

Known and Potential Vascular Plant Flora Of Fort Laramie National Historic Site



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INTRODUCTION

Prior to the early 1990s, little was known about the composition of the vascular plant flora of Fort Laramie National Historic Site in Goshen County, Wyoming. In 1994, B. Ernie Nelson of the University of Wyoming's Rocky Mountain Herbarium (RM) visited the Park on several occasions while conducting a general floristic survey of public lands in southeastern Wyoming (Hartman and Nelson 1995). Nelson's voucher specimens were deposited at the RM and FOLA herbarium. Hollis Marriott and Jim Drake of The Nature Conservancy also compiled a brief list of plant species during their vegetation mapping project in 1997 (The Nature Conservancy 1997). These studies and other historical records were synthesized into a single checklist by Fertig (2000). That list contained 177 plant taxa (Table 1), including 5 plants considered "species of special concern" by the state natural heritage program and 35 non-native species.

In March 2001, Vanessa Hill of the National Park Service contracted with the Wyoming Natural Diversity Database (WYNDD) to compile a list of all vascular plant species that potentially occur in Fort Laramie National Historic Site (but which have not been previously documented). The following report contains the results of this study.

METHODS

To determine which additional species might be present (but undocumented) at Fort Laramie, I conducted a query of WYNDD's county-level vascular plant species database for Goshen County, Wyoming. At present, there are 662 vascular plant taxa known from the county, of which 177 (26.7%) have previously been reported for the Park (Fertig 2000). Based on information on the general habitat requirements of the remaining 485 species, I eliminated those species that are not typically found in the vegetation types represented at Fort Laramie (The Nature Conservancy 1997). Finally, I used the digital range maps available from the RM's "Atlas of the Vascular Plants of Wyoming" (www.esb.utexas.edu/tchumley/wyomap/atlas.htm) to eliminate those plant species that were not known from the vicinity of the Park. Using statewide abundance and habitat requirements, I assessed the probability of occurrence (high or moderate) for each of the remaining species on the list.

RESULTS AND DISCUSSION

Based on this assessment, an additional 182 vascular plant species may occur on Fort Laramie National Historic Site (Table 2). Of these, 52 are ranked as highly probable and 130 as moderately probable. If the 52 high probability taxa are included in the Park checklist, the current species count of 177 would represent 77.2% of the total flora, well below the National Park Service's nationwide goal of 90% completeness of the species lists for each park unit. This percentage drops to 49.3% if all 182 potential taxa are considered.

Many of the potential species for the Park have early or late flowering periods and may have been overlooked in previous floristic and vegetation surveys. An equally large group consists of species typically found in dry, upland prairie habitats, which may be poorly represented within the historic site. Several families may be under-represented, especially the Asteraceae, Brassicaceae, Fabaceae, Poaceae, and Cyperaceae. Non-native weeds may also be undersampled at present.

A more complete and systematic survey of Fort Laramie NHS is likely to document many additional vascular plant species not presently known for the Park and could improve knowledge of the location and abundance of rare species and the distribution of noxious weeds. Such a study should be conducted at several times during the growing season to ensure that early and late flowering species are not overlooked. The park should also be stratified by major habitat types to ensure that all vegetation types are adequately sampled. Special attention should be directed towards possibly under-sampled habitats, such as remnant prairie uplands, marshy areas, and semi-disturbed (weed-prone) areas. Voucher specimens should be collected for all new species to the park and confirmed by an expert.

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Table 1.

Known Vascular Plant Flora of Fort Laramie National Historic Site

The following species list is modified from Fertig (2000) and is based on field work conducted by B. Ernie Nelson of the Rocky Mountain Herbarium (RM) in 1994, historical collections from the RM, observations by Robert Dorn and Walter Fertig, and vegetation sampling by Hollis Marriott and Jim Drake of The Nature Conservancy (1997). Nomenclature follows Dorn (1992) for scientific names and Hitchcock and Cronquist (1973) and Welsh et al. (1993) for common names. Family (FAM) acronyms are based on Weber (1982). Global and state abundance ranks (Grank and Srank respectively) are derived from WYNDD records. Non-native status (indicated by "SE" in Srank field) is based on Fertig (1999). Information on distribution patterns (Dist), Growth form (Form), and primary biome affinity are from Fertig (unpublished data).

Key: Grank and Srank: Abundance is based on a scale of 1 (rarest) to 5 (abundant) for each species and variety (T) at a global (G) or state (S) scale. SE indicates a species that is not native to WY or North America. Distribution (Dist): W = widespread across WY, P = peripheral in WY (at the edge of its main range), S = Sparse (widely distributed across state but restricted to small, patchy habitats), D = Disjunct (widely isolated in WY from the main contiguous portion of the species' range), E = endemic to WY, R = regional endemic (global range limited to WY and 1 or more neighboring states). Form: tree, shrub, perennial forb (FORB), annual forb (A-FORB), perennial graminoid (GRASS), annual graminoid (A-GRASS), and ferns or fern-allies (FERN). Biome: ALP = Alpine, EDF = Eastern Deciduous Forest, GRS = Great Plains, IDS = Intermountain Desert steppe, RMF = Rocky Mountain Forest, WET = Wetlands.

Fam	Species	Common Name	Synonym	GRank	SRank	Dist	Form	Biome
ACE	<i>Acer negundo</i> var. <i>interius</i>	Box-elder		G5T?	S4	W	TREE	WET
AGA	<i>Yucca glauca</i>	Soapwell		G5	S4	W	SHRUB	GRS
ALI	<i>Sagittaria cuneata</i>	Wapato		G5	S3S4	W	FORB	WET
AMA	<i>Amaranthus blitoides</i>	Prostrate pigweed		G?	S5	W	A-FORB	GRS
ANA	<i>Rhus trilobata</i>	Skunkbush	<i>Rhus aromatica</i> var. <i>trilobata</i>	G5	S5	W	SHRUB	IDS
ANA	<i>Toxicodendron rydbergii</i>	Poison ivy		G5	S3S4	W	SHRUB	GRS
APO	<i>Apocynum cannabinum</i>	Common dogbane		G5	S3	W	FORB	RMF
ASC	<i>Asclepias pumila</i>	Plains milkweed		G5	S2	W	FORB	GRS
ASC	<i>Asclepias speciosa</i>	Showy milkweed		G5	S4	W	FORB	WET
AST	<i>Ambrosia psilostachya</i>	Western ragweed		G5	S4	W	FORB	GRS

AST	<i>Ambrosia trifida</i>	Giant ragweed		G5	S3	W	A-FORB	GRS
AST	<i>Artemisia biennis</i> var. <i>biennis</i>	Biennial wormwood		G5T?	S3S4	W	FORB	IDS
AST	<i>Artemisia campestris</i> var. <i>scouleriana</i>	Field sagewort		G5T?	S4	W	FORB	RMF
AST	<i>Artemisia dracunculoides</i>	Tarragon		G5	S5	W	FORB	IDS
AST	<i>Artemisia filifolia</i>	Sand sagebrush		G5	S2	W	SHRUB	GRS
AST	<i>Artemisia frigida</i>	Fringed sagebrush		G5?	S5	W	SHRUB	IDS
AST	<i>Artemisia ludoviciana</i> var. <i>ludoviciana</i>	Louisiana sagebrush		G5T?	S5	W	FORB	GRS
AST	<i>Aster ericoides</i> var. <i>stricticaulis</i>	Heath-leaved aster		G5T?	S2	W	FORB	WET
AST	<i>Aster hesperius</i>	Western willow aster	<i>Aster lanceolatus</i> var. <i>hesperius</i>	G5T5?	S3	W	FORB	WET
AST	<i>Bidens cernua</i>	Nodding beggarticks		G5	S3	W	A-FORB	WET
AST	<i>Bidens comosa</i>	Three-lobed beggarticks		G5	S2	W	A-FORB	WET
AST	<i>Bidens frondosa</i>	Leafy beggarticks		G5	S2	W	A-FORB	WET
AST	<i>Brickellia eupatorioides</i> var. <i>corymbulosa</i>	False boneset		G5T?	S3	W	FORB	GRS
AST	<i>Carduus nutans</i>	Musk thistle		G?	SE		FORB	
AST	<i>Cirsium arvense</i>	Canada thistle		G5	SE		FORB	
AST	<i>Cirsium flodmanii</i>	Flodman's thistle		G5	S3S4	W	FORB	GRS
AST	<i>Conyza canadensis</i>	Horseweed		G5	S4S5	W	A-FORB	GRS
AST	<i>Dysodia papposa</i>	Fetid marigold		G5	S3	W	A-FORB	GRS
AST	<i>Erigeron corymbosus</i>	Foothill daisy		G5	S3	W	FORB	RMF
AST	<i>Erigeron divergens</i>	Diffuse fleabane		G5	S3S4	W	FORB	IDS
AST	<i>Euthamia occidentalis</i>	Western goldenrod	<i>Solidago occidentalis</i>	G5	S2	W	FORB	WET
AST	<i>Grindelia squarrosa</i> var. <i>squarrosa</i>	Curly-cup gumweed		G5T?	S4S5	W	FORB	GRS
AST	<i>Gutierrezia sarothrae</i>	Broom snakeweed		G5	S5	W	SHRUB	GRS
AST	<i>Haplopappus spinulosus</i> var. <i>spinulosus</i>	Spiny goldenweed		G5T4Q	S3S4	W	FORB	GRS
AST	<i>Helianthus annuus</i>	Common sunflower		G5	S5	W	A-FORB	GRS
AST	<i>Helianthus petiolaris</i>	Plains sunflower		G4G5	S4	W	A-FORB	GRS

AST	<i>Heterotheca villosa</i> var. <i>hispid</i>	Hairy golden-aster			S4S5	W	FORB	GRS
AST	<i>Hymenopappus polycephalus</i>	Manyheaded woollywhite		G5T4T5	S4S5	W	FORB	GRS
AST	<i>Iva xanthifolia</i>	Marsh-elder		G5	S4	W	A-FORB	GRS
AST	<i>Lactuca scariola</i>	Prickly lettuce		G?	SE		A-FORB	
AST	<i>Liatris punctata</i>	Spotted gay-feather		G5	S4	W	FORB	GRS
AST	<i>Machaeranthera canescens</i> var. <i>glabra</i>	Hoary aster		G5T?	S2S3	W	FORB	GRS
AST	<i>Machaeranthera tanacetifolia</i>	Tansy aster		G5	S3	W	A-FORB	GRS
AST	<i>Onopordum acanthium</i>	Scotch thistle		G?	SE		FORB	
AST	<i>Ratibida columnifera</i>	Prairie coneflower		G5	S4S5	W	FORB	GRS
AST	<i>Senecio spartioides</i> var. <i>spartioides</i>	Broom groundsel		G5	S3	W	FORB	IDS
AST	<i>Solidago canadensis</i> var. <i>gilvocanescens</i>	Canada goldenrod		G5T?	S3	W	FORB	GRS
AST	<i>Sonchus uliginosus</i>	Marsh sow-thistle		G?	SE		FORB	
AST	<i>Thelesperma megapotamicum</i>	Greenthread		G5	S3	W	FORB	GRS
AST	<i>Townsendia grandiflora</i>	Large-flowered Easter-daisy		G4?	S3	W	FORB	GRS
BOR	<i>Cryptantha cana</i>	Dog cryptantha		G5	S3	R	FORB	GRS
BOR	<i>Cryptantha cinerea</i> var. <i>jamesii</i>	James' cryptantha		G5T5?	S3S4	W	FORB	GRS
BOR	<i>Cryptantha minima</i>	Minimal cryptantha		G5	S3	W	A-FORB	GRS
BOR	<i>Lithospermum incisum</i>	Yellow gromwell		G5	S5	W	FORB	GRS
BRA	<i>Descurainia sophia</i>	Flixweed		G?	SE		A-FORB	
BRA	<i>Erysimum asperum</i> var. <i>asperum</i>	Rough wallflower		G5	S4	W	FORB	GRS
BRA	<i>Sisymbrium altissimum</i>	Tumblemustard		G?	SE		A-FORB	
CAC	<i>Opuntia macrorhiza</i> var. <i>macrorhiza</i>	Bigroot prickly-pear		G5T5	S2	W	FORB	GRS
CAC	<i>Opuntia polyacantha</i> var. <i>polyacantha</i>	Plains prickly-pear		G5T5	S5	W	FORB	IDS
CAM	<i>Lobelia siphilitica</i> var.	Great blue lobelia		G5T?	S1	P	FORB	WET

	<i>Ludoviciana</i>				G5T?	S5	W	A-FORB	GRS
CHN	<i>Chenopodium berlandieri</i> var. <i>zschackei</i>	Pitseed goosefoot					W		GRS
CHN	<i>Chenopodium pratericola</i>	Slimleaf goosefoot			G5	S4	W	A-FORB	IDS
CHN	<i>Kochia scoparia</i>	Summer cypress			G?	SE		A-FORB	
CHN	<i>Krascheninnikovia lanata</i>	Winterfat	<i>Eurotia lanata</i> , <i>Ceratoides lanata</i>		G5	S5	W	SHRUB	IDS
CHN	<i>Monolepis nuttalliana</i>	Povertyweed			G5	S5	W	A-FORB	IDS
CHN	<i>Salsola collina</i>	Tumbleweed			G5	SE		A-FORB	
CMM	<i>Tradescantia occidentalis</i>	Western spiderwort			G5	S3S4	W	FORB	GRS
CNV	<i>Convolvulus arvensis</i>	Field bindweed			G?	SE		FORB	
CNV	<i>Ipomoea leptophylla</i>	Bush morning-glory			G?	S2	P	FORB	GRS
CPP	<i>Cleome serrulata</i>	Rocky Mountain bee-plant			G5	S5	W	A-FORB	GRS
CPP	<i>Polanisia trachysperma</i>	Clammy-weed			G5T?	S3	W	A-FORB	GRS
CPR	<i>Sambucus canadensis</i>	Common elderberry			G5	S1	P	SHRUB	EDF
CPR	<i>Symphoricarpos occidentalis</i>	Western snowberry			G5	S4	W	SHRUB	RMF
CRY	<i>Paronychia depressa</i>	High plains nailwort			G4	S4	R	FORB	GRS
CUP	<i>Juniperus scopulorum</i>	Rocky Mountain juniper			G5	S5	W	TREE	RMF
CYP	<i>Carex filifolia</i>	Thread-leaved sedge			G5	S5	W	GRASS	RMF
CYP	<i>Carex nebrascensis</i>	Nebraska sedge			G5	S5	W	GRASS	WET
CYP	<i>Cyperus squarrosus</i>	Awned flatsedge	<i>Cyperus aristatus</i>		G5	S2	W	A-GRASS	WET
CYP	<i>Scirpus validus</i>	Soft-stem bulrush				S4	W	GRASS	WET
ELE	<i>Elaeagnus angustifolia</i>	Russian olive			G?	SE		TREE	
ELE	<i>Shepherdia argentea</i>	Silver buffaloberry			G5	S3S4	W	SHRUB	WET
EQU	<i>Equisetum laevigatum</i>	Smooth scouring-rush			G5	S5	W	FERN	WET
EUP	<i>Croton texensis</i>	Texas croton			G5	S2	W	A-FORB	GRS
EUP	<i>Euphorbia dentata</i>	Toothed spurge			G5	S2	W	A-FORB	GRS
EUP	<i>Euphorbia glyptosperma</i>	Corrugate-seeded spurge			G5	S5	W	A-FORB	GRS
EUP	<i>Euphorbia missurica</i> var.	Missouri spurge			G5	S3	W	A-FORB	GRS

PLG	<i>Eriogonum annuum</i>	Annual buckwheat		G5	S3	W	A-FORB	GRS
PLG	<i>Eriogonum microthecum</i> var. <i>effusum</i>	Slenderbush buckwheat		G4G5	S3	W	FORB	GRS
PLG	<i>Polygonum lapathifolium</i>	Curlytop ladysthumb		G5	SE		A-FORB	
PLG	<i>Polygonum persicaria</i>	Spotted ladysthumb		G?	SE		A-FORB	
PLG	<i>Rumex crispus</i>	Curly dock		G?	SE		FORB	
PLG	<i>Rumex maritimus</i> var. <i>fueginus</i>	Golden dock		G5	S3	W	A-FORB	WET
PLG	<i>Rumex stenophyllus</i>	Slenderleaf dock		G?	SE		FORB	
POA	<i>Agrostis stolonifera</i>	Redtop		G5	SE		GRASS	
POA	<i>Andropogon hallii</i>	Sand bluestem		G4	S2	W	GRASS	GRS
POA	<i>Andropogon scoparius</i>	Little bluestem	<i>Schizachyrium scoparium</i>	G5	S4	W	GRASS	GRS
POA	<i>Bouteloua gracilis</i>	Blue grama		G5	S5	W	GRASS	GRS
POA	<i>Bromus inermis</i> var. <i>inermis</i>	Smooth brome		G4G5T?	SE		GRASS	
POA	<i>Bromus japonicus</i>	Japanese brome		G?	SE		A-GRASS	
POA	<i>Bromus tectorum</i>	Cheatgrass		G?	SE		A-GRASS	
POA	<i>Buchloe dactyloides</i>	Buffalo grass		G4G5	S3	W	GRASS	GRS
POA	<i>Calamovilfa longifolia</i>	Prairie sandreed		G5	S4S5	W	GRASS	GRS
POA	<i>Cenchrus longispinus</i>	Field sandbur		G5	S2S3	W	A-GRASS	GRS
POA	<i>Chloris verticillata</i>	Showy windmill grass		G5	SE*		GRASS	
POA	<i>Distichlis spicata</i> var. <i>stricta</i>	Alkali saltgrass		G5	S5	W	GRASS	GRS
POA	<i>Echinochloa muricata</i>	Barnyard-grass		G5	S4	W	A-GRASS	GRS
POA	<i>Elymus canadensis</i> var. <i>canadensis</i>	Canada wildrye		G5T?	S3	W	GRASS	RMF
POA	<i>Elymus repens</i>	Common quackgrass	<i>Agropyron repens</i> , <i>Elytrigia repens</i>	G5	SE		GRASS	
POA	<i>Elymus smithii</i>	Western wheatgrass	<i>Agropyron smithii</i> , <i>Pascopyrum smithii</i>	G5	S5	W	GRASS	GRS
POA	<i>Elymus spicatus</i>	Bluebunch wheatgrass	<i>Agropyron spicatum</i> , <i>Pseudoroegneria</i>	G5	S5	W	GRASS	IDS

SAL	<i>Salix exigua</i> var. <i>exigua</i>	Coyote willow		G5	S5	W	SHRUB	WET
SCR	<i>Agalinis tenuifolia</i> var. <i>parviflora</i>	Slender false-foxglove		G5T4	S1	P	FORB	EDF
SCR	<i>Veronica anagallis-aquatica</i>	Water speedwell		G5	SE		FORB	
SOL	<i>Physalis longifolia</i>	Long-leaved ground-cherry		G5	S2	W	FORB	GRS
SOL	<i>Solanum nigrum</i>	Black nightshade			S2	W	A-FORB	GRS
SOL	<i>Solanum rostratum</i>	Buffalo bur		G5	S3	W	A-FORB	GRS
TAM	<i>Tamarix chinensis</i>	Tamarisk		G?	SE		SHRUB	
TYP	<i>Typha latifolia</i>	Common cattail		G5	S3S4	W	GRASS	WET
URT	<i>Urtica dioica</i> var. <i>procera</i>	Stinging nettle			S4S5	W	FORB	RMF
VIT	<i>Parthenocissus vitacea</i>	Grape woodbine		G4	S2	W	SHRUB	EDF
VRB	<i>Phyla cuneifolia</i>	Wedge-leaf fog-fruit		G5	S2	W	FORB	GRS
VRB	<i>Verbena bracteata</i>	Bracted vervain		G4G5	S5	W	FORB	GRS
VRB	<i>Verbena hastata</i>	Blue vervain		G5	S2	W	FORB	GRS
ZAN	<i>Zannichellia palustris</i>	Horned pondweed		G5	S3	W	FORB	WET
ZYG	<i>Tribulus terrestris</i>	Puncture-vine		G?	SE		A-FORB	

Table 2.

Potential Vascular Plant Flora of Fort Laramie National Historic Site

The following species consists of species that are not currently known from the vicinity of Fort Laramie NHS in Goshen County, Wyoming, but have not yet been documented in the park. The probability that a species is present is indicated in the "Pot FtL" column as High or Moderate (Mod). Nomenclature follows Dorn (1992) for scientific names and Hitchcock and Cronquist (1973) and Welsh et al. (1993) for common names. Family (FAM) acronyms are based on Weber (1982). Global and state abundance ranks (Grank and Srank respectively) are derived from WYNDD records. Non-native status (indicated by "SE" in Srank field) is based on Fertig (1999). Information on distribution patterns (Dist), Growth form (Form), and primary biome affinity are from Fertig (unpublished data).

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Fam	Species	Common Name	GRank	Srank	Dist	Form	Biome	Pot FtL
ALI	<i>Alisma triviale</i>	American water-plantain	G5	S3	W	FORB	WET	High
AMA	<i>Amaranthus albus</i>	White pigweed	G5	S3	W	A-FORB	GRS	Mod
AMA	<i>Amaranthus powellii</i>	Powell's pigweed	G5	S2	W	A-FORB	IDS	Mod
AMA	<i>Amaranthus retroflexus</i>	Rough pigweed	G?	SE		A-FORB		High
API	<i>Berula erecta</i> var. <i>incisa</i>	Cut-leaved water-parsnip	G4G5	S2	W	FORB	WET	Mod
API	<i>Cicuta maculata</i> var. <i>angustifolia</i>	Western water-hemlock	G5T?	S3S4	W	FORB	WET	High
API	<i>Conium maculatum</i>	Poison-hemlock	G4G5	SE		FORB		High
API	<i>Cymopterus acaulis</i>	Plains spring-parsley	G5	S4	W	FORB	GRS	High
API	<i>Lomatium orientale</i>	Eastern biscuitroot	G5	S4	W	FORB	GRS	Mod
API	<i>Musineon divaricatum</i>	Leafy musineon	G5	S4S5	W	FORB	GRS	High
API	<i>Pastinaca sativa</i>	Common parsnip	G?	SE		FORB		Mod
ASC	<i>Asclepias viridiflora</i>	Green milkweed	G5	S3	W	FORB	GRS	Mod

AST	<i>Achillea millefolium</i> var. <i>lanulosa</i>	Common yarrow	G5	S5	W	FORB	RMF	Mod
AST	<i>Ambrosia acanthicarpa</i>	Annual bursage	G5	S2S3	W	A-FORB	GRS	Mod
AST	<i>Ambrosia tomentosa</i>	Perennial bursage	G4	S3	W	FORB	GRS	High
AST	<i>Antennaria parvifolia</i>	Nuttall's pussytoes	G5	S4S5	W	FORB	GRS	Mod
AST	<i>Arctium minus</i>	Common burdock	G?	SE		FORB		Mod
AST	<i>Artemisia cana</i> var. <i>cana</i>	Silver sagebrush	G5T4?	S4S5	W	SHRUB	GRS	Mod
AST	<i>Aster brachyactis</i>	Rayless alkali aster	G5	S2S3	W	A-FORB	WET	Mod
AST	<i>Aster falcatus</i> var. <i>commutatus</i>	Creeping white prairie aster	G4G5QT?	S3	W	FORB	GRS	Mod
AST	<i>Carduus acanthoides</i>	Plumeless thistle	G?	SE		FORB		Mod
AST	<i>Chrysothamnus nauseosus</i> var. <i>graveolens</i>	Rubber rabbitbrush	G5T5	S3	W	SHRUB	RMF	Mod
AST	<i>Cirsium canescens</i>	Platte thistle	G4G5	S3	W	FORB	GRS	Mod
AST	<i>Cirsium ochrocentrum</i>	Yellow-spine thistle	G5	S3	W	FORB	GRS	Mod
AST	<i>Cirsium vulgare</i>	Bull thistle	G5	SE		FORB		High
AST	<i>Crepis runcinata</i> var. <i>runcinata</i>	Meadow hawksbeard	G5T5	S3S4	W	FORB	WET	Mod
AST	<i>Erigeron caespitosus</i>	Tufted fleabane	G5	S5	W	FORB	GRS	Mod
AST	<i>Erigeron canus</i>	Dog fleabane	G4	S3	W	FORB	GRS	High
AST	<i>Erigeron pumilus</i> var. <i>pumilus</i>	Shaggy fleabane	G5T?	S5	W	FORB	GRS	Mod
AST	<i>Grindelia squarrosa</i> var. <i>quasiperennis</i>	Curly-cup gumweed	G5T?	S4	W	FORB	GRS	Mod
AST	<i>Haplopappus nuttallii</i>	Gumweed aster	G5	S5	W	FORB	GRS	Mod
AST	<i>Haplopappus uniflorus</i>	One-flowered goldenweed	G5	S3	W	FORB	WET	Mod
AST	<i>Helianthus pumilus</i>	Low sunflower	G4?	S3	R	FORB	RMF	Mod
AST	<i>Heterotheca villosa</i> var. <i>villosa</i>	Hairy golden-aster	G5	S3	W	FORB	GRS	Mod
AST	<i>Hymenoxys acaulis</i> var. <i>acaulis</i>	Stemless hymenoxys	G5T?	S5	W	FORB	GRS	High
AST	<i>Hymenoxys acaulis</i> var. <i>caespitosa</i>	Stemless hymenoxys	G5T?	S3	W	FORB	IDS	Mod
AST	<i>Iva axillaris</i>	Poverty-weed	G5	S5	W	FORB	IDS	Mod
AST	<i>Lygodesmia juncea</i>	Rush-like skeletonweed	G5	S4S5	W	FORB	GRS	Mod
AST	<i>Parthenium alpinum</i>	Alpine feverfew	G3	S3	R	FORB	GRS	Mod

AST	<i>Picradeniopsis oppositifolia</i>	Opposite-leaved bahia	G5?	S4	W	FORB	GRS	Mod
AST	<i>Senecio canus</i>	Woolly groundsel	G5	S5	W	FORB	RMF	High
AST	<i>Senecio spartioides</i> var. <i>fremontii</i>	Fremont's broom groundsel	G4G5	S3	W	FORB	GRS	Mod
AST	<i>Solidago gigantea</i>	Smooth goldenrod	G5	S3	W	FORB	GRS	Mod
AST	<i>Solidago missouriensis</i> var. <i>fasciculata</i>	Missouri goldenrod	G5T?	S3	W	FORB	GRS	Mod
AST	<i>Solidago mollis</i>	Velvety goldenrod	G5	S3	W	FORB	GRS	Mod
AST	<i>Solidago rigida</i> var. <i>humilis</i>	Hard-leaved goldenrod	G5T?	S3	W	FORB	GRS	Mod
AST	<i>Taraxacum laevigatum</i>	Red-seeded dandelion	G?	SE		FORB		High
AST	<i>Townsendia hookeri</i>	Hooker's Easter-daisy	G5	S4	W	FORB	RMF	Mod
AST	<i>Tragopogon dubius</i>	Yellow salsify	G?	SE		FORB		High
AST	<i>Verbesina encelioides</i> var. <i>exauriculata</i>	Golden crownbeard	G5T?	S2	W	A-FORB	GRS	Mod
AST	<i>Xanthium strumarium</i> var. <i>canadense</i>	Common cocklebur	G5T5	S5	W	A-FORB	GRS	Mod
BOR	<i>Cryptantha celosoides</i>	Cockscomb cryptantha	G5	S5	W	FORB	GRS	Mod
BOR	<i>Cryptantha thyrsiflora</i>	Thyrse-flowered cryptantha	G4	S3	W	FORB	GRS	Mod
BOR	<i>Cynoglossum officinale</i>	Common hound's-tongue	G?	SE		FORB		High
BOR	<i>Lappula redowskii</i> var. <i>cupulata</i>	Cupseed stickseed		S3S4	W	A-FORB	IDS	Mod
BOR	<i>Lappula redowskii</i> var. <i>redowskii</i>	Western stickseed		S5	W	A-FORB	IDS	High
BRA	<i>Alyssum desertorum</i>	Desert alyssum	G?	SE		A-FORB		High
BRA	<i>Arabis holboellii</i> var. <i>pinetorum</i>	Holboell's rockcress	G5T?	S4	W	FORB	RMF	Mod
BRA	<i>Camelina microcarpa</i>	Littlepod falseflax	G?	SE		A-FORB		High
BRA	<i>Capsella bursa-pastoris</i>	Shepherd's purse	G?	SE		A-FORB		High
BRA	<i>Cardaria chalepensis</i>	Chalapa hoarycress	G?	SE		FORB		Mod
BRA	<i>Descurainia pinnata</i> var. <i>osmiarum</i>	Western tansymustard	G5T?	S2	W	A-FORB	IDS	Mod
BRA	<i>Draba nemorosa</i>	Woods draba	G5	SE		A-FORB		Mod
BRA	<i>Lepidium densiflorum</i> var. <i>macrocarpum</i>	Common peppergrass	G5T?	S5	W	FORB	GRS	High
BRA	<i>Lesquerella arenosa</i> var.	Silvery bladderpod	G5T5	S4	W	FORB	GRS	Mod

	arenosa		G5	S4S5	W	FORB	GRS	Mod
BRA	<i>Lesquerella ludoviciana</i>	Louisiana bladderpod	G5	S4S5	W	FORB	GRS	Mod
BRA	<i>Rorippa nasturtium-aquaticum</i>	Water-cress	G5	SE		FORB		Mod
BRA	<i>Rorippa palustris</i> var. <i>fernaldiana</i>	Marsh yellowcress	G5T?	S3	W	FORB	WET	Mod
BRA	<i>Thlaspi arvense</i>	Field pennycress	G?	SE		A-FORB		High
CAC	<i>Coryphantha vivipara</i>	Pincushion cactus	G5	S3	W	FORB	GRS	Mod
CAC	<i>Opuntia fragilis</i>	Brittle prickly-pear	G4G5	S2S3	W	FORB	GRS	Mod
CAM	<i>Campanula rotundifolia</i>	Harebell	G5	S5	W	FORB	RMF	Mod
CAN	<i>Humulus lupulus</i> var. <i>neomexicanus</i>	Hops	G5T4T5	S3	W	FORB	GRS	Mod
CHN	<i>Atriplex subspicata</i>	Spearscale	G5	S3	W	A-FORB	GRS	Mod
CHN	<i>Bassia hyssopifolia</i>	Bassia	G?	SE		A-FORB		Mod
CHN	<i>Chenopodium glaucum</i> var. <i>salinum</i>	Oak-leaved goosefoot	G5	S3S4	W	A-FORB	RMF	Mod
CHN	<i>Salsola australis</i>	Russian thistle	G?	SE		A-FORB		Mod
CNV	<i>Evolvulus nuttalianus</i>	Nuttall's evolvulus	G5	S3	W	FORB	GRS	High
CRY	<i>Arenaria hookeri</i> var. <i>hookeri</i>	Hooker's sandwort	G4G5T?	S5	W	FORB	IDS	High
CRY	<i>Cerastium arvense</i>	Field chickweed	G5	S5	W	FORB	RMF	Mod
CUC	<i>Echinocystis lobata</i>	Wild cucumber	G5	S2S3	W	A-FORB	GRS	Mod
CYP	<i>Carex hystericina</i>	Porcupine sedge	G5	S2	W	GRASS	WET	Mod
CYP	<i>Carex lanuginosa</i>	Woolly sedge	G5	S5	W	GRASS	WET	Mod
CYP	<i>Carex stenophylla</i>	Narrow-leaved sedge		S5	W	GRASS	GRS	High
CYP	<i>Eleocharis palustris</i>	Common spikerush	G5	S5	W	GRASS	WET	Mod
CYP	<i>Scirpus pungens</i> var. <i>polyphyllus</i>	Three-square bulrush	G5	S5	W	GRASS	WET	Mod
EQU	<i>Equisetum arvense</i>	Field horsetail	G5	S5	W	FERN	WET	High
EUP	<i>Euphorbia brachycera</i> var. <i>robusta</i>	Rocky Mountain spurge	G5	S4	W	FORB	GRS	Mod
EUP	<i>Euphorbia fendleri</i>	Fendler's spurge	G5	S3	W	FORB	GRS	Mod
FAB	<i>Astragalus drummondii</i>	Drummond's milkvetch	G5	S4S5	W	FORB	GRS	Mod
FAB	<i>Astragalus gracilis</i>	Slender milkvetch	G5	S4	W	FORB	GRS	Mod
FAB	<i>Astragalus lotiflorus</i>	Lotus milkvetch	G5	S3	W	FORB	GRS	Mod

FAB	<i>Astragalus missouriensis</i>	Missouri milkvetch	G5	S4S5	W	FORB	GRS	High
FAB	<i>Astragalus purshii</i> var.	Woolly-pod milkvetch	G5T?	S5	W	FORB	RMF	Mod
FAB	<i>Astragalus sericoleucus</i> var.	Silky orophaca	G4	S3	R	FORB	GRS	Mod
FAB	<i>Astragalus spatulatus</i>	Spoonleaf milkvetch	G5	S5	W	FORB	GRS	High
FAB	<i>Dalea purpurea</i>	Purple prairie-clover	G5	S4	W	FORB	GRS	High
FAB	<i>Lathyrus polymorphus</i> var.	Hoary sweetpea	G5?TU	SH	P	FORB	GRS	High
FAB	<i>incanus</i>	Rusty lupine	G4T?	S4	W	A-FORB	GRS	High
FAB	<i>Lupinus pusillus</i> var.	Alfalfa	G?T?	SE		FORB		High
FAB	<i>Medicago sativa</i>	Lambert's locoweed	G5	S4	W	FORB	GRS	Mod
FAB	<i>Oxytropis lambertii</i>	White locoweed	G5T?	S5	W	FORB	GRS	High
FAB	<i>Oxytropis sericea</i> var.							
FAB	<i>sericea</i>	Silver-leaf scurf-pea	G5	S4	W	FORB	GRS	Mod
FAB	<i>Pediomelum argophyllum</i>	Indian bread-fruit	G5	S4	W	FORB	GRS	Mod
FAB	<i>Pediomelum esculentum</i>	Lemon scurf-pea	G5	S4S5	W	FORB	GRS	Mod
FAB	<i>Psoraleidium lanceolatum</i>	Red clover	G?	SE		FORB		Mod
FAB	<i>Trifolium pratense</i>	American vetch	G5T?	S5	W	FORB	RMF	High
FAB	<i>Vicia americana</i> var. minor	Wax currant	G5T5	S5	W	SHRUB	RMF	High
GRS	<i>Ribes cereum</i> var.							
	<i>pedicellare</i>	Common mare's-tail	G5	S3	W	FORB	WET	Mod
HPU	<i>Hippuris vulgaris</i>	Waterpod	G5	S3	W	A-FORB	GRS	Mod
HYD	<i>Ellisia nyctelea</i>	Mountain blue-eyed grass	G5	S3	W	FORB	WET	Mod
IRI	<i>Sisyrinchium montanum</i>	Seaside arrowgrass	G5	S4	W	GRASS	WET	Mod
JCG	<i>Triglochin maritimum</i>	Compressed rush	G5	SE		GRASS		Mod
JUN	<i>Juncus compressus</i>	Drummond's pennycroyal	G5	S3S4	W	FORB	GRS	Mod
LAM	<i>Hedeoma drummondii</i>	American bugleweed	G5	S3	W	FORB	WET	High
LAM	<i>Lycopus americanus</i>	Field mint	G5	S5	W	FORB	WET	High
LAM	<i>Mentha arvensis</i>	Lance-leaved salvia	G5	S2S3	W	FORB	GRS	Mod
LAM	<i>Salvia reflexa</i>	Britton's skullcap	G4G5	S2S3	W	FORB	RMF	Mod
LAM	<i>Scutellaria brittonii</i>	Textile onion	G5?	S5	W	FORB	IDS	High
LIL	<i>Allium textile</i>	Asparagus	G5?	SE		FORB		Mod
LIL	<i>Asparagus officinalis</i>	Sand lily	G5	S4	W	FORB	GRS	Mod
LIL	<i>Leucocrinum montanum</i>							

LIL	<i>Zigadenus venenosus</i> var. <i>gramineus</i>	Meadow death-camas	G5T5	S5	W	FORB	RMF	High
LIN	<i>Linum usitatissimum</i>	Common flax	G?	SE		A-FORB		Mod
LMN	<i>Lemna minor</i>	Lesser duckweed	G5	S3S4	W	FORB	WET	Mod
MLV	<i>Malva rotundifolia</i>	Dwarf mallow		SE		A-FORB		Mod
MLV	<i>Sphaeralcea coccinea</i>	Red globemallow	G5?	S5	W	FORB	IDS	High
NYC	<i>Mirabilis linearis</i>	Narrowleaved four-o'clock	G5	S3S4	W	FORB	GRS	Mod
ONA	<i>Calylophus serrulatus</i>	Plains yellow primrose	G5	S3S4	W	FORB	GRS	Mod
ONA	<i>Epilobium ciliatum</i> var. <i>ciliatum</i>	American willow-herb	G5T?	S5	W	FORB	WET	High
ORO	<i>Orobancha fasciculata</i>	Clustered broomrape	G4	S4S5	W	FORB	RMF	Mod
PLG	<i>Eriogonum alatum</i>	Winged buckwheat	G5	S3	W	FORB	GRS	High
PLG	<i>Eriogonum brevicaule</i> var. <i>brevicaule</i>	Shortstem buckwheat	G4T4?	S4S5	W	FORB	RMF	Mod
PLG	<i>Eriogonum flavum</i> var. <i>flavum</i>	Yellow buckwheat	G5T4T5	S5	W	FORB	GRS	Mod
PLG	<i>Polygonum aviculare</i>	Common knotweed	G?	SE		A-FORB		High
PLG	<i>Polygonum convolvulus</i>	Knot bindweed	G?	SE		A-FORB		Mod
PLG	<i>Polygonum ramosissimum</i>	Bushy knotweed	G5	S3	W	A-FORB	GRS	Mod
PLG	<i>Polygonum scandens</i>	Climbing false buckwheat	G5	S1	P	FORB	GRS	Mod
PLM	<i>Ipomopsis spicata</i> var. <i>spicata</i>	Spicate gilia	G4?TU	S4	W	FORB	IDS	High
POA	<i>Agropyron cristatum</i> var. <i>cristatum</i>	Crested wheatgrass	G5	SE		GRASS		High
POA	<i>Alopecurus aequalis</i>	Shortawn foxtail	G5	S4	W	GRASS	WET	Mod
POA	<i>Alopecurus pratensis</i>	Meadow foxtail	G?	SE		GRASS		Mod
POA	<i>Aristida purpurea</i> var. <i>longiseta</i>	Red three-awn	G5T5?	S3S4	W	GRASS	GRS	High
POA	<i>Beckmannia syzigachne</i>	Sloughgrass	G5	S4	W	A-GRASS	WET	Mod
POA	<i>Bouteloua curtipendula</i>	Side-oats grama	G5	S3	W	GRASS	GRS	High
POA	<i>Bromus commutatus</i>	Hairy brome	G?	SE		A-GRASS		Mod
POA	<i>Bromus squarrosus</i>	Square brome	G?	SE		A-GRASS		Mod
POA	<i>Elymus elongatus</i> var. <i>ponticus</i>	Tall wheatgrass		SE		GRASS		Mod
POA	<i>Elymus elymoides</i> var. <i>breviflorus</i>	Bottlebrush squirreltail		S3S4	W	GRASS	RMF	Mod

POA	<i>Elymus trachycaulus</i> var. <i>trachycaulus</i>	Slender wheatgrass	G5T5	S5	W	GRASS	RMF	Mod
POA	<i>Eragrostis minor</i>	Little lovegrass		SE		A-GRASS		Mod
POA	<i>Festuca octoflora</i>	Six-weeks fescue	G5	S4	W	A-GRASS	IDS	Mod
POA	<i>Hordeum jubatum</i>	Foxtail barley	G5	S5	W	GRASS	GRS	Mod
POA	<i>Koeleria macrantha</i>	Prairie junegrass	G5	S5	W	GRASS	GRS	High
POA	<i>Muhlenbergia racemosa</i>	Green muhly	G5	S3	W	GRASS	RMF	Mod
POA	<i>Phleum pratense</i>	Timothy	G?	SE		GRASS		Mod
POA	<i>Poa palustris</i>	Fowl bluegrass	G5	SE		GRASS		Mod
POA	<i>Poa secunda</i> var. <i>secunda</i>	Sandberg bluegrass	G5	S5	W	GRASS	IDS	High
POA	<i>Stipa viridula</i>	Green needlegrass	G5	S4	W	GRASS	GRS	Mod
PTG	<i>Plantago lanceolata</i>	English plantain	G5	SE		FORB		Mod
PTG	<i>Plantago major</i>	Common plantain	G5	SE		FORB		High
RAN	<i>Delphinium geyeri</i>	Geyer's larkspur	G5	S4	R	FORB	IDS	Mod
RAN	<i>Ranunculus cymbalaria</i>	Shore buttercup	G5	S5	W	FORB	WET	Mod
ROS	<i>Cercocarpus montanus</i>	True mountain mahogany	G5	S3S4	W	SHRUB	IDS	Mod
ROS	<i>Physocarpus monogynus</i>	Mountain ninebark	G4	S3	W	SHRUB	RMF	Mod
ROS	<i>Prunus virginiana</i> var. <i>melanocarpa</i>	Common chokecherry	G5T?	S5	W	SHRUB	RMF	Mod
ROS	<i>Rosa woodsii</i>	Woods rose	G5	S5	W	SHRUB	RMF	Mod
SAL	<i>Populus alba</i>	White poplar	G5	SE		TREE		Mod
SAL	<i>Populus angustifolia</i>	Narrowleaf cottonwood	G5	S4S5	W	TREE	WET	Mod
SAL	<i>Salix fragilis</i>	Crack willow	G?	SE		TREE		Mod
SAN	<i>Comandra umbellata</i> var. <i>pallida</i>	Bastard toad-flax	G5T?	S5	W	FORB	IDS	High
SCR	<i>Castilleja sessiliflora</i>	Downy paintbrush	G5	S3	W	FORB	GRS	High
SCR	<i>Penstemon albidus</i>	White beardtongue	G5	S4	W	FORB	GRS	High
SCR	<i>Penstemon angustifolius</i> var. <i>angustifolius</i>	Narrowleaf beardtongue	G5T?	S3	W	FORB	GRS	Mod
SCR	<i>Verbascum thapsus</i>	Common mullein	G?	SE		FORB		High
SCR	<i>Veronica americana</i>	American brooklime	G5	S5	W	FORB	WET	Mod
SOL	<i>Physalis hispida</i>	Hispid ground-cherry	G5	S3	W	FORB	GRS	Mod
SOL	<i>Solanum dulcamara</i>	Bittersweet	G?	SE		FORB		Mod
TYP	<i>Typha angustifolia</i>	Narrow-leaved cattail	G5	S2	W	GRASS	WET	Mod
URT	<i>Parietaria pensylvanica</i>	Pellitory	G5	S3	W	A-FORB	RMF	Mod

VIO	<i>Viola nuttallii</i>	Yellow prairie violet	G5	S3S4	W	FORB	GRS	Mod
VIT	<i>Vitis riparia</i>	River-bank grape	G5	S3	W	SHRUB	EDF	Mod
VRB	<i>Verbena stricta</i>	Hoary vervain	G5	S2	W	FORB	GRS	Mod