	MHMMML	MHMMML	MMMLL	H	spike dropseed
Sporobolus cryptandrus	MMMLL	MMMLL	MMMLL	MMMLL	MMMLL	M	sand dropseed
Sporobolus heterolepis	HHHHM	HHHHM	HHHHM	HHHHM	MMMMML	M	prairie dropseed
Stipa comata	HHMLH	MHLLM	HHMLH	MHLLM	MHLLM	M	needle and thread
Stipa lettermanii	MMMLL	MMMLL	MMMLL	MMMLL	MMMLL	M	Letterman's needlegrass
Stipa occidentalis	HHHML	MMMLL	HHHML	MMMLL	HHHML	M	western needlegrass
Stipa richardsonii	MMMLL	MMMLL	MHMLL	MMMLL	MHMMML	M	Richardson's needlegrass
Stipa thurberiana	MMMLM	MMMLM	HHHLM	MMMLM	MMMLM	M	Thurber's needlegrass
Taeniatherum caput-medusae	LML--	LLL--	LLL--	LLL--	LLL--	L	medusahead

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22.1 – Exhibit 01--Continued

GRASS AND GRASSLIKE

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
Thinopyrum intermedium	HHHMM	MHMMM	HHHHM	MHMLM	HHHMM	H	intermediate wheatgrass
Thinopyrum intermedium ssp. barbulatum	MHMMM	MMMMMM	MHMMM	MMLLM	HHHMM	H	pubescent wheatgrass
Thinopyrum ponticum	MMLLM	MMLLM	HHMMM	MMLLM	MHLLM	H	rush wheatgrass
Triglochin maritimum - P	LLMM	MMMMMLLLL		H	L	H	seaside arrowgrass
Triglochin palustre	M	M	L	L	L	H	marsh arrowgrass
Trisetum spicatum	HHHHM	MHMMM	HHHHM	MHMMM	HHHHM	L	spike trisetum
Vulpia octoflora var. octoflora	LML--	MMM--	LML--	MMM--	LML--	L	sixweeks fescue

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22.1 – Exhibit 01--Continued

FORBS	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
R4 Scientific Name							
Abronia fragrans	MMMLL	MMMLL	LLLLL	LLLLL	LLLLL	L	snowball sand verben
Achillea millefolium var. occidentalis	LMLLL	MMMML	LLLLL	MMMML	MMMLL	M	western yarrow
Aconitum columbianum - P	LLLLL	MMMLL	LLLLL	MMMLL	LLLLL	M	Columbian monkshood
Acroptilon repens	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	Russian knapweed
Actaea rubra	LLLLL	LMMLL	LLLLL	LMMLL	LMMLL	M	red baneberry
Agastache urticifolia	MMMML	HHHHL	MMMML	LLMML	LLMLL	M	nettleleaf giant hyssop
Agoseris glauca	HHHM-	HHHM-	MMML-	HHHM-	HHHM-	L	pale agoseris
Alisma plantago-aquatica	L	L	L	L	L	L	American waterplantain
Allium acuminatum	MHL--	MHL--	MHL--	MHL--	MHL--	L	tapertip onion
Allium brevistylum	MHL--	MHL--	MHL--	MHL--	MHL--	L	shortstyle onion
Allium cernuum	MHL--	MHL--	MHL--	MHL--	MHL--	L	nodding onion
Allium nevadense	MHL--	MHL--	MHL--	MHL--	MHL--	L	Nevada onion
Allium textile	MHL--	HHM--	LML--	MHL--	MHL--	L	textile onion
Amaranthus blitoides	LLLL-	MMML-	LLLL-	MMML-	LMML-	M	mat amaranth
Amaranthus retroflexus	MMML-	HHMM-	MMML-	HHHM-	MMML-	L	redroot amaranth
Ambrosia artemisiifolia	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	annual ragweed
Ambrosia psilostachya	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Cuman ragweed
Anaphalis margaritacea	LLLLL	LLLLL	LMMLL	LLLLL	LLLLL	M	western pearly everlasting
Antennaria dimorpha	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	low pussytoes
Antennaria media	LLLLL	MMMLL	LLLLL	MMMLL	LLLLL	M	Rocky Mountain pussytoes
Antennaria microphylla	LLLLL	MMMLL	LLLLL	MMMLL	LLLLL	H	littleleaf pussytoes
Antennaria parvifolia	LLLLL	MMMLL	LLLLL	MMMLL	LLLLL	H	small-leaf pussytoes
Apocynum cannabinum – P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Indianhemp
Aquilegia	LLLLL	LMMLL	LLLLL	LMMLL	LMMLL	M	columbine
Arabis drummondii	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	L	Drummond's rockcress
Arenaria congesta	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	ballhead sandwort
Arenaria fendleri	LLLLL	MMMLL	LLLLL	LMMLL	LLLLL	L	Fendler's sandwort
Arenaria hookeri	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	Hooker's sandwort
Arenaria obtusiloba	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	twinflower sandwort
Argentina anserina	MLMML	MLMML	LMMLL	MLMML	MLMML	M	silverweed cinquefoil
Artemisia dracunculus	M	H	LLLLL	H	M	H	tarragon
Artemisia ludoviciana	LLLLL	HHHML	LLLLL	MMMLL	MMMLL	M	Louisiana sagewort
Artemisia scopulorum	LLLLL	MLMMM	LLLLL	MLMMM	MLMMM	M	alpine sagebrush
Asclepias labriformis – P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	Utah milkweed
Asclepias speciosa – P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	showy milkweed
Asclepias subverticillata - P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	horsetail milkweed
Aster engelmannii	MMMML	HHHML	MMMLL	HHHML	HHHML	H	Engelmann's aster
Astragalus beckwithii	LMLL-	MMMMM-	LLLL-	MMMMM-	LMLL-	L	Beckwith's milkvetch
Astragalus bisulcatus - P	LLLL-	LMLL-	LLLL-	LMLL-	LLLL-	L	twogrooved milkvetch
Astragalus cibarius	LLLL-	MMML-	LLLL-	MMML-	MMML-	L	browse milkvetch
Astragalus cicer	LMLL-	MMMM-	LMLL-	HHHM-	MMMM-	H	cicer milkvetch
Astragalus convallarius – P	LLLL-	LMML-	LLLL-	MMML-	MMML-	L	lesser rushy milkvetch
Astragalus crassicaupus	MML--	HHM--	MML--	LLL--	LLL--	M	groundplum milkvetch
Astragalus drummondii	LLL--	MML--	LLL--	LLL--	LLL--	M	Drummond's milkvetch
Astragalus flexuosus	MML--	MML--	MML--	MML--	LLL--	L	flexile milkvetch
Astragalus laxmannii var. robustior	MHML-	MHML-	LMLL-	MMML-	MMML-	M	prairie milkvetch
Astragalus miser - P	LLL--	LML--	LLL--	MMM--	LLL--	L	timber milkvetch
Astragalus missouriensis	LLL--	MML--	LLL--	LLL--	LLL--	L	Missouri milkvetch
Astragalus mollissimus - P	LLL--	LML--	LLL--	MMM--	LLL--	L	woolly locoweed
Astragalus nelsonianus - P	LLL--	LML--	LLL--	MMM--	LLL--	M	Nelson's milkvetch
Astragalus purshii	LLLL-	LMLL-	LLLL-	MMML-	LLLL-	L	woollypod milkvetch
Astragalus spatulatus	LLLL-	LMLL-	LLLL-	LLLL-	LLLL-	L	tufted milkvetch
Atriplex argentea	MLLMM	MMMMML	LLLLM	LLLLM	LLLLM	L	silverscale saltbush
Balsamorhiza hookeri	MMMML	MHMLL	MMMML	HHHHM	MLLMH	M	Hooker's balsamroot
Balsamorhiza incana	MMMLL	MMHMM	HHHHM	HHHHM	MLLMH	L	hoary balsamroot
Balsamorhiza macrophylla	MMMLL	MMMLL	LMMLL	MHMLL	MLLMH	M	cutleaf balsamroot
Balsamorhiza sagittata	MHMLL	HHHHM	MHMLH	HHHHM	HHHHM	M	arrowleaf balsamroot

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CHAPTER 20 – RANGELAND ANALYSIS**

22.1 – Exhibit 01--Continued

FORBS

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSF	Sheep YSSF	Horse YSSF	MDeer YSSF	Elk YSSF	E W	
Bassia hyssopifolia	MMMLL	MHMMM	MMMLL	MMMMMMMMMLL	M		fivehorn smotherweed
Brassica nigra	MMMLL	HHHML	LMLLL	MMMMMMMMMLL	M		black mustard
Brickellia eupatorioides	LLLLL	MMMLL	LLLLL	MMMLL	LLLLL	M	false boneset
Calochortus nuttallii	HHHM-	HHHM-	MHMM-	HHHM-	MHMM-	L	sego lily
Caltha leptosepala	MMMLL	MMMLL	LLLLL	HMHML	MMHML	M	white marsh marigold
Camassia quamash	LMML-	MHHM-	LLLL-	MHMM-	MMML-	L	small camas
Campanula rotundifolia	MMMLL	MHHHM	LMLLL	MMMMML	LMMLL	L	bluebell bellflower
Capsella bursa-pastoris	LLLLL	MMMMMLLLL	MMMMML	LMMLL	L		shepherd's purse
Cardaria draba	LLLLL	MMMLL	LLLLL	LMMLL	LMMLL	M	hoary cress
Carduus nutans	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	nodding plumeless thistle
Castilleja angustifolia	LMLLL	MMML	LLLLL	MMMMML	LMMLL	M	northwestern Indian paintbrush
Castilleja applegatei ssp. martinii	LMLLL	MMMMML	LLLLL	MMMMML	LMMLL	M	wavyleaf Indian paintbrush
Castilleja flava	MMMMML	MMMMML	LLLLL	MMMMML	LMMLL	M	yellow Indian paintbrush
Castilleja integra	MMMMML	MMMMML	MMMMML	MMMMML	LMMLL	M	wholeleaf Indian paintbrush
Castilleja linariifolia	MMMMML	MMMMML	LLLLL	MMMMML	MMMMML	M	Wyoming Indian paintbrush
Castilleja miniata	LMLLL	LLLLL	LLLLL	MMMMML	MMMMML	M	giant red Indian paintbrush
Castilleja occidentalis	MMMMML	HHHHL	LLLLL	HHHHL	MMMMML	M	western Indian paintbrush
Castilleja sulphurea	LLLLL	MMMMML	LLLLL	MMMMML	MMMMML	M	sulphur Indian paintbrush
Centaurea maculosa	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	spotted knapweed
Cerastium arvense	LLLLL	MMMMML	LLLLL	LMMLL	LMMLL	L	field chickweed
Ceratophyllum demersum	L	L	L	L	L	L	coon's tail
Chaenactis douglasii	LLLLL	LMLLL	LLLLL	LMLLL	LLLLL	L	Douglas' dustymaiden
Chaetopappa ericoides	L	M	L	L	L	L	rose heath
Chenopodium album	MMM--	HHM--	MMM--	HHMM-	MMM--	L	lambquarters
Chenopodium leptophyllum	LML--	MMM--	MMM--	HHM--	MMM--	L	narrowleaf goosefoot
Chenopodium rubrum	LML--	MMM--	mmm--	hmm--	mmm--	L	red goosefoot
Chorispora tenella	LMLL-	MMML-	MMML-	MMML-	MMML-	L	crossflower
Cicuta douglasii - P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	western water hemlock
Cirsium arvense	LLLLL	LMLLL	LLMM	LLLLL	LLLLL	H	Canada thistle
Cirsium foliosum	LLLLL	LMLLL	LLMM	LLLLL	LLLLL	L	elk thistle
Cirsium tioganum var. coloradense	LLLLL	LMLLL	LLMM	LLLLL	LLLLL	M	Colorado thistle
Cirsium undulatum	LLLLL	LMLLL	LLMM	LLLLL	LLLLL	L	wavyleaf thistle
Cirsium vulgare	LLLLL	LMLLL	MLMMM	LLLLL	LLLLL	L	bull thistle
Clematis hirsutissima	LMLLL	MMMMML	LLLLL	MMMMML	LMLLL	M	hairy clematis
Cleome lutea	LLL--	MMM--	LLL--	MMM--	LML--	L	yellow spiderflower
Cleome serrulata	LLL--	MMM--	LLL--	MMM--	LML--	L	Rocky Mountain beeplant
Comandra umbellata	LLLLL	MMMLL	LLLLL	MMMLL	LMMLL	M	bastard toadflax
Conium maculatum - P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	poison hemlock
Convolvulus arvensis	MHMLL	HHHHM	MMMMMM	HHHHM	HHHHM	M	field bindweed
Conyza canadensis	LLLLL	LMMLL	LLLLL	LMMLL	LMMLL	L	Canadian horseweed
Corydalis aurea	LMLL-	MMML-	LLLL-	LMLL-	LMLL-	L	scrambled eggs
Corydalis caseana	LMLL-	MMML-	LLLL-	LMLL-	LMLL-	L	Sierra fumewort
Crepis acuminata	MHMLL	HHHMM	LMMLL	HHHMM	HHHMM	L	tapertip hawksbeard
Crepis intermedia	MHMLL	HHHMM	LMMLL	HHHMM	HHHMM	L	limestone hawksbeard
Crepis modocensis	MHMLL	HHHMM	LMMLL	HHHMM	HHHMM	L	Modoc hawksbeard
Crepis occidentalis	MHMLL	MHMLL	MHMLL	MHMLL	MHMLL	M	largeflower
Crepis runcinata	MHMLL	MHMLL	MHMLL	MHMLL	MHMLL	L	fiddleleaf hawksbeard
Croton texensis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Texas croton
Cryptantha celosioides	LLL--	MMM--	MML--	MMM--	MMM--	L	buttecandle
Cryptantha humilis	LLL--	MMM--	MML--	MMM--	MMM--	L	roundspike cryptantha
Cryptantha sericea	LLL--	MMM--	MML--	MMM--	MMM--	L	silky cryptantha
Cymopterus acaulis	LLL--	LML--	LLL--	LML--	LML--	L	plains springparsley
Cymopterus purpurascens	LLL--	LML--	LLL--	LML--	LML--	L	widewing springparsley
Cynoglossum officinale	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	gypsyflower
Dalea enneandra	M	M	M			M	nineanther prairie clover
Dalea purpurea	H	H	H			M	violet prairie clover

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CHAPTER 20 – RANGELAND ANALYSIS

22.1 – Exhibit 01--Continued

FORBS	Resource Value Ratings						R4 Common Name
	Cattle YSSF	Sheep YSSF	Horse YSSF	MDeer YSSF	Elk YSSF	E W	
R4 Scientific Name	YSSF	YSSF	YSSF	YSSF	YSSF	W	R4 Common Name
Delphinium geyeri - P	LLLL	MMML	LLLL	LLLL	LLLL	L	Geyer's larkspur
Delphinium nuttallianum - P	LLLL	MMML	LLLL	LLLL	LLLL	L	twolobe larkspur
Descurainia pinnata	LML--	MMM--	LLL--	LML--	LML--	L	western tansymustard
Dipsacus fullonum ssp. sylvestris	LLLL	LLLL	LLLL	LLLL	LLLL	L	Fuller's teasel
Dodecatheon pulchellum	MMML-	HHHM-	MLLL-	MHMM-	MMMM-	L	darkthroat shootingstar
Dyssodia papposa	LLL--	LLL--	LLL--	LLL--	LLL--	L	fetid marigold
Epilobium angustifolium	LMLLL	MMML	LLLL	HHHML	HHHML	M	fireweed
Equisetum arvense	LLLL	LLLL	LLLL	LLLL	LMMLL	H	field horsetail
Equisetum hyemale	LLLL	LLLL	LLLL	LLLL	LLLL	H	scouringrush horsetail
Equisetum laevigatum	LLLL	LLLL	LLLL	LLLL	LLLL	H	smooth horsetail
Erigeron argentatus	MMMLL	HHHMM	LLLL	HHHMM	MMMLL	L	silver fleabane
Erigeron engelmannii	MMMML	HHHMM	LLLL	HHHMM	MMMLL	M	Engelmann's fleabane
Erigeron pumilus	MMMML	HHHMM	LLLL	HHHMM	MMMLL	L	shaggy fleabane
Erigeron simplex	MMMML	HHHMM	LLLL	HHHMM	MMMLL	L	onestem fleabane
Erigeron speciosus var. macranthus	MMMML	HHHMM	LLLL	HHHMM	MMMLL	M	aspen fleabane
Eriogonum alatum	LLLL	LMMLL	LLLL	MMMLL	LMMLL	M	winged buckwheat
Eriogonum cernuum	LLLL	LMMLL	LLLL	MMMLL	LMMLL	L	nodding buckwheat
Eriogonum contortum	LLLL	LMMLL	LLLL	MMMLL	LMMLL	L	grand buckwheat
Eriogonum flavum	LLLL	LMMLL	LLLL	HHHML	MMHML	L	alpine golden buckwheat
Eriogonum inflatum	LLL--	MML--	LLL--	LLL--	LML--	L	desert trumpet
Eriogonum ovalifolium	LLLL	MMMLL	LLLL	MMMLL	LLLLM	M	cushion buckwheat
Eriogonum racemosum	LLLL	LMMLL	LLLL	MMMLL	MMMLL	L	redroot buckwheat
Eriogonum umbellatum	LLLL	MMMLL	LLLL	MMMLL	LLLLM	M	sulphur-flower buckwheat
Erodium cicutarium	MHM--	HHH--	MHM--	HHH--	HHH--	L	redstem stork's bill
Erysimum capitatum var. capitatum	MMML-	MHMM-	LLL-	MHMM-	MMMM-	L	sanddune wallflower
Erythronium grandiflorum	LLL--	MHM--	LLL--	MHM--	MHM--	L	yellow avalanche-lily
Euphorbia esula	LLLL	LMMLL	LLLL	LMMLL	LMMLL	H	leafy spurge
Euthamia occidentalis	LMMLL	LMMLL	LMMLL	LMMLL	LMMLL	L	western goldentop
Fragaria vesca ssp. bracteata	LLLL	MMMMMLLLL	MMMMMMMMMMMM	MMMMMMMMMMMM	MMMMMMMMMMMM		woodland strawberry
Fragaria virginiana	LLLL	MMMMMLLLL	MMMMMMMMMMMM	MMMMMMMMMMMM	MMMMMMMMMMMM		Virginia strawberry
Frasera montana	LMMLL	MMMML	LLLL	MMMMMMMMMMMM	MMMMMMMMMMMM		white frasera
Frasera speciosa	LMMLL	MMMML	LLLL	MMMMMMMMMMMM	MMMMMMMMMMMM		elkweed
Fritillaria atropurpurea	LML--	MHM--	LLL--	MHM--	MMM--	L	spotted fritillary
Fritillaria pudica	LML--	MHM--	LLL--	MHM--	MMM--	L	yellow fritillary
Gaillardia aristata	LLLL	MMMML	LLLL	MMMML	LMMLL	M	common gaillardia
Galium boreale	LLLL	MMMLL	LLLL	MMMLL	MMMLL	M	northern bedstraw
Gaura coccinea	LLLL	LMMLL	LLLL	LMMLL	LMMLL	L	scarlet beeblossom
Gentiana affinis	LLL--	MML--	LLL--	MML--	MML--	L	pleated gentian
Geranium caespitosum var. fremontii	LLLL	MMMLL	LLLL	HHHML	MMHML	M	Fremont's geranium
Geranium viscosissimum	LLLL	MMMLL	LLLL	MHMLL	MMHML	M	sticky geranium
Geum rossii var. turbinatum	LLLL	MMMLL	LLLL	MMMLL	MMMLL	L	Ross' avens
Geum triflorum	LLLL	LMMLL	LLLL	MMMLL	MMMLL	L	old man's whiskers
Glycyrrhiza lepidota	LLLL	LLLL	LLLL	LLLL	LLLL	M	American licorice
Halogeton glomeratus - P	LLL--	MMM--	LLL--	LLL--	LLL--	L	saltlover
Hedysarum boreale	HHHHH	HHHHH	HHHHH	HHHHH	HHHHH	H	boreal sweetvetch
Helenium autumnale	LLLL	LLLL	LLLL	LLLL	LLLL	L	common sneezeweed
Helianthella quinquenervis	MMMLL	HHHML	MMMLL	MMMLL	MMMLL	M	fiveerve helianthella
Helianthella uniflora	LMMLL	HHHMM	LMMLL	MMHML	MMMLL	M	oneflower helianthella
Helianthus annuus	LLLL	MMMML	LLLL	MMMML	MMMML	L	common sunflower
Helianthus maximiliani	LLLL	MMMLL	LLLL	MMMML	MMMML	M	Maximilian sunflower
Helianthus petiolaris	LMMLL	MMMLL	LMMLL	MMMLL	MMMLL	L	prairie sunflower
Heracleum lanatum	HHHHM	HHHHM	HHHHM	HHHHM	HHHHM	M	common cowparsnip
Heterotheca villosa	LLLL	MMMLL	LLLL	MMMLL	MMMLL	M	hairy false goldenaster
Hieracium cynoglossoides	MMHHL	HHHHL	MMHML	HHHML	MHHML	L	houndstongue hawkweed
Hydrophyllum capitatum	MMM--	HHH--	MMM--	HHH--	HHH--	L	ballhead waterleaf
Hymenopappus filifolius	LLLL	MMMLL	LLLL	MMMLL	LMMLL	L	fineleaf hymenopappus
Hypericum perforatum - P	LLLL	LMMLL	LLLL	LLLL	LLLL	M	St. Johnswort
Ipomopsis aggregata ssp. aggregata	LLLL	MMMLL	LLLL	MMMLL	MMMLL	L	scarlet gilia

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22.1 – Exhibit 01--Continued

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R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
Ipomopsis congesta ssp. congesta	LLLLL	LMMLL	LLLLL	LMMLL	LMMLL	L	ballhead ipomopsis
Ipomopsis pumila	LLLLL	MMMLL	LLLLL	MMMLL	LMMLL	L	dwarf ipomopsis
Ipomopsis spicata ssp. spicata	LLLLL	MMMLL	LLLLL	MMMLL	LMMLL	L	spiked ipomopsis
Iris missouriensis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	H	Rocky Mountain iris
Isatis tinctoria	LMML-	LMML-	LLLL-	LMML-	LMML-	L	Dyer's woad
Iva acerosa	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	copperweed
Iva axillaris	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	H	povertyweed
Iva xanthifolia	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	H	giant sumpweed
Kochia scoparia	HHHHH	HHHHH	MMMMM	HHHHH	MMMHM	L	Mexican-fireweed
Lactuca serriola	MMHML	HHHHM	MHHML	HHHML	HHHML	L	prickly lettuce
Lactuca tatarica var. pulchella	MMHML	HHHML	HHHML	HHHML	MHHML	L	blue lettuce
Lappula occidentalis var. occidentalis	LLLL-	LMML-	LLLL-	LMML-	LLLL-	L	flatspine stickseed
Lappula squarrosa	LLLL-	LMML-	LLLL-	LMML-	LLLL-	L	European stickseed
Lathyrus lanszwertii var. leucanthus	HMHHM	HMHHM	MMMMM	HMHHM	HMHHM	M	Nevada pea
Lathyrus ochroleucus	HMHHM	HMHHM	MMMMM	HMHHM	HMHHM	M	cream pea
Lemna minor	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	common duckweed
Lemna trisulca	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	star duckweed
Lepidium densiflorum	LLLL-	LMML-	LLLL-	LMML-	LMML-	L	common pepperweed
Lepidium perfoliatum	LLLL-	LMML-	LLLL-	LMML-	LMML-	L	clasping pepperweed
Leucocrinum montanum	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	common starlily
Lewisia rediviva	LLLLL	MMMLL	LLLLL	LMMLL	LLLLL	L	bitter root
Liatris punctata	LLLLL	MMMMM	LLLLL	MMMMM	MMMMM	M	dotted blazing star
Ligusticum porteri	MMMML	MHHML	MMMML	HHHHL	HHHHL	M	Porter's licorice-root
Linaria genistifolia	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	H	Dalmatian toadflax
Linaria vulgaris	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	H	yellow toadflax
Linum lewisii	MMMLL	MHMLL	MHMLL	MHMLL	MHMLL	M	prairie flax
Linum rigidum	LLL--	LML--	LLL--	MML--	MMM--	L	stiffstem flax
Lithospermum ruderales	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	western stoneseed
Lomatium dissectum	MML--	MML--	MHL--	MML--	MML--	M	fernleaf biscuitroot
Lomatium foeniculaceum	MML--	MML--	LLL--	MML--	MML--	M	desert biscuitroot
Lomatium grayi	MML--	MML--	LLL--	MML--	MML--	M	Gray's biscuitroot
Lomatium triternatum	MML--	MML--	LLL--	MML--	MML--	M	nineleaf biscuitroot
Lotus corniculatus	HHHMH	HHHMH	MMMLM	HHHMH	HHHMH	M	birdfoot deerwort
Lupinus X alpestris	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	Great Basin lupine
Lupinus argenteus - P	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	silvery lupine
Lupinus caudatus - P	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	tailcup lupine
Lupinus leucophyllus - P	MMMLL	MMMLL	LLLLL	MMMLL	MMMLL	M	velvet lupine
Lupinus pusillus	MMMLL	MMMLL	MMMLL	MMMLL	MMMLL	L	rusty lupine
Lupinus sericeus - P	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	silky lupine
Lygodesmia juncea	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	rush skeletonplant
Machaeranthera bigelovii	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Bigelow's tansyaster
Machaeranthera canescens	LLLLL	MMMLL	LLLLL	MMMLL	LLLLL	M	hoary tansyaster
Machaeranthera grindelioides	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	M	rayless tansyaster
Machaeranthera tanacetifolia	LLLLL	LMMLL	LLLLL	LLLLL	LLLLL	L	tanseyleaf tansyaster
Madia glomerata	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	mountain tarweed
Maianthemum racemosum	LLLLL	LMMLL	LLLLL	MHMLL	MMMLL	M	feathery false lily of the valley
Malcolmia Africana	LLLLL	LMMLL	LLLLL	LLLLL	LLLLL	L	African mustard
Medicago lupulina	HHHHH	HHHHH	MMMMM	HHHHH	MMMMM	H	black medick
Medicago sativa	HHHHH	HHHHH	HHHHH	HHHHH	HHHHH	H	alfalfa
Melilotus alba	HHHHL	HHHHL	HHHHL	HHHHL	HHHHL	M	white sweetclover
Melilotus officinalis	HHHML	HHHML	HHHML	HHHML	HHHML	M	yellow sweetclover
Mentzelia albicaulis	LLL--	MMM--	LLL--	MMM--	MMM--	L	whitestem blazingstar
Mentzelia decapetala	LLL--	MMM--	LLL--	MMM--	MMM--	L	tenpetal blazingstar
Mertensia ciliata	LMMLL	HHHHL	MMMLL	HHHHL	HHHHL	M	tall fringed bluebells
Mertensia lanceolata	MMMLL	MMMLL	MMMLL	HHHHL	MMMLL	M	prairie bluebells
Mertensia oblongifolia	MMMLL	HHHHL	MMMLL	HHHHL	HHHHL	M	oblongleaf bluebells
Musineon divaricatum	LLL--	MMM--	LLL--	MMM--	LML--	L	leafy wildparsley

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22.1 – Exhibit 01--Continued

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R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
Myosotis sylvatica	LLLLL	MMMLL	LLLLL	MMMLL	M	L	woodland forget-me-not
Oenothera caespitosa	LLL--	MMM--	LLL--	MMM--	LLL--	L	tufted evening-primrose
Oenothera coronopifolia	MMM--	MMM--	MMM--	MMM--	LLL--	L	crownleaf evening-primrose
Onobrychis viciifolia	HHHMM	HHHMM	HHHMM	HHHMM	HHHMM	M	sainfoin
Osmorhiza occidentalis	MHMMML	HHHML	MMMLL	HHHML	HHHML	M	western sweetroot
Oxyria digyna	LLLLL	MMMLL	LLLLL	MMMLL	LLLLL	M	alpine mountainsorrel
Oxytropis lambertii - P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	purple locoweed
Oxytropis sericea - P	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	white locoweed
Packera cana	LLL--	MMM--	LLL--	HHM--	MML--	L	woolly groundsel
Packera multilobata	LLL--	MMM--	LLL--	MMM--	MML--	L	lobeleaf groundsel
Packera plattensis	MMM--	MMM--	MMM--	MMM--	MMM--	L	prairie groundsel
Pedicularis bracteosa	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	bracted lousewort
Pedicularis groenlandica	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	elephanthead lousewort
Penstemon albidus	MMMLL	MMMLL	LLLLL	MMMLL	LMMLL	L	white penstemon
Penstemon caespitosus	LMMLL	MMMLL	LLLLL	LMMLL	LMMLL	L	mat penstemon
Penstemon cyananthus	LMMLL	MMMLL	LLLLL	LMMLL	LMMLL	L	Wasatch beardtongue
Penstemon eatonii	MMMLL	MMMLL	LLLLL	HHHML	LMMLL	M	Eaton's penstemon
Penstemon eriantherus	MMMLL	MMMLL	LMMLL	MMMLL	LMMLL	L	fuzzytongue penstemon
Penstemon fremontii	LMMLL	MMMLL	LLLLL	MMMLL	LMMLL	L	Fremont's beardtongue
Penstemon laricifolius	MMMLL	MMMLL	LMMLL	MMMLL	LMMLL	L	larchleaf beardtongue
Penstemon nitidus	LMMLL	MMMLL	LLLLL	MMMLL	LMMLL	L	waxleaf penstemon
Penstemon palmeri	MMMLL	MMMLL	LLLLL	MMMLL	LMMLL	M	Palmer's penstemon
Penstemon strictus	LMMLL	MMMLL	LLLLL	MMMLL	LMMLL	M	Rocky Mountain penstemon
Penstemon whippleanus	LMMLL	MMMLL	LLLLL	MMMLL	LMMLL	M	Whipple's penstemon
Phacelia hastata	LLLLL	MHMLL	LLLLL	MHMLL	MMMLL	L	silverleaf phacelia
Phacelia sericea	LLLLL	MHMLL	LLLLL	MHMLL	MMMLL	M	silky phacelia
Phlox hoodii	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	M	spiny phlox
Phlox hoodii ssp. muscoides	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	musk phlox
Phlox longifolia	LMMLL	LMMLL	LLLLL	LMMLL	LMMLL	L	longleaf phlox
Phlox multiflora	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	M	flowery phlox
Plantago patagonica	LMML-	HHHM-	LMML-	MMMM-	MMMM-	L	woolly plantain
Polemonium foliosissimum	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	towering Jacob's-ladder
Polygonum amphibium	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	water knotweed
Polygonum aviculare	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	prostrate knotweed
Polygonum bistortoides	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	M	American bistort
Polygonum douglasii	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	Douglas' knotweed
Polygonum lapathifolium	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	curlytop knotweed
Polygonum persicaria	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	spotted ladythumb
Polygonum ramosissimum	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	bushy knotweed
Potamogeton crispus	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	curly pondweed
Potamogeton foliosus	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	leafy pondweed
Potamogeton nodosus	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	longleaf pondweed
Potamogeton pusillus	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	small pondweed
Potamogeton richardsonii	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	Richardson's pondweed
Potentilla gracilis	LLML	MLMML	LLML	MLMML	MLMML	L	slender cinquefoil
Pseudostellaria jamesiana	MMMLL	HHHML	MMMLL	MHMLL	MMMLL	M	tuber starwort
Psoraleidium tenuiflorum	LLLLL	LMMLL	LLLLL	LMMLL	LLLLL	L	slimflower scurfpea
Pulsatilla patens ssp. multifida	MMMLL	MMMLL	LLLLL	MMMLL	LLLLL	L	cutleaf anemone
Ranunculus aquatilis	LLL--	LLL--	LLL--	LLL--	LLL--	L	whitewater crowfoot
Ranunculus cymbalaria	LLL--	MMM--	LLL--	MMM--	MMM--	L	alkali buttercup
Ranunculus eschscholtzii	LLL--	LLL--	LLL--	MMM--	MMM--	L	Eschscholtz's buttercup
Ranunculus glaberrimus	MML--	MML--	LLL--	MMM--	MMM--	L	sagebrush buttercup
Ratibida columnifera	LMMLL	MMMLL	LLLLL	MMMLL	LMMLL	M	upright prairie coneflower
Potentilla glandulosa ssp. glabrata	LLML	MLMML	LLML	MLMML	MLMML	L	sticky cinquefoil
Rudbeckia laciniata	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	cutleaf coneflower
Rudbeckia occidentalis	LLLLL	MMMLL	LLLLL	LLLLL	LLLLL	M	western coneflower
Rumex acetosella	LLLLL	MMMLL	LLLLL	MMMLL	MMMLL	M	common sheep sorrel
Rumex crispus	LMMLL	MMMLL	LLLLL	MMMLL	MMMLL	M	curly dock

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CHAPTER 20 – RANGELAND ANALYSIS

22.1 – Exhibit 01--Continued

FORBS	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
R4 Scientific Name							
Rumex venosus	LMLLL	MMMML	LLLLL	LMMML	LMMML	L	veiny dock
Ruppia maritime	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	widgeongrass
Sagittaria cuneata	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	arrowleaf arrowhead
Salicornia maritima	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	slender grasswort
Salsola tragus	LMLLL	MHMLM	LLLLL	MMLLM	MMLLM	L	prickly Russian thistle
Sarcocornia utahensis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	Utah swampfire
Sedum lanceolatum	LMLLL	LMLLL	LMLLL	LMLLL	LMLLL	M	spearleaf stonecrop
Selaginella densa var. densa	LLLLL	LLLLL	LLLLL	LMLLL	LMLLL	M	lesser spikemoss
Senecio amplexans	LMLLL	LMLLL	LLLLL	LMLLL	LMLLL	M	showy alpine ragwort
Senecio crassulus	LLL--	MMM--	LLL--	HHM--	HHM--	L	thickleaf ragwort
Senecio integriramus - P	LML--	HHM--	LLL--	HHM--	HHM--	L	lambstongue ragwort
Senecio riddellii	LLL--	MMM--	LLL--	MMM--	MMM--	M	Riddell's ragwort
Senecio serra	LMLLL	MHMLL	LMLLL	MHMLL	MHMLL	M	tall ragwort
Senecio triangularis	LLL--	MMM--	LLL--	HHM--	HHM--	M	arrowleaf ragwort
Sibbaldia procumbens	LLLLL	MMMML	LLLLL	MMMML	MMMML	M	creeping sibbaldia
Silene acaulis	LLLLL	MMMML	LLLLL	MMMML	MMMML	M	moss campion
Sisymbrium altissimum	LL---	MM---	LL---	MM---	MM---	L	tall tumbledustard
Smilacina stellata	LLLLL	MMMML	LLLLL	MHMLL	MMMML	M	starry false lily of the valley
Solanum rostratum	LLLLL	MMMML	LLLLL	LLLLL	LLLLL	L	buffalobur
Solidago canadensis	LLLLL	LMLLL	LLLLL	MLMMM	LLLLL	H	Canada goldenrod
Solidago gigantea	MMMML	MMMML	MMMML	LMLLL	LMLLL	M	giant goldenrod
Solidago missouriensis	LMLLL	LMLLL	LMLLL	LMLLL	LMLLL	H	Missouri goldenrod
Solidago mollis	LMLLL	LMLLL	LMLLL	LMLLL	LMLLL	M	velvety goldenrod
Sonchus arvensis	LLLL-	LMLL-	LLLL-	MMLL-	LMLL-	L	field sowthistle
Sparganium eurycarpum	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	broadfruit bur-reed
Sphaeralcea ambigua	LLLLL	LMLLL	LLLLL	MMMML	MMMML	M	desert globemallow
Sphaeralcea coccinea	MMMML	MMMML	LMLLL	MMMML	MMMML	M	scarlet globemallow
Sphaeralcea grossulariifolia	MMMML	MHMLL	LMLLL	MHMLL	MMMML	M	gooseberryleaf globemallow
Sphaeralcea munroana	MMMML	MHMLL	LMLLL	MHMLL	MMMML	M	Munro's globemallow
Stanleya pinnata	LMLLL	MMMML	LLLLL	LMLLL	LLLLL	L	desert princesplume
Stellaria media	MM---	HH---	MM---	HH---		L	common chickweed
Stenotus acaulis var. acaulis	LLLLL	MLLMM	LLLLL	MLLMM	MLLMM	M	stemless mock goldenweed
Stuckenia filiformis	LLLLL	LLMLL	LLLLL	LLMLL	LLLLL	L	fineleaf pondweed
Stuckenia pectinatus	LLLLL	LLMLL	LLLLL	LLMLL	LLLLL	L	sago pondweed
Suaeda calceoliformis	LLLLL	MMMML	LLLLL	LMLLL	LLLLL	L	Pursh seepweed
Suaeda moquinii	LLLLL	MMMML	LLLLL	LMLLL	LLLLL	L	Mojave seablite
Symphyotrichum ascendens	MMMML	MHMLL	LMLLL	MMMML	MMMML	H	western aster
Symphyotrichum ericoides var. pansum	MMMML	MHMLL	LMLLL	MMMML	MMMML	M	manyflowered aster
Symphyotrichum foliaceum var. canbyi	MMMML	MLMML	LMLLL	MLMML	MLMML	H	Canby's aster
Taraxacum officinale	HHHHH	HHHHH	HHHHH	HHHHH	HHHHH	L	common dandelion
Tetaneuris acaulis var. acaulis	LLLLL	MMMML	LLLLL	MMMML	LMLLL	M	stemless four-nerve daisy
Tetaneuris grandiflora	LLLLL	MMMML	LLLLL	MMMML	LMLLL	M	graylocks four-nerve daisy
Thalictrum fendleri	LLLLL	MMMML	LLLLL	MMMML	HHHLL	L	Fendler's meadow-rue
Thalictrum occidentale	LLLLL	MMMML	LLLLL	MMMML	HHHLL	L	western meadow-rue
Thalictrum venulosum	LLLLL	MMMML	LLLLL	MMMML	MMMML	M	veiny meadow-rue
Thermopsis montana	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	mountain goldenbanner
Thlaspi arvense	LLL--	MML--	LLL--	MML--	LLL--	L	field pennycress
Thlaspi montanum	LLL--	MML--	LLL--	MML--	LLL--	M	alpine pennycress
Tradescantia occidentalis	L	L	L			L	prairie spiderwort
Tragopogon dubius	MMMML	MHMLL	MMMML	MHMMM	MHMMM	L	yellow salsify
Tragopogon porrifolius	MMMML	MHMLL	MMMML	MHMLL	MHMMM	L	salsify
Tragopogon pratensis	MMMML	MHMLL	MMMML	MHMLL	MHMMM	L	Jack-go-to-bed-at-noon
Tribulus terrestris	LLL--	LLL--	LLL--	LLL--	LLL--	L	puncturevine
Trifolium dasyphyllum	HHHHH	HHHHH	HHHHH	HHHHH	HHHHH	M	alpine clover
Trifolium fragiferum	MMMMM	HHHHH	MMMMM	LLLLL	LLLLL	M	strawberry clover
Trifolium gymnocarpon	HHHHH	HHHHH	HHHHH	HHHHH	HHHHH	L	hollyleaf clover
Trifolium hybridum	HHHHH	HHHHH	MMMMM	HHHHH	HHHHH	M	alsike clover
Trifolium longipes	HHHHH	HHHHH	HHHHH	MMMMM	MMMMM		longstalk clover

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R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
Trifolium nanum	MMMMM	HHHHH	MMMMM	HHHHH	HHHHH	M	dwarf clover
Trifolium parryi	HHHHH	HHHHH	HHHHH	MMMMMMMMMMMM			Parry's clover
Trifolium pratense	HHHHH	HHHHH	MMMMM	MMMMMMMMMMMM			red clover
Trifolium repens	HHHHH	HHHHH	HHHHH	HHHHH	HHHHH	M	white clover
Typha domingensis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	H	southern cattail
Typha latifolia	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	H	broadleaf cattail
Urtica dioica	LLLLL	MMMLL	LLLLL	LMMLL	LLLLL	M	stinging nettle
Utricularia macrorhiza	L	L	L	L	L	L	common bladderwort
Utricularia minor	L	L	L	L	L	L	lesser bladderwort
Valeriana edulis	MMMLL	HHHHL	LLLLL	HHHHL	HHHHL	M	tobacco root
Veratrum californicum	LLMML	LMMLL	LLLLL	LMMLL	MMMLL	H	California false hellebore
Verbascum thapsus	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	common mullein
Vicia americana	HHHH-	HHHH-	HHHH-	HHHH-	HHHH-	M	American vetch
Vicia villosa	MMMM-	MMMM-	LLLL-	HHHH-	HHHH-	M	winter vetch
Viola adunca	MMMM-	HHH--	LLL--	HHH--	MMM--	L	hookedspur violet
Viola nuttallii	MMM--	MMM--	MMM--	HHH--	HHH--	L	Nuttall's violet
Wolffia borealis	L	L	L	L	L	L	northern watermeal
Wolffia brasiliensis	L	L	L	L	L	L	Brazilian watermeal
Wyethia amplexicaulis	LLLLL	LMMLL	LLLLL	MHMLL	MHMLL	M	mule-ears
Wyethia helianthoides	LLLLL	LMMLL	LLLLL	MMMLL	MMMLL	M	sunflower mule-ears
Wyethia scabra	LMMLL	LMMLL	LMMLL	MMMLL	MMMLL	L	badlands mule-ears
Xanthium strumarium	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	rough cocklebur
Xerophyllum tenax	LLLLL	LMMLL	LLLLL	LMMLL	LMMLL	M	common beargrass
Xylorhiza glabriuscula	LLLLL	LMMLL	LLLLL	LLLLL	LLLLL	L	smooth woodyaster
var. glabriuscula							
Zannichellia palustris	L	L	L	L	L		horned pondweed
Zigadenus elegans - P	LMMLL	LMMLL	LMMLL	LMMLL	LMMLL	L	mountain deathcamas
Zigadenus paniculatus - P	LMMLL	LMMLL	LMMLL	LMMLL	LMMLL	L	foothill deathcamas
Zigadenus venenosus - P	LLLLL	LMMLL	LLLLL	LMMLL	LMMLL	L	meadow deathcamas

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CHAPTER 20 – RANGELAND ANALYSIS

22.1 – Exhibit 01--Continued

SHRUBS AND TREES

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
Acacia greggii	LLLLL	LMLLL	LLLLL	LMLLL	LLLLL	M	catclaw acacia
Acer glabrum	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM						Rocky Mountain maple
Allenrolfea occidentalis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	iodinebush
Alnus incana	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	gray alder
Amelanchier alnifolia	MLMMM	HMHMH	LLLLL	HMHMH	HMHMH	M	Saskatoon serviceberry
Amelanchier utahensis	MLMMM	HMHMH	LLLLL	HMHMH	HMHMH	M	Utah serviceberry
Amorpha canescens	M	M	M	M	M	M	leadplant
Amorpha fruticosa	M	M	M	M	M	M	desert false indigo
Arctostaphylos patula	LLLLM	LLLLM	LLLLM	LLLLM	LLLLM	H	greenleaf manzanita
Arctostaphylos uva-ursi	LLLLL	LLLLL	LLLLL	LLLLM	LLLLM	M	kinnikinnick
Artemisia arbuscula	LLLLL	MMLMM	LLLLL	HHMH	MMLLM	M	little sagebrush
Artemisia bigelovii	LLML	MMMLM	LLLLL	MMMMMLLLMM		M	Bigelow sage
Artemisia cana ssp. bolanderi	M	H	M			M	Bolander's silver sagebrush
Artemisia cana ssp. cana	LLLLL	H	M	M	M	M	silver sagebrush
Artemisia cana ssp. viscidula	LLLLL	M	LLLLL	M	M	M	silver sagebrush
Artemisia filifolia	LLLLM	LLLLM	LLLLL	LLLLM	LLLLM	M	sand sagebrush
Artemisia frigida	LLMM	HMHMH	MMMLM	HHMH	HMHMH	M	prairie sagewort
Artemisia nova	LLLLL	MLLMM	LLLLL	LLMM	LLLLL	M	black sagebrush
Artemisia pedatifida	M	H	H	L	L	L	birdfoot sagebrush
Artemisia pygmaea	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	pygmy sagebrush
Artemisia tridentata ssp. tridentata	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	basin big sagebrush
Artemisia tridentata ssp. vaseyana	LLMM	MLLMM	LLLLL	MLLMM	MLLMM	M	mountain big sagebrush
Artemisia tridentata ssp. wyomingensis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Wyoming big sagebrush
Artemisia tripartita ssp. rupicola	LLLLL	LLMM	LLLLL	LLMM	LLMM	M	Wyoming threetip sagebrush
Artemisia tripartita ssp. tripartita	LLLLL	LLMM	LLLLL	LLMM	LLMM	M	threetip sagebrush
Atriplex bonnevillensis	MLMMM	MMMMMLLLLM		LLMML	LLMM	M	Bonneville saltbush
Atriplex canescens	MMMMH	HHHHH	MMMMH	HHHHH	MMMMH	M	fourwing saltbush
Atriplex confertifolia	MMMMMHMHMH	LLLLL		LLMML	LLLLL	M	shadscale saltbush
Atriplex corrugata	MHMM	MHMMM	LMMLL	LMMLL	LLLLL	M	mat saltbush
Atriplex cuneata	MHMM	MHMMM	LMMLL	LMMLL	LLLLL	M	valley saltbush
Atriplex falcata	MHMM	MHMMM	LMMLL	LMMLL	LLLLL	M	sickle saltbush
Atriplex gardneri	LLLLL	MMMMMLLLL		MMMMMLLLL		M	Gardner's saltbush
Atriplex garrettii	LLLLL	MMMMMLLLL		MMMMMLLLL		L	Garrett's saltbush
Atriplex obovata	LMLLL	MMMMMLLLL		LMLLL	LLLLL	M	mound saltbush
Berberis fendleri	LLLLL	LLLLL	LLLLL	LLMM	LLMM	M	Colorado barberry
Berberis repens	LLLLL	LMMLL	LLLLL	MMMMMMMMMMMH			creeping barberry
Ceanothus fendleri	LLLM	LLLM	LLLM	MMMMMMMMMMMMM			Fendler's ceanothus
Ceanothus martinii	LLLM	LLLM	LLLM	LLLM	LLLM	M	Martin's ceanothus
Ceanothus sanguineus	LLLM	LLLM	LLLM	LLLM	LLLM	M	redstem ceanothus
Ceanothus velutinus	LLLM	LLLM	LLLM	LLLM	LLLM	M	snowbrush ceanothus
Celtis occidentalis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	common hackberry
Cercocarpus intricatus	MLMM	MLMM	LLLM	HMHMH	MMMH	M	littleleaf mountain mahogany
Cercocarpus ledifolius	MMMMMMMMMMMLLLL			HHHHH	HHHHH	M	curl-leaf mountain mahogany
Cercocarpus montanus	MMMMMHMHMH	MMMMMHMHMH		HMHHM	HMHHM	M	alderleaf mountain mahogany
Chamaebatiaria millefolium	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	fernbrush
Chrysothamnus depressus	LLMM	MMMMMLLLM		MMMMMLMM		M	longflower rabbitbrush
Chrysothamnus greenii	LLLLL	MMMMMLLLL		MMMMMMMMMMMMM			Greene's rabbitbrush
Chrysothamnus vaseyi	LLLLL	MMLLM	LLLLL	MMLMM	MMLMM	M	Vasey's rabbitbrush
Chrysothamnus viscidiflorus	LLLLL	MLLMM	LLLLL	MLLMM	LLMM	M	yellow rabbitbrush
Chrysothamnus viscidiflorus ssp. lanceolatus							
Chrysothamnus viscidiflorus	LLLLL	LLLLM	LLLLL	LLMM	LLMM	M	yellow rabbitbrush
Chrysothamnus viscidiflorus var. stenophyllus							
Chrysothamnus viscidiflorus ssp. viscidiflorus var. viscidiflorus	LLML	LLML	LLML	LLMM	LLMM	M	yellow rabbitbrush
Clematis columbiana	LMLLL	HMMML	MMMLL	MMMLL	LMLLL	L	rock clematis
Clematis ligusticifolia	LMLLL	MMMLL	LLLLL	MMMLL	LMLLL	M	western white clematis
Coleogyne ramosissima	MLLMM	MLLMM	LLLLM	MLLMM	LLLLL	M	blackbrush
Crataegus douglasii	LLMM	LLMM	LLMM	MML	M	M	black hawthorn

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SHRUBS AND TREES

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSFW	Sheep YSSFW	Horse YSSFW	MDeer YSSFW	Elk YSSFW	E W	
Ephedra nevadensis	MLMMH	MLLMH	MLLMM	MLLMH	LLLLM	M	Nevada jointfir
Ephedra torreyana	MMLMM	MMLMM	MMLMM	MMLMM	LLLLM	M	Torrey's jointfir
Ephedra viridis	MMLMM	MMLMM	MMLMM	MMLMM	MMLMM	M	mormon tea
Ericameria nauseosa ssp. consimilis	LLLLL	LLLLL	LLL	LLLLM	LLLLM	M	rubber rabbitbrush
Ericameria nauseosa ssp. nauseosa var. glabrata	MMLMM	MMLMM	LLLLL	HMHHH	MMMMMM		rubber rabbitbrush
Ericameria nauseosa ssp. nauseosa var. hololeuca	MMLMM	MMLMM	LLLLL	HMHHH	MMMMMM		rubber rabbitbrush
Ericameria nauseosa ssp. nauseosa var. nauseosa	LLLLL	LLLLM	LLLLL	LLLLM	LLLLM	M	rubber rabbitbrush
Ericameria nauseosa ssp. nauseosa var. salicifolia	LLLML	MMLMM	LLLLL	HMMHH	HMMHH	M	rubber rabbitbrush
Ericameria nauseosa ssp. nauseosa var. speciosa	MMLMM	MMLMM	LLLLL	HMHHH	MMMMMM		rubber rabbitbrush
Ericameria parryi var. parryi	LLLLL	MMLLM	LLLLL	MMLLM	MMLMM	M	Parry's rabbitbrush
Eriogonum microthecum var. laxiflorum	LLLLL	MMMMML	LLLLL	MLMMM	LLLLM	M	slender buckwheat
Escobaria missouriensis var. missouriensis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	Missouri foxtail cactus
Escobaria vivipara var. vivipara	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	L	spiny star
Fallugia paradoxa	LLLLM	MMLMH	LLLLL	MMLMH	LLLLM	M	Apache plume
Grayia spinosa	MMLMH	HMLMH	LLMM	MMLMH	LLMM	M	spiny hopsage
Gutierrezia sarothrae	LLLLL	LLLLL	LLLLL	LLLLL	LMML	M	broom snakeweed
Holodiscus discolor	LLLML	LLMM	LLLLL	MMLMM	MMLMM	M	oceanspray
Holodiscus dumosus	LLLLL	MMLLM	LLLLL	MMLMM	MMLMM	M	rockspirea
Juniperus communis	LLLLL	LLLLL	LLLLL	LLLLM	LLLLM	H	common juniper
Juniperus horizontalis	LLLLL	LLLLL	LLLLL	LLLLM	LLLLM	M	creeping juniper
Juniperus osteosperma	LLLLL	LLLLM	LLLLL	LLMM	LLLLM	M	Utah juniper
Juniperus scopulorum	LLLLL	LLLLL	LLLLL	LLMM	LLLLL	L	Rocky Mountain juniper
Kochia americana	MMMMMH	HHHHH	LMML	MMMMML	LLMM	M	green molly
Krascheninnikovia lanata	HMMHH	HMMHH	HMMHH	HMMHH	HMMHH	M	winterfat
Larrea tridentata	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	creosote bush
Leptodactylon pungens ssp. hazeliae	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Hazel's prickly phlox
Lonicera involucrate	LLLML	MMLLM	LLLLL	MMLLM	MMLLM	M	twinberry honeysuckle
Lonicera utahensis	LLLML	MMLLM	LLLLL	MMLLM	MMLLM	M	Utah honeysuckle
Mahonia fremontii	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Fremont's mahonia
Monarda fistulosa	M	H	M	M	M	M	wild bergamot
Opuntia echinocarpa	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	golden cholla
Opuntia fragilis	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	brittle pricklypear
Opuntia polyacantha	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	plains pricklypear
Paxistima myrsinites	LLLLL	LMML	LLLLL	MLMLM	MLMLM	M	Oregon boxleaf
Peraphyllum ramosissimum	LLMM	MMLMM	LLLLL	HMMHH	MLMM	M	squaw apple
Petrophyton caespitosum	LMML	LMML	LLLLL	LMML	LMML	L	mat rockspirea
Philadelphus occidentalis var. occidentalis	LLLML	LLLML	LLLLL	MMLMM	MMLMM	M	western mock orange
Phragmites australis	LMML	LLLLL	LMML	LLLLL	LLLLL	H	common reed
Physocarpus malvaceus	LLLML	LLMML	LLLLL	MLLM	LLLML	M	mallow ninebark
Physocarpus monogynus	LLLML	LLMML	LLLLL	MLLM	LLLML	M	mountain ninebark
Picrothamnus desertorum	MMMMMH	HHMMH	MMMMMH	HHMMH	HHMMH	L	bud sagebrush
Potentilla fruticosa	MMLMM	MLMM	LMML	MLMM	MLMM	M	shrubby cinquefoil
Prosopis glandulosa	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	honey mesquite
Prunus emarginata	LLLML	MMLMM	LLML	MHMM	MHMM	M	bitter cherry
Prunus virginiana - P	LLMM	MMLMM	LLML	MHMM	MHMM	M	chokecherry
Purshia glandulosa	MMLMM	MMLHH	LLLLL	MMLMM	MMLMM	H	desert bitterbrush
Purshia stansburiana	MMLMH	HMMHH	LLLLL	HMMHH	HMMHH	M	Stansbury cliffrose
Purshia tridentata	HMHHH	HMHHH	LLMM	HMHHH	HMHHH	m	antelope bitterbrush
Quercus gambelii	MMLMM	MLMM	LLLLL	HMMHH	HMMHH	m	Gambel oak
Quercus macrocarpa	LLLLL	MLMM	LLLLL	HMMHH	HMMHH	M	bur oak
Quercus turbinella	LLLLL	LLLLL	LLLLL	MMMMML	LLLLL	H	Sonoran scrub oak

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SHRUBS AND TREES

R4 Scientific Name	Resource Value Ratings						R4 Common Name
	Cattle YSSF	Sheep YSSF	Horse YSSF	MDeer YSSF	Elk YSSF	E W	
Rhamnus cathartica	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	common buckthorn
Rhus glabra	LLLLL	LLML	LLLLL	MLLMH	MLLMH	M	smooth sumac
Rhus trilobata var. trilobata	LLLLL	LLMM	LLLLL	LLMM	LLMM	M	skunkbush sumac
Ribes aureum	HHMH	HHMH	LLLLL	HHMH	HHMH	H	golden currant
Ribes cereum	LLMM	MLLM	LLLLL	HLMH	MLMH	M	wax currant
Ribes hudsonianum	LLMM	MLLM	LLLLL	MLMM	LLLM	M	northern black currant
Ribes inerme	LLLLL	MLLM	LLLLL	MLMM	MLMH	M	whitestem gooseberry
Ribes montigenum	LLLLL	MLML	LLLLL	MMMH	MMMH	M	gooseberry currant
Ribes oxycanthoides ssp. setosum	LLLLL	LLMM	LLLLL	MMMH	MMMH	M	inland gooseberry
Ribes viscosissimum	LLLLL	LLML	LLLLL	MMMH	MMMH	M	sticky currant
Robinia neomexicana	MMML	HHHL	MMML	MMMH	MMMH	M	New Mexico locust
Robinia pseudoacacia	MMML	MMML	MMML	MMML	MMML	M	black locust
Rosa arkansana	LLML	MLML	LLLLL	HHHM	MMML	M	prairie rose
Rosa woodsii	LLMM	MLMM	LLMM	HMHM	HMHM	H	Woods' rose
Rubus deliciosus	LLLLL	LLML	LLLLL	MMML	LLML	M	delicious raspberry
Rubus idaeus ssp. strigosus	MLML	MLML	LLML	MLML	MLML	H	grayleaf red raspberry
Rubus parviflorus	LLML	MLML	LLML	MLML	MLML	H	thimbleberry
Salix amygdaloides	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	peachleaf willow
Salix arctica	MLLH	MMMMMLLL	MMMMMLLL	HMMH	HMMH	M	arctic willow
Salix bebbiana	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	H	Bebb willow
Salix boothii	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	Booth's willow
Salix brachycarpa	LLMM	MMMMMLLL	MMMMMLLL	MMHM	HMMH	M	shortfruit willow
Salix commutata	LLMM	MMMMMLLL	MMMMMLLL	MMHM	HMMH	M	undergreen willow
Salix drummondiana	MLMH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	Drummond's willow
Salix eastwoodiae	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	mountain willow
Salix exigua	MLMH	MMMMMLLL	MMMMMLLL	HMMH	HMMH	M	narrowleaf willow
Salix geyeriana	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	Geyer's willow
Salix lasiandra	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	Pacific willow
Salix lemmonii	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	Lemmon's willow
Salix lutea	MLLM	HMMH	HMMH	HMMH	HMMH	M	yellow willow
Salix melanopsis	MLLM	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	dusky willow
Salix nigra	MLLM	MMMMMLLL	MMMMMLLL	MLMM	MLLM	M	black willow
Salix planifolia	MLLH	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	diamondleaf willow
Salix reticulata	LLMM	MMMMMLLL	MMMMMLLL	HMMH	HMMH	M	netleaf willow
Salix scouleriana	MLLH	MMMMH	LLMH	HHHH	HHHH	M	Scouler's willow
Sambucus nigra ssp. cerulea	MLMH	MLMH	LLMM	HHHH	HHHH	M	blue elderberry
Sambucus racemosa	HHMH	HMMH	MMMH	HMMH	HMMH	M	red elderberry
Sarcobatus vermiculatus	LLML	MLLM	MLLM	MLLM	LLLM	M	greasewood
Shepherdia argentea	LLLLL	MLMM	LLLLL	MLMM	MLLM	M	silver buffaloberry
Shepherdia canadensis	LLLLL	MLMM	LLLLL	MLMM	MLLM	M	russet buffaloberry
Shepherdia rotundifolia	LLLLL	MLMM	LLLLL	MLMM	MLLM	M	roundleaf buffaloberry
Spiraea betulifolia	LLML	MLML	LLLLL	MLML	MLML	M	white spirea
Symphoricarpos albus	MLLM	MLMH	MLMH	MLMH	MLMH	M	common snowberry
Symphoricarpos longiflorus	MLLM	MLMH	MLMH	MLMH	MLMH	M	desert snowberry
Symphoricarpos occidentalis	LLMM	MMML	LLML	MLMM	MLMM	M	western snowberry
Symphoricarpos oreophilus	LLMM	MMMMMLLL	MMMMMLLL	MMMH	MLMM	M	mountain snowberry
Tetradymia canescens	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	spineless horsebrush
Tetradymia glabrata	LLLLL	LLMM	LLLLL	LLLLL	LLLLL	M	littleleaf horsebrush
Tetradymia nuttallii	LLLLL	LLLLL	LLLLL	LLLLL	LLLLL	M	Nuttall's horsebrush
Tetradymia spinosa	LLLLL	MLML	LLLLL	LLLLL	LLLLL	M	shortspine horsebrush
Vaccinium caespitosum	LLML	MLLM	LLLLL	HLMH	HLMH	H	dwarf bilberry
Vaccinium globulare	LLML	MMMMMLLL	MMMMMLLL	MMHM	MMMMMM	M	thinleaf huckleberry
Vaccinium myrtillus	LLML	MLLM	LLLLL	MHLH	MHLH	L	whortleberry
Vaccinium scoparium	LLML	MMMMMLLL	MMMMMLLL	MMMMMLLL	MMMMMLLL	M	grouse whortleberry
Vitis arizonica	LLLLL	MLML	LLLLL	LLML	LLML	M	canyon grape
Vitis riparia	LLLLL	MLML	LLLLL	LLML	LLML	H	riverbank grape
Yucca baccata	MLLL	MLLL	LLLLL	MLLL	LLLLL	M	banana yucca
Yucca brevifolia	MLLL	MLLL	LLLLL	MLLL	LLLLL	M	Joshua tree
Yucca glauca	MLLL	MLLL	LLLLL	MLLL	LLLLL	M	soapweed yucca
Zuckia brandegeei var. brandegeei	MLMH	HLMH	LLMM	MLMH	LLMM	M	siltbush