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9 August 2000

Walter Fertig

Vanessa Hill
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Dear Vanessa,

Following our phone conversation yesterday regarding methods of determining "90%" sampling for species lists on National Parks, it occurred to me that you might find the enclosed report on the flora of the Black Hills useful in assessing the Devils Tower situation. This report includes an annotated checklist of the WY portion of the Black Hills and includes the Devils Tower checklist and a list of biome types for the other species in the region. Comparison of the Devils Tower checklist against the distribution of other plants in the area (especially grassland and eastern deciduous forest species) might give you a better idea of what species might be expected on the monument.

If you are interested, we have also prepared a report on the flora and rare species of Fort Laramie NHS (similar to the Devils Tower report I sent earlier).

Good luck with your new job. If I can be of any additional help, please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read 'Walter Fertig'.

Walter Fertig

*Not entered. Oblat + Fertig
Entered 8/18/02
Jon Pughish*

Bibkey: 176627

Protection Status and Checklist
of the Vascular Plant Flora
of the Wyoming Black Hills

Prepared for
The Nature Conservancy
Midwest Science Division

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INTRODUCTION

The Wyoming Black Hills consists of a rich mosaic of habitat types, ranging from dry upland forests of Ponderosa pine and Bur oak, to mesic woods dominated by Aspen, Paper birch, and American elm, mixed-grass prairie, montane grasslands, and wet meadows (Marriott et al. 1999). Although the Black Hills ecoregion covers less than 5% of the state of Wyoming, it contains nearly 38% of the state's vascular plant species. This high species richness has been attributed to the region's location at the crossroads of five of North America's ten major floristic provinces (Marriott 1985). Although currently dominated by species from the Cordilleran Forest Province (Rocky Mountains), the Black Hills flora is also represented by plants from the Northern Conifer (boreal forest), Eastern Deciduous Forest, Grassland, and Great Basins provinces (McIntosh 1931; Gleason and Cronquist 1964).

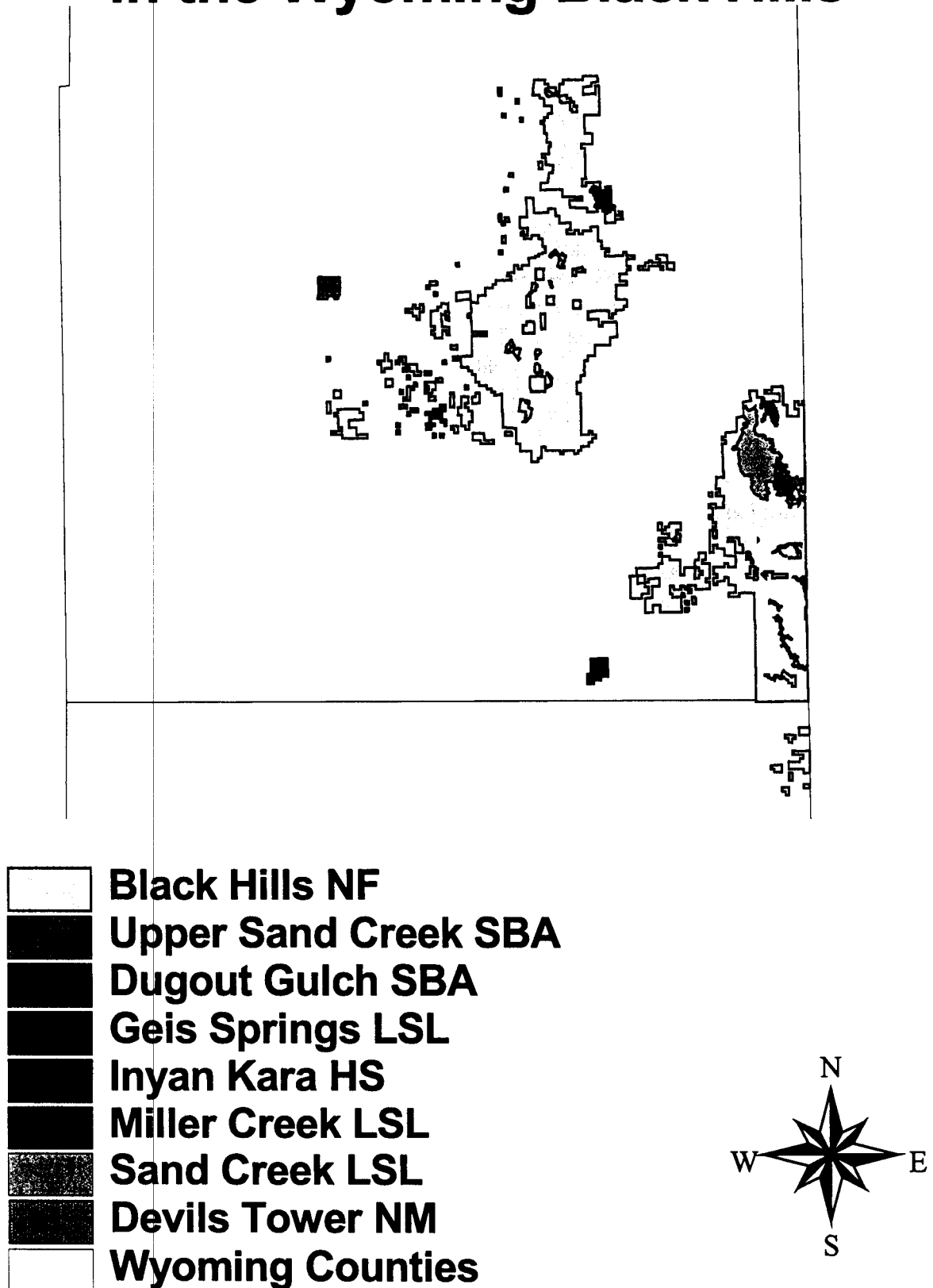
Through the efforts of the National Park Service, Black Hills National Forest, the Bureau of Land Management Newcastle Field Office, Wyoming State Parks Department, and The Nature Conservancy (TNC), at least nine special management areas have been set aside in the Wyoming portion of the Black Hills. These areas form the foundation of a protected-area network that may be critical for the long-term survival of the ecoregion's native animals and plants. In many cases, these areas were selected to protect important geological, historical, or recreational sites, rather than biological diversity. The purpose of our report is to assess how well this network protects both rare and abundant vascular plant species and to identify groups of species or habitats that may need additional conservation attention.

METHODS

We derived a checklist of the vascular flora of the Wyoming Black Hills from regional floristic surveys (Marriott 1982, 1985), floras (Dorn 1977, 1992) and distribution maps and databases maintained by the University of Wyoming's Rocky Mountain Herbarium (RM) and Wyoming Natural Diversity Database (WYNDD). Additional information on the distribution of taxa by special management area was derived from species checklists and vegetation surveys (Fertig 2000a; Jones 1992; Ode and Marriott 1990; Marriott 1982, 1989a, 1989b, 1989c, 1991, 1993, 1995; Marriott et al. 1999; San Miguel and Marriott 1996; The Nature Conservancy 1996; USDA Black Hills National Forest 1996; USDI Bureau of Land Management) and data from WYNDD and the RM.

The protection status of each species was assessed using a 4-part scale originally developed by the US Geological Survey's National Gap Program for ranking the protection level of different management areas (Merrill et al. 1996). The score for each species was based on the highest possible protection score for any individual population. Species were ranked 1 if at least one population occurred on Gap Status 1 lands that are permanently protected and managed to maintain biological processes. Such sites include designated wilderness areas, national parks and monuments, most national wildlife refuges, and Nature Conservancy preserves. A rank of 2 was given to species that occur in designated management areas that still allow some land uses that may reduce the quality of natural communities (Gap Status 2 lands). These lands include research natural areas (RNAs), special botanical areas (SBAs), late successional landscapes (LSLs), USFS historic sites, BLM areas of critical environmental concern (ACECs), and TNC easements.

Figure 1.
Special Management Areas
in the Wyoming Black Hills



A score of 3 was given to those species in which the best protected populations occur on public lands managed for multiple use. Gap status 3 lands include undesignated BLM and US Forest Service lands, wilderness study areas, and state parks. Lastly, species were ranked 4 if they occur only on private, state, or reservation lands with no legally binding protection mandate (Gap status 4 lands).

RESULTS

Summary of the Flora of the Wyoming Black Hills

The Wyoming Black Hills contain 1029 taxa of vascular plants, representing 37.4% of the entire state flora (Appendix A). Exotic (non-native) plants account for 148 of these taxa (14.4% of the total flora of the study area), a figure that is slightly higher than the state-wide average (Table 1). Unlike most regions of Wyoming, state and regional endemics (see Table 1 for definitions) account for less than 1% of the Wyoming Black Hills flora (9 species). Peripheral, disjunct, and sparse species represent 154 species and just under 15% of the total flora. The remaining 718 species (69.8%) are widespread throughout their range and in Wyoming, and are not considered conservation targets at the "fine filter" scale (Table 1).

Table 1.
Geographic Distribution Patterns in the Wyoming Black Hills Flora

Distribution Pattern	WBH Total # Taxa	% of WBH Flora	WY Total # Taxa	% of WY Flora	Notes
Exotic	148	14.4%	337	12.2%	Taxa not native to WY or North America
Widespread	718	69.8%	1467	53.5%	Abundant in WY, occupying > 5% of the state and widely and continuously distributed outside the state
Sparse	17	1.6%	77	2.8%	Populations widely distributed across WY but small and restricted to specialized or uncommon habitats
Peripheral	108	10.5%	472	17.1%	Populations at the edge of a species' continuous global range, limited to < 5% of the state
Disjunct	29	2.8%	107	3.9%	Populations widely isolated in WY from the main, contiguous portion of a species' range
State and Regional Endemic	9	0.9%	292	10.6%	Total range restricted to a small geographic area, defined here as an area smaller than the state of WY.
Total # of Taxa	1029		2752		

Key: WBH = Black Hills Landscape. Statewide data from Fertig (1998). Exotics status based on Fertig (1999a).

State abundance patterns (Table 2) also indicate that most of the Wyoming Black Hills flora consists of relatively common species of low conservation priority. 633 taxa from the Black Hills area (61.5%) are currently ranked S2S3 to S5 in Wyoming, indicating that these species are moderately to very common within the state (Table 2). By contrast, only 96 species (9.3 %) are ranked in the two rarest categories: S1 (extremely rare) and SH (state historical, not observed since 1950).

Five of the state's six major biome types are represented in the flora of the Black Hills (Barbour and Billings 1999). (One typically alpine species, *Arenaria rubella*, is also present in the flora, but it occurs at much lower elevations than elsewhere in Wyoming.) In terms of species richness, the Rocky Mountain Forest biome accounts for the largest component of the flora (307 species, or 29.8 % of the total flora), followed by the Great Plains with 295 taxa (28.7%) (Table 3). Despite their small geographic area, wetlands contribute a high percentage (18.0%) of the total species richness. Only 49 species from the Eastern Deciduous Forest are present in the Black Hills (4.8% of the flora), but these taxa account for 92.5% of the species from this biome found in the entire state. The Intermountain Desert Steppe flora is barely represented in the ecoregion, with only 43 species (4.2% of the flora).

Table 2.
State Abundance Patterns in the Wyoming Black Hills Flora

State Rank	WBH Total # taxa	% of WBH Flora	WY Total # taxa	% of WY Flora	Notes
SH	4	0.4%	46	1.7%	State Historical: taxa last observed prior to 1950
SR	0	0%	20	0.8%	State Reported: reported for WY, but confirmation is needed
S1	92	8.9%	468	17%	Known from less than 5 extant populations in WY or with a small population size
S1S2-S2	152	14.8%	627	22.8%	S1S2: known from 6-7 locations and a small population size; S2: known from 6-20 locations and a small to medium population size
S2S3-S3	270	26.2%	708	25.7%	Known from ca 20-75 locations with medium population size
S3S4-S4	169	16.4%	295	10.7%	Known from 75-100 locations and may be locally abundant in at least 1 major biome
S4S5-S5	194	18.9%	251	9.1%	Known from over 100 locations and often abundant in 2 or more major biomes.
SE	148	14.4%	337	12.2%	State Exotic: not native to WY or North America

Key: WBH = Wyoming Black Hills. Statewide data from Fertig 1998.

Table 3.
Biome Types Represented in the Wyoming Black Hills Flora

Biome Type	WBH Total Taxa	% of WBH Flora	WY Total Flora	% State Flora
Alpine	1	0.1%	164	6%
Eastern Deciduous Forest	49	4.8%	53	1.9%
Great Plains	295	28.7%	404	14.7%
Intermountain Desert Steppe	43	4.2%	342	12.4%
Rocky Mountain Forests	307	29.8%	928	33.8%
Wetlands	186	18.0%	524	19%
Exotics	148	14.4%	337	12.2%

Key: WBH = Wyoming Black Hills. Statewide data from Fertig 1998.

Protection Status of the Flora of the Wyoming Black Hills

The Wyoming portion of the Black Hills currently contains only one area (Devils Tower National Monument) that is ranked Status 1 for protection of biological diversity by Gap (Merrill et al. 1996). 449 plant taxa are currently known from Devils Tower, representing 43.6% of the flora of the Wyoming Black Hills (Fertig 2000). An additional 199 species (19.4% of the flora) are found in areas ranked status 2 in the Gap system (Table 4, Appendix A). In the Black Hills Ecoregion, these areas include the Dugout Gulch and Upper Sand Creek special botanical areas, Geis Spring, Miller Creek, and Sand Creek late successional landscapes, Inyan Kara Historic Site, Whoop-up Canyon ACEC, and TNC easements. Combined, Status 1 and 2 lands at least minimally protect 63% of the vascular plant species in the Wyoming Black Hills. Of the remaining species, 23.5% occur on Status 3 Forest Service, BLM, and state park lands managed for multiple use and 13.5% are restricted to unprotected state or private Status 4 lands (Table 4). At least 50% of the plant species found in each of the major biomes in the Black Hills receive some protection, with the highest percentage afforded to Eastern Deciduous Forest, Rocky Mountain Forest, and Great Plains species (66.8-71.4%) (Table 4).

Protection Status of Rare Plant Species of the Wyoming Black Hills

WYNDD currently categorizes 77 plants as "species of special concern" in the Wyoming Black Hills (Fertig 2000b; Fertig and Beauvais 1999)*. Of these species, only 30 (39%) occur at least once in Gap status 1 or 2 lands in the ecoregion (Tables 5, 6). 18 of the protected species are considered peripherals, 11 are significantly disjunct, and 1 is considered sparse throughout the state. 26 of the region's 77 rare species belong to the Eastern Deciduous Forest biome, of which 12 (46.2%) are at least minimally protected. The Great Plains biome is represented by 27 rare plants, but only 10 receive any protection (37%), while Wetlands contain 15 rare species of which 4 (20%) are protected. The Rocky Mountain Forest biome has only 9 rare species, but 7 of these receive some protection (77.8%).

* Since the publication of the 1999 edition of "Wyoming Plant and Animal Species of Special Concern, one rare plant species from the Black Hills (*Carex parryana* var. *parryana*) has been dropped due to its recently confirmed greater abundance across the state.

Table 4.
Protection Summary for Vascular Plant Species in the Wyoming Black Hills

	Status 1	Status 2	Status 3	Status 4
Total # Taxa n = 1029	449 (43.6%)	199 (19.4%)	242 (23.5%)	139 (13.5%)
Alpine Species (ALP) n = 1	0 (0%)	0 (0%)	1 (100%)	0 (0%)
Eastern Deciduous Forest Species (EDF) n = 49	11 (22.4%)	24 (49.0%)	13 (26.5%)	1 (2.1%)
Great Plains Species (GRS) n = 295	177 (60.0%)	20 (6.8%)	56 (19.0%)	42 (14.2%)
Intermountain Desert Steppe Species (IDS) n = 43	21 (48.8%)	3 (7.0%)	12 (27.9%)	7 (16.3%)
Rocky Mountain Forest Species (RMF) n = 307	130 (42.3%)	87 (28.3%)	70 (22.8%)	20 (6.5%)
Wetland Species (WET) n = 186	48 (25.8%)	47 (25.2%)	60 (32.3%)	31 (16.7%)
Exotic Species (SE) n = 148	62 (41.9%)	18 (12.1%)	30 (20.3%)	38 (25.7%)

Key: **Protection Status** is based on a modified 4-part scale developed for ranking the protection status of different land areas for Gap Analysis (Merrill et al. 1996). Species ranked 1 occur on at least one site that is permanently protected from conversion of natural land cover and managed to maintain natural processes [designated Wilderness Areas, National Parks and Monuments, National Wildlife Refuges, and Nature Conservancy preserves]. Species ranked 2 occur on at least one site that is protected from conversion of natural land cover, but which may be subject to some management practices that reduce the quality of natural communities [BLM ACECs, Forest Service Research Natural Areas, Special Botanical Areas, and Late Successional Landscapes, National Park Service-managed National Recreation Areas, and TNC conservation easements]. Species ranked 3 occur on at least one site that is managed as public land for multiple use. [undesigned BLM, US Forest Service, and state park lands]. Species ranked 4 occur only on lands that lack legally binding mandates for management of natural land cover or species [private, state, and reservation lands].

Table 5.
Protection Summary for Plant Species of Special Concern in the Wyoming Black Hills

	Status 1	Status 2	Status 3	Status 4
RARE PLANTS				
Total # Taxa n = 77	7 (9.1%)	23 (29.9%)	35 (45.4%)	12 (15.6%)
BIOME				
Eastern Deciduous Forest Species (EDF) n = 26	1 (3.8%)	11 (42.4%)	13 (50%)	1 (3.8%)
Great Plains Species (GRS) n = 27	5 (18.5%)	5 (18.5%)	9 (33.3%)	8 (29.7%)
Rocky Mountain Forest Species (RMF) n = 9	0	7 (77.8%)	2 (22.2%)	0
Wetland Species (WET) n = 15	1 (6.7%)	3 (20%)	8 (53.3%)	3 (20%)
DISTRIBUTION				
Disjunct n = 22	0	11 (50%)	11 (50%)	0
Peripheral n = 51	7 (13.7%)	11 (21.6%)	23 (45.1%)	10 (19.6%)
Sparse n = 4	0	1 (25%)	1 (25%)	2 (50%)

Key: **Protection Status** is based on a modified 4-part scale developed for ranking the protection status of different land areas for Gap Analysis (Merrill et al. 1996). Species ranked 1 occur on at least one site that is permanently protected from conversion of natural land cover and managed to maintain natural processes [designated Wilderness Areas, National Parks and Monuments, National Wildlife Refuges, and Nature Conservancy preserves]. Species ranked 2 occur on at least one site that is protected from conversion of natural land cover, but which may be subject to some management practices that reduce the quality of natural communities [BLM ACECs, Forest Service Research Natural Areas, Special Botanical Areas, and Late Successional Landscapes, National Park Service-managed National Recreation Areas, and TNC conservation easements]. Species ranked 3 occur on at least one site that is managed as public land for multiple use. [undesigned BLM, US Forest Service, and state park lands]. Species ranked 4 occur only on lands that lack legally binding mandates for management of natural land cover or species [private, state, and reservation lands].

Table 6.
Plants of Special Concern in the Wyoming Black Hills
(pages 10-12)

Key: see key for Appendix A for explanation of codes and terms.

Table 6. Plants of Special Concern in the WY Black Hills

Species	Synonym	Family	GRank	SRank	Dist	Form	Biome	DT NM (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	K SP (3)	New BLM (3)	Priv (4)	SCORE
<i>Adenocaulon bicolor</i>		AST	G5?	S1	D	FORB	RMF			X			X				X				2
<i>Adoxa moschatellina</i>		ADX	G5	S1	S	FORB	RMF			X			X				X				2
<i>Agrimonia gryposepala</i>		ROS	G5	S1	P	FORB	EDF										X				3
<i>Ammannia robusta</i>		LYT	G5	S1	P	A-FORB	WET												X		4
<i>Anemone virginiana</i>		RAN	G5	S1	P	FORB	EDF										X				3
<i>Antennaria neglecta</i>		AST	G5	S1	P	FORB	GRS										X				3
<i>Aquilegia brevistyla</i>		RAN	G5	S1	D	FORB	EDF										X?		X?		3
<i>Asclepias ovalifolia</i>		ASC	G5?	S1	P	FORB	GRS		X				X				X				2
<i>Asclepias verticillata</i>		ASC	G5	S1	P	FORB	GRS	X													1
<i>Bacopa rotundifolia</i>		SCR	G5	S1	P	FORB	WET												X		4
<i>Botrychium campestre</i>		OPH	G3	S1	P	FERN	GRS										X				3
<i>Botrychium virginianum</i>		OPH	G5	S1	P	FERN	RMF		X	X							X				2
<i>Bouteloua hirsuta</i>		POA	G5T5	S1	P	GRASS	GRS								X				X		2
<i>Campanula aparinoides</i>		CAM	G5	S1	P	FORB	EDF										X				3
<i>Carex alopecoidea</i>		CYP	G5	S1	D	GRASS	WET			X							X				2
<i>Carex eburnea</i>		CYP	G5	S1	P	GRASS	EDF		X								X				2
<i>Carex emoryi</i>		CYP	G5	S1	P	GRASS	WET	X													1
<i>Carex granularis</i> var. <i>haleana</i>		CYP	G5T4	S1	P	GRASS	WET		X								X				2
<i>Carex richardsonii</i>		CYP	G4	S1	D	GRASS	EDF										X		X		3
<i>Carex rosea</i>		CYP	G5	S1	D	GRASS	EDF		X								X				2
<i>Ceanothus herbaceus</i>		RHM	G5	S1	P	SHRUB	GRS										X				3
<i>Centunculus minimus</i>		PRM	G5	S1	P	A-FORB	WET										X				3
<i>Circaea lutetiana</i> var. <i>canadensis</i>		ONA	G5T5	S1	P	FORB	EDF		X								X				2
<i>Cyperus erythrorhizos</i>		CYP	G5	S1	P	A-GRASS	WET												X		3
<i>Cypripedium calceolus</i> var. <i>pubescens</i>	<i>Cypripedium pubescens</i>	ORC	G5	S1S2	D	FORB	RMF		X?								X				2?
<i>Dalea enneandra</i>		FAB	G5	S1	P	FORB	GRS												X	X	3
<i>Eleocharis ovata</i>	<i>Eleocharis obtusa</i> var. <i>ovata</i>	CYP	G5	S1	P	A-GRASS	WET										X				3
<i>Elymus diversiglumis</i>	<i>Elymus interruptus</i>	POA	G3?Q	S1	P	GRASS	EDF			X							X				2
<i>Elymus villosus</i>		POA	G5	S1	P	GRASS	EDF	X									X		X?	X	1
<i>Equisetum scirpoides</i>		EQU	G5	S1	D	FERN	EDF			X							X				2
<i>Equisetum sylvaticum</i>		EQU	G5	S1	D	FERN	EDF										X				3
<i>Euphorbia serpens</i>		EUP	G5	S1	P	A-FORB	GRS													X	4
<i>Froelichia gracilis</i>		AMA	G5	SH	P	A-FORB	GRS													X	4
<i>Glandularia bipinnatifida</i>	<i>Verbena bipinnatifida</i>	VRB	G5	S1	P	FORB	GRS	X													1

Table 6. Plants of Special Concern in the WY Black Hills

Species	Synonym	Family	GRank	SRank	Dist	Form	Biome	DT NM (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	K SP (3)	New BLM (3)	Priv (4)	SCORE
<i>Gymnocarpium dryopteris</i>	Incl. <i>Gymnocarpium disjunctum</i>	ASL	G5	S1	D	FERN	RMF				X						X				2
<i>Habenaria orbiculata</i>	<i>Platanthera orbiculata</i>	ORC	G5?	S1	D	FORB	RMF										X				3
<i>Helianthemum bicknellii</i>		CIS	G5	S1	P	FORB	GRS	X			X						X				1
<i>Hymenopappus tenuifolius</i>		AST	G5	SH	P	FORB	GRS										X?				3?
<i>Lechea intermedia</i>		CIS	G5	S1	D	FORB	EDF										X				3
<i>Loeflingia squarrosa</i> var. <i>texana</i>		CRY	G5T4?	S1	D	A-FORB	GRS												X?	X	3?
<i>Lycopodium complanatum</i>	<i>Diphasiastrum complanatum</i>	LYC	G5	S1	D	FERN	EDF			X							X				2
<i>Lycopodium dendroideum</i>		LYC	G5	S1	D	FERN	EDF										X				3
<i>Lycopus uniflorus</i>		LAM	G5	S1	P	FORB	WET										X				3
<i>Lythrum alatum</i>		LYT	G5	S1	P	FORB	GRS													X	4
<i>Mentzelia oligosperma</i>		LOA	G4	S1	P	FORB	GRS													X	4
<i>Muhlenbergia glomerata</i>	Incl. in <i>Muhlenbergia racemosa</i> by some authors	POA	G5	S1	S	GRASS	WET										X			X?	3
<i>Myosotis verna</i>		BOR	G5	S1	P	A-FORB	EDF										X			X	3
<i>Oenothera laciniata</i>		ONA	G5	S1	P	A-FORB	GRS	X									X				1
<i>Onoclea sensibilis</i>		DRY	G5	S1	P	FERN	EDF										X				3
<i>Oryzopsis pungens</i>		POA	G5	SH	D	GRASS	EDF							X			X				2
<i>Ostrya virginiana</i>		BET	G5	S1	P	TREE	EDF		X	X							X				2
<i>Panicum linearifolium</i>	<i>Dichanthelium linearifolium</i>	POA	G5	S1	D	GRASS	GRS										X				3
<i>Pellaea atropurpurea</i>	Black Hills material may be <i>P. gastonyi</i>	ADI	G5	S1	P	FERN	EDF		X								X				2
<i>Pellaea gastonyi</i>		ADI	G2G4	S1	D	FERN	RMF										X				3
<i>Pellaea suksdorfiana</i>	<i>Pellaea glabella</i> var. <i>simplex</i>	ADI	G5T4?	S1	P	FERN	RMF						X				X				2
<i>Phryma leptostachya</i>		VRB	G5	S1	P	FORB	EDF													X	4
<i>Physalis virginiana</i> var. <i>virginiana</i>		SOL	G5	S1	P	FORB	GRS										X				3
<i>Polygala verticillata</i>		PGL	G5	S1	P	A-FORB	EDF										X		X		3
<i>Polygonatum biflorum</i>		LIL	G5	S1	P	FORB	EDF		X								X				2
<i>Potamogeton diversifolius</i>		POT	G5	S1	P	FORB	WET										X				3
<i>Prenanthes racemosa</i> var. <i>multiflora</i>		AST	G5T4?	S1	P	FORB	WET										X				3
<i>Puccinellia cusickii</i>		POA	G3G4QS1	S	S	GRASS	GRS													X	4
<i>Scirpus atrocinctus</i>	<i>Scirpus cyperinus</i>	CYP	G5	S1	D	GRASS	WET			X							X				2

Table 6. Plants of Special Concern in the WY Black Hills

Species	Synonym	Family	GRank	SRank	Dist	Form	Biome	DT NM (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	K SP (3)	New BLM (3)	Priv (4)	SCORE
<i>Scirpus heterochaetus</i>		CYP	G5	S1	P	GRASS	WET													X	4
<i>Selaginella rupestris</i>		SEL	G5	S1	D	FERN	EDF										X				3
<i>Solidago speciosa</i> var. <i>pallida</i>	<i>Solidago speciosa</i> var. <i>rigidiuscula</i>	AST	G5T4	S1	P	FORB	GRS										X				3
<i>Sorghastrum nutans</i>	<i>Sorghastrum</i> <i>avenaceum</i>	POA	G5	S1	P	GRASS	GRS										X				3
<i>Sparganium eurycarpum</i>		SPG	G5	S1	P	FORB	WET										X				3
<i>Sporobolus asper</i> var. <i>asper</i>		POA	G5T5	S1	P	GRASS	GRS													X	4
<i>Sporobolus heterolepis</i>		POA	G5	S1	P	GRASS	GRS													X	4
<i>Talinum parviflorum</i>		POR	G5	S1	S	FORB	GRS													X	4
<i>Thalictrum revolutum</i>		RAN	G5	S1	D	FORB	EDF										X				3
<i>Tradescantia bracteata</i>		CMM	G5	S1	P	FORB	GRS										X?				3?
<i>Triodanis leptocarpa</i>		CAM	G5?	S1	P	A-FORB	GRS										X				3
<i>Viburnum opulus</i> var. <i>americana</i>		CPR	G5T5	S1	D	SHRUB	EDF		X	X							X				2
<i>Viola pedatifida</i>		VIO	G5	S1	P	FORB	GRS	X									X		X?		1
<i>Viola renifolia</i> var. <i>brainerdii</i>		VIO	G5T5	S1	D	FORB	RMF						X				X				2

DISCUSSION

Sixty-three percent of the vascular plant species of the Wyoming Black Hills are currently protected in Gap status 1 or 2 lands. This figure greatly exceeds the 39% protection score for the area's plant species of special concern. The existing protected area network does a relatively good job of conserving habitat for widespread or common species (the so-called "coarse-filter species), but is clearly inadequate for protecting the less common ("fine-filter") elements of the flora. The results from the Black Hills contrast sharply with those attained in comparable analyses of the flora of the Bighorn Range (Fertig 1999b) and Greater Yellowstone area (Fertig 2000c) in which protection scores for rare and common species were nearly equivalent.

The low level of protection for rare species in the Black Hills can be attributed to a number of factors. The Black Hills are the lowest mountain range in the state and lack significant areas of high elevation or alpine habitat – the so-called "rock and ice" areas that are typically afforded wilderness protection in other areas. The long history of human settlement in the Hills has resulted in a highly fragmented land ownership pattern, with relatively few lands in public ownership and most of these with well-established multiple use mandates (logging, mining, and livestock grazing). Until recently, few areas have been designated for natural resource protection, and most of these were established for recreation or to preserve unique geological or cultural features rather than native biological diversity. The high road density within the Hills has prevented many areas from being preserved at the landscape level.

The 1996 Black Hills National Forest Land Management Plan helped fill many of the holes in the protected areas network by establishing new special botanical areas and late successional landscapes in several paper birch, ironwood, aspen, bur oak, white spruce, and ponderosa pine habitat types that are noteworthy for their rare, disjunct, and sensitive plant species. Additional holes remain, however, especially in foothills prairie, sagebrush steppe, montane grassland, wetland, and low-elevation conifer forest habitat types on private, BLM, and Forest Service lands (Marriott et al. 1999). Certain geographic areas are also poorly represented, especially the Bear Lodge Mountains, Southeastern Foothills, and the fringe of Great Plains grasslands. An effort is still needed by federal agencies, TNC, and other land trusts to target these gaps in the protected area network. The current emphasis on coarse filter conservation will help address these deficiencies, but no strategy to conserve representative examples of the Black Hills flora can completely succeed without adequate attention to the fine filter plant elements.

This report has focused solely on presence/absence in protected areas and has not emphasized the amount of representation across the region that is necessary to ensure long-term species viability. For most species, little concrete information is available on minimum population size, distribution, or genetic variability needed to adequately assess viability. The Nature Conservancy (1997) has recommended a policy of conserving at least 5 high quality occurrences of a species dispersed throughout its range as a hedge against regional extirpation. Better information is needed on both common and rare species within the Black Hills to determine if these minimum representation goals are being met. More complete botanical inventory data are also needed at several existing "protected" areas to determine which species are actually present and in what abundance. Surveys are especially needed on TNC easements, the Geis Spring and Miller Creek late successional landscapes, and the BLM Whoop-Up Canyon ACEC.

Designation of special management areas is not, by itself, the complete solution for preserving representative examples of the Black Hills flora. Development and implementation of management strategies that promote or maintain the environmental conditions needed for the survival of each plant species are absolutely critical. Such strategies need not be restricted to Gap status 1 and 2 lands to achieve the long-term conservation of the botanical resources of the Black Hills. Ultimately, the success or failure of plant conservation efforts in the Black Hills depends on cooperation of multiple public and private partners and the recognition by all that these floral features have value and significance.

LITERATURE CITED

- Barbour, M.G. and W.D. Billings. 1999. North American Terrestrial Vegetation, second edition. Cambridge Univ. Press.
- Dorn, R.D. 1977. Flora of the Black Hills. Published by the author.
- Dorn, R.D. 1992. Vascular Plants of Wyoming, second edition. Mountain West Publishing, Cheyenne, WY.
- Fertig, W. 1998. Gap analysis of plants in Wyoming: first year progress report. Report prepared for the University of Wyoming Physics and Astronomy/PASS Center and Botany Department.
- Fertig, W. 1999a. Non-native plants of Wyoming. *Castilleja* 18(2):7-10.
- Fertig, W. 1999b. Protection status and checklist of the vascular plant flora of the Bighorn Landscape. Report prepared for the Nature Conservancy Wyoming Field Office by the Wyoming Natural Diversity Database, Laramie, WY.
- Fertig, W. 2000a. Rare plants of Devils Tower National Monument. Report prepared for the National Park Service by the Wyoming Natural Diversity Database, Laramie, WY.
- Fertig, W. 2000b. Target plant species and potential plant conservation sites in the Wyoming portion of the Black Hills Ecoregion. Report prepared for The Nature Conservancy Midwest Science Division by the Wyoming Natural Diversity Database, Laramie, WY.
- Fertig, W. 2000c. Rare vascular plant species in the Wyoming portion of the Utah-Wyoming Rocky Mountains Ecoregion. Report prepared for the Wyoming Nature Conservancy by the Wyoming Natural Diversity Database, Laramie, WY.
- Fertig, W. and G. Beauvais. 1999. Wyoming Plant and Animal Species of Special Concern. Wyoming Natural Diversity Database, Laramie, WY.
- Gleason, H.A. and A. Cronquist. 1964. The Natural Geography of Plants. Columbia Univ. Press, New York.

Jones, G.P. 1992. Report on the survey for Hairy grama (*Bouteloua hirsuta* Lag. var. *hirsuta*) in the Whoop-Up Canyon Area of Critical Environmental Concern. Report prepared for the BLM Newcastle Resource Area by the Wyoming Natural Diversity Database, Laramie, WY.

Marriott, H. 1982. Devils Tower National Monument plant checklist. Report prepared for the Devils Tower Natural History Association.

Marriott, H. 1985. Flora of the northwestern Black Hills, Crook and Weston counties, Wyoming. Unpublished Master's thesis, Department of Botany, University of Wyoming, Laramie, WY.

Marriott, H. 1989a. Suitability investigation report for a proposed Bear Lodge Pass (Alva Summit) Special Botanical Area, Black Hills National Forest. Report prepared by the Wyoming Natural Diversity Database, Laramie, WY.

Marriott, H. 1989b. Suitability investigation report for a proposed Dugout Gulch Special Botanical Area, Black Hills National Forest. Report prepared by the Wyoming Natural Diversity Database, Laramie, WY.

Marriott, H. 1989c. Programs for monitoring rare and noxious plant species at Devils Tower National Monument, Wyoming. Report prepared for the National Park Service by the Wyoming Natural Diversity Database, Laramie, WY.

Marriott, H. 1991. Suitability investigation report for a proposed Upper Sand Creek Special Botanical Area, Black Hills National Forest. Report prepared by the Wyoming Natural Diversity Database, Laramie, WY.

Marriott, H. 1993. Sensitive plant species surveys on the Bear Lodge District, Black Hills National Forest. Report prepared by the Wyoming Nature Conservancy, Lander, WY.

Marriott, H. 1995. Devils Tower National Monument common wildflower checklist. Devils Tower National Monument.

Marriott, H., D. Faber-Langendoen, A. McAdams, D. Stutzman, and B. Burkhart. 1999. Black Hills Community Inventory, final report. The Nature Conservancy Midwest Conservation Science Center, Minneapolis, MN.

McIntosh, A.J. 1931. A botanical survey of the Black Hills of South Dakota. Black Hills Engineer 19:159-276.

Merrill, E.H., T.W. Kohley, M.E. Herdendorf, W.A. Reiners, K.L. Driese, R.W. Marrs, and S.H. Anderson. 1996. The Wyoming Gap Analysis Project Final Report. Department of Zoology and Physiology, Department of Botany, and Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie.

Ode, D.J. and H. Marriott. 1990. Sensitive plant surveys in the northwestern Black Hills. Report prepared for the Black Hills National Forest Spearfish and Bearlodge Ranger Districts by the South Dakota Game, Fish, and Parks Department and the Wyoming Natural Diversity Database.

San Miguel, G.L. and H. Marriott. 1996. Devils Tower National Monument tree checklist. Devils Tower National Monument.

The Nature Conservancy. 1996. Vegetation sampling and classification of Devils Tower National Monument. The Nature Conservancy Midwest Regional Office, Minneapolis, MN. (available on the internet at www.nbs.gov/npsveg/DETO/methods.html).

USDA Black Hills National Forest. 1996. Black Hills National Forest Revised Land and Resource Management Plan Final Environmental Impact Statement. Black Hills National Forest, Custer, SD.

USDI Bureau of Land Management. 1999. Final Environmental Impact Statement and Proposed Resource Management Plan for public lands administered by the Bureau of Land Management Newcastle Field Office, Newcastle, Wyoming. Bureau of Land Management Newcastle Field Office, Newcastle, WY.

Weber, W. A. 1982. Mnemonic three-letter acronyms for the families of vascular plants: a device for more effective herbarium curation. *Taxon* 31 (1): 74-88.

Appendix A.

Annotated Checklist of the Flora of the Wyoming Black Hills Ecoregion and Summary of Current Protection Status

The known vascular plant flora of the Wyoming portion of the Black Hills Ecoregion is listed alphabetically by family and by genus. Each species entry includes the family code (Fam), pertinent synonyms, global (Grank) and state rank (Srank) as determined by the network of Natural Heritage programs and WYNDD (see Appendix B for codes), and information on geographic distribution pattern (Dist), growth form (Form) and major biome type (Biome). The distribution of each species by land management area is indicated by an "X" for confirmed presence and "X?" for unconfirmed presence. The current protection status in Wyoming, based on Gap criteria, is indicated under the "Score" column.

Key:

Fam: Family acronyms are based on Weber (1982) and are usually the first three letters of the family name. Exceptions are the Adoxaceae (ADX), Aspleniaceae (ASL), Chenopodiaceae (CHN), Callitrichaceae (CLL), Commelinaceae (CMM), Convolvulaceae (CNV), Capparaceae (CPP), Caprifoliaceae (CPR), Crassulaceae (CRS), Caryophyllaceae (CRY), Dennstaedtiaceae (DST), Elaeagnaceae (ELE), Elatinaceae (ELT), Grossulariaceae (GRS), Hydrangeaceae (HDR), Juncaginaceae (JCG), Lemnaceae (LMN), Malvaceae (MLV), Oxalidaceae (OXL), Polygalaceae (PGL), Polygonaceae (PLG), Polemoniaceae (PLM), Primulaceae (PRM), Plantaginaceae (PTG), Rhamnaceae (RHM), Sparganiaceae (SPG), and Verbenaceae (VRB). Family taxonomy follows Dorn (1992).

Dist: Geographic Distribution Pattern. W = widespread (widely distributed rangewide and over most of Wyoming), S = Sparse (wide-ranging geographically, but restricted to small and specialized habitats that are widely scattered in Wyoming), P = Peripheral (wide-ranging globally, but at very edge of range in Wyoming), D = Disjunct (widely isolated in Wyoming from the main, continuous part of its range), R = Regional endemic (restricted to a small global range in Wyoming and 1-2 adjacent states), and E = State endemic (entire global range is restricted to the state of Wyoming).

Form: Growth form. TREE, SHRUB, GRASS (perennial graminoids), A-GRASS (annual graminoids), FORB (perennial forb), A-FORB (annual forb), and FERN (ferns and fern allies).

Biome: Major biome type. ALP = Arctic/alpine, EDF = Eastern Deciduous Forest, GRS = Great Plains, IDS = Intermountain Desert Steppe, RMF = Rocky Mountain Forest, and WET = Wetlands. Biome is left blank for non-native (exotic) species.

Land Management: DTNM = Devils Tower National Monument, DG SBA = Dugout Gulch Special Botanical Area, USC SBA = Upper Sand Creek Special Botanical Area, GS LSL = Geis Spring Late Successional Landscape, MC LSL = Miller Creek Late Successional Landscape, SC

LSL = Sand Creek Late Successional Landscape, IK HS = Inyan Kara Historic Site, WC ACEC = Whoop-Up Canyon Area of Critical Environmental Concern, TNC = TNC preserves or easements, BH NF = Black Hills National Forest, KSP = Keyhole State Park, New BLM = BLM Newcastle Field Office, and Priv = private or state lands.

Gap Status. Protection Status is based on a modified 4-part scale developed for ranking the protection status of different land areas for Gap Analysis (Merrill et al. 1996). Species ranked **1** occur on at least one site that is permanently protected from conversion of natural land cover and managed to maintain natural processes (designated Wilderness Areas, National Parks and Monuments, National Wildlife Refuges, and Nature Conservancy preserves). Species ranked **2** occur on at least one site that is protected from conversion of natural land cover, but which may be subject to some management practices that reduce the quality of natural communities (BLM ACECs, Forest Service Research Natural Areas, Special Botanical Areas and Late Successional Landscapes, National Park Service-managed National Recreation Areas, and TNC conservation easements). Species ranked **3** occur on at least one site that is managed as public land for multiple use. (undesignated BLM, US Forest Service, and state park lands). Species ranked **4** occur only on lands that lack legally binding mandates for management of natural land cover or species (private, state, and reservation lands).

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
AST	<i>Ambrosia artemisiifolia</i>		G5	S2S3	W	A-FORB	GRS										X		X		3
AST	<i>Ambrosia psilostachya</i>	<i>A. coronopifolia</i>	G5	S4	W	FORB	GRS	X										X	X		1
AST	<i>Ambrosia trifida</i>		G5	S3	W	A-FORB	GRS													X	4
AST	<i>Anaphalis margaritacea</i>		G5	S3S4	W	FORB	RMF			X							X				2
AST	<i>Antennaria dimorpha</i>		G5	S4	W	FORB	IDS										X			X	3
AST	<i>Antennaria howellii</i>	<i>A. neodioica</i> , <i>A. neglecta</i> var. <i>howellii</i>	G4G5	S3	W	FORB	GRS	X	X	X							X		X		1
AST	<i>Antennaria microphylla</i>		G4G5	S5	W	FORB	RMF				X			X			X				2
AST	<i>Antennaria neglecta</i>		G5	S1	P	FORB	GRS										X				3
AST	<i>Antennaria parvifolia</i>		G5	S4S5	W	FORB	GRS	X									X	X	X		1
AST	<i>Antennaria rosea</i>	Incl. in <i>A. microphylla</i> by many authors	G4G5	S5	W	FORB	RMF										X		X	X	3
AST	<i>Arctium minus</i>		G?	SE		FORB		X	X	X				X			X				1
AST	<i>Arnica cordifolia</i>		G5	S5	W	FORB	RMF		X	X							X				2
AST	<i>Arnica fulgens</i>		G5	S4S5	W	FORB	RMF	X									X		X		1
AST	<i>Arnica sororia</i>		G5	S3	W	FORB	RMF	X									X			X	1
AST	<i>Artemisia absinthium</i>		G?	SE		FORB											X				3
AST	<i>Artemisia annua</i>		G?	SE		A-FORB														X	4
AST	<i>Artemisia biennis</i> var. <i>biennis</i>		G5T?	S3S4	W	FORB	IDS							X			X				2
AST	<i>Artemisia campestris</i> var. <i>caudata</i>		G5T5	S2	W	FORB	GRS										X	X	X		3
AST	<i>Artemisia campestris</i> var. <i>scouleriana</i>		G5T?	S4	W	FORB	RMF	X	X	X							X				1
AST	<i>Artemisia cana</i> var. <i>cana</i>	<i>Seriphidium canum</i>	G5T4?	S4S5	W	SHRUB	GRS	X													1
AST	<i>Artemisia dracunculus</i>	<i>Oligosporus dracunculus</i>	G5	S5	W	FORB	IDS	X									X				1
AST	<i>Artemisia filifolia</i>	<i>Oligosporus filifolius</i>	G5	S2	W	SHRUB	GRS													X	4
AST	<i>Artemisia frigida</i>		G5?	S5	W	SHRUB	IDS	X									X				1
AST	<i>Artemisia ludoviciana</i> var. <i>incompta</i>		G5T?	S3	W	FORB	RMF			X				X			X				2
AST	<i>Artemisia ludoviciana</i> var. <i>ludoviciana</i>		G5T?	S5	W	FORB	GRS	X									X	X			1
AST	<i>Artemisia tridentata</i> var. <i>tridentata</i>	<i>Seriphidium tridentatum</i>	G5T?	S4	W	SHRUB	IDS	X									X	X			1
AST	<i>Artemisia tridentata</i> var. <i>wyomingensis</i>	<i>Seriphidium vaseyanum</i>	G5T?	S5	W	SHRUB	IDS	X							X		X				1

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ACE	<i>Acer negundo</i> var. <i>interius</i>		G5T?	S4	W	TREE	WET	X	X	X			X				X				1
ADI	<i>Cheilanthes feei</i>		G5	S3	W	FERN	RMF	X					X				X		X		1
ADI	<i>Pellaea atropurpurea</i>	Black Hills material may = <i>P. gastonyi</i>	G5	S1	P	FERN	EDF		X								X				2
ADI	<i>Pellaea gastonyi</i>		G2G4	S1	D	FERN	RMF										X				3
ADI	<i>Pellaea occidentalis</i>	<i>P. glabella</i> var. <i>occidentalis</i>	G5	S3	W	FERN	RMF	X									X		X		1
ADI	<i>Pellaea suksdorfiana</i>	<i>P. glabella</i> var. <i>simplex</i>	G5T4?	S1	P	FERN	RMF						X				X				2
ADX	<i>Adoxa moschatellina</i>		G5	S1	S	FORB	RMF			X			X				X				2
AGA	<i>Yucca glauca</i>		G5	S4	W	SHRUB	GRS	X	X						X		X		X		1
ALI	<i>Alisma gramineum</i>		G5	S2	W	FORB	WET								X				X	X	3
ALI	<i>Alisma triviale</i>	<i>A. plantago-</i> <i>aquatica</i> var. <i>americanum</i>	G5	S3	W	FORB	WET										X		X	X	3
ALI	<i>Sagittaria cuneata</i>		G5	S3S4	W	FORB	WET							X			X			X	2
AMA	<i>Amaranthus albus</i>		G5	S3	W	A-FORB	GRS	X													1
AMA	<i>Amaranthus arenicola</i>		G4G5	S2	W	A-FORB	GRS													X	4
AMA	<i>Amaranthus blitoides</i>	<i>A. graecizans</i>	G?	S5	W	A-FORB	GRS	X									X				1
AMA	<i>Amaranthus californicus</i>		G4	SE*		A-FORB														X	4
AMA	<i>Amaranthus retroflexus</i>		G?	SE		A-FORB		X													1
AMA	<i>Froelichia gracilis</i>		G5	SH	P	A-FORB	GRS							X			X				4
ANA	<i>Rhus glabra</i>		G5	S2	W	SHRUB	EDF		X								X			X	2
ANA	<i>Rhus trilobata</i>	<i>R. aromatica</i> var. <i>trilobata</i>	G5	S5	W	SHRUB	IDS	X	X				X				X		X		1
ANA	<i>Toxicodendron rydbergii</i>	<i>Rhus radicans</i>	G5	S3S4	W	SHRUB	GRS	X	X	X							X	X	X		1
API	<i>Anthriscus caucalis</i>		G?	SE		A-FORB											X				3
API	<i>Cicuta maculata</i> var. <i>angustifolia</i>	<i>C. douglasii</i>	G5T?	S3S4	W	FORB	WET	X	X		X			X			X				1
API	<i>Conium maculatum</i>		G4G5	SE		FORB														X	4
API	<i>Cymopterus acaulis</i>		G5	S4	W	FORB	GRS													X	4
API	<i>Cymopterus montanus</i>		G4	S2S3	W	FORB	GRS	X										X			1
API	<i>Daucus carota</i>		G?	SE		FORB															1
API	<i>Heracleum sphondylium</i> var. <i>lanatum</i>	<i>H. lanatum</i>	G5	S4	W	FORB	WET		X	X	X						X			X	3
API	<i>Lomatium dissectum</i> var. <i>multifidum</i>		G5T?	S3S4	W	FORB	RMF			X							X				2

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API	<i>Lomatium foeniculaceum</i>		G5	S4	W	FORB	IDS	X									X	X	X		1
API	<i>Lomatium orientale</i>		G5	S4	W	FORB	GRS	X									X				1
API	<i>Musineon divaricatum</i>		G5	S4S5	W	FORB	GRS										X		X		3
API	<i>Musineon tenuifolium</i>		G4	S3	R	FORB	GRS		X								X		X		2
API	<i>Osmorhiza chilensis</i>		G5	S3	W	FORB	RMF				X		X				X				2
API	<i>Osmorhiza depauperata</i>		G5	S4S5	W	FORB	RMF						X				X				2
API	<i>Osmorhiza longistylis</i> var. <i>longistylis</i>		G5	S3	W	FORB	RMF	X	X								X		X		1
API	<i>Perideridia montana</i>	<i>P. gairdneri</i>	G5	S4	W	FORB	RMF	X		X							X				1
API	<i>Sanicula marilandica</i>		G5	S3	W	FORB	RMF	X	X	X	X		X	X			X				1
API	<i>Zizia aptera</i>		G5	S3	W	FORB	WET		X	X			X				X				2
APO	<i>Apocynum androsaemifolium</i>		G5	S4	W	FORB	RMF	X	X	X							X	X	X		1
APO	<i>Apocynum cannabinum</i>		G5	S3	W	FORB	RMF	X													1
APO	<i>Apocynum x floribundum</i>	<i>A. medium</i>	HYB	S2	W	FORB	RMF		X				X				X				2
ARL	<i>Aralia nudicaulis</i>		G5	S2	P	FORB	EDF		X	X			X				X				2
ASC	<i>Asclepias incarnata</i>		G5	S2	W	FORB	WET						X				X			X	4
ASC	<i>Asclepias ovalifolia</i>		G5?	S1	P	FORB	GRS		X				X				X				2
ASC	<i>Asclepias pumila</i>		G5	S2	W	FORB	GRS	X													1
ASC	<i>Asclepias speciosa</i>		G5	S4	W	FORB	WET	X		X							X	X			1
ASC	<i>Asclepias stenophylla</i>		G4G5	S1S2	P	FORB	GRS	X									X				1
ASC	<i>Asclepias verticillata</i>		G5	S1	P	FORB	GRS	X													1
ASC	<i>Asclepias viridiflora</i>		G5	S3	W	FORB	GRS	X													1
ASL	<i>Athyrium filix-femina</i>		G5	S2	W	FERN	RMF			X							X				2
ASL	<i>Cystopteris fragilis</i>		G5	S5	W	FERN	RMF	X	X	X	X		X				X	X			1
ASL	<i>Dryopteris filix-mas</i>		G5	S2	W	FERN	RMF			X							X				2
ASL	<i>Gymnocarpium dryopteris</i>	<i>Incl. G. disjunctum</i>	G5	S1	D	FERN	RMF				X						X				2
ASL	<i>Polystichum lonchitis</i>		G5	S2	W	FERN	RMF		X?	X							X				2
ASL	<i>Woodsia oregana</i>		G5	S3	W	FERN	RMF	X					X				X		X		1
ASL	<i>Woodsia scopulina</i>		G5	S3S4	W	FERN	RMF	X													1
AST	<i>Achillea millefolium</i> var. <i>lanulosa</i>	<i>Incl. var. alpicola</i>	G5	S5	W	FORB	RMF	X		X							X		X		1
AST	<i>Adenocaulon bicolor</i>		G5?	S1	D	FORB	RMF			X			X				X				2
AST	<i>Agoseris aurantiaca</i>		G5	S4	W	FORB	RMF						X				X				3
AST	<i>Agoseris glauca</i> var. <i>dasycephala</i>	<i>Incl. var. agrestis</i>	G4G5T?	S5	W	FORB	RMF										X		X		3
AST	<i>Agoseris glauca</i> var. <i>glauca</i>		G4G5T?	S4	W	FORB	RMF		X								X		X		2
AST	<i>Agoseris glauca</i> var. <i>laciniata</i>		G4G5T?	S4	W	FORB	RMF	X													1
AST	<i>Ambrosia acanthicarpa</i>	<i>Franseria acanthicarpa</i>	G5	S2S3	W	A-FORB	GRS													X	4

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
AST	<i>Aster ciliolatus</i>		G5	S3	W	FORB	RMF			X			X	X			X				2
AST	<i>Aster conspicuus</i>		G5	S3	W	FORB	RMF										X				3
AST	<i>Aster ericoides</i> var. <i>stricticaulis</i>	Incl. in <i>A. pansus</i> in Grt PI Flora	G5T?	S2	W	FORB	WET										X			X	4
AST	<i>Aster falcatus</i> var. <i>commutatus</i>	<i>A. commutatus</i>	G4G5QT?	S3	W	FORB	GRS							X			X	X	X		2
AST	<i>Aster falcatus</i> var. <i>crassulus</i>	Incl. in <i>A.</i> <i>commutatus</i> in Grt PI Flora	G4G5QT?	S1?	P	FORB	GRS													X?	4
AST	<i>Aster falcatus</i> var. <i>falcatus</i>		G4G5QT?	S3	W	FORB	GRS	X?									X			X	1?
AST	<i>Aster hesperius</i>	<i>A. lanceolatus</i> var. <i>hesperius</i>	G5T5?	S3	W	FORB	WET							X			X				2
AST	<i>Aster laevis</i>		G5	S3	W	FORB	GRS	X									X	X	X		1
AST	<i>Aster novae-angliae</i>		G5	S1	P	FORB	EDF	X?												X	1?
AST	<i>Aster oblongifolius</i>		G5	S2	P	FORB	GRS	X									X	X	X	X	1
AST	<i>Aster sibiricus</i> var. <i>meritus</i>	<i>A. meritus</i>	G5T4	S3	W	FORB	RMF							X			X				2
AST	<i>Balsamorhiza sagittata</i>		G4G5	S5	W	FORB	RMF	X	X	X							X				1
AST	<i>Bidens cernua</i>		G5	S3	W	A-FORB	WET							X?			X				2?
AST	<i>Bidens comosa</i>	<i>Bidens tripartita</i>	G5	S2	W	A-FORB	WET											X			3
AST	<i>Bidens frondosa</i>		G5	S2	W	A-FORB	WET										X	X		X	3
AST	<i>Bidens vulgata</i>		G5	S2	P	A-FORB	WET							X?			X			X	2?
AST	<i>Brickellia eupatorioides</i> var. <i>corymbulosa</i>	<i>Kuhnia</i> <i>eupatorioides</i> var. <i>corymbulosa</i>	G5T?	S3	W	FORB	GRS	X													1
AST	<i>Carduus nutans</i>		G?	SE		FORB		X		X							X				1
AST	<i>Centaurea repens</i>		G?	SE		FORB														X	4
AST	<i>Chaenactis douglasii</i> var. <i>montana</i>		G5	S5	W	FORB	RMF													X?	4
AST	<i>Chrysanthemum leucanthemum</i>		G?	SE		FORB											X				3
AST	<i>Chrysothamnus nauseosus</i> var. <i>graveolens</i>		G5T5	S3	W	SHRUB	RMF	X												X	1
AST	<i>Chrysothamnus nauseosus</i> var. <i>nauseosus</i>		G5T5	S5	W	SHRUB	GRS													X	4
AST	<i>Cichorium intybus</i>		G?	SE		FORB														X	4
AST	<i>Cirsium arvense</i>		G5	SE		FORB		X		X				X			X	X	X		1
AST	<i>Cirsium canescens</i>		G4G5	S3	W	FORB	GRS													X	4
AST	<i>Cirsium drummondii</i>		G5	S2	D	FORB	RMF										X				3
AST	<i>Cirsium flodmanii</i>		G5	S3S4	W	FORB	GRS	X													1
AST	<i>Cirsium undulatum</i>		G5	S4	W	FORB	GRS	X									X		X		1

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AST	<i>Cirsium vulgare</i>		G5	SE		FORB		X		X							X	X			1
AST	<i>Conyza canadensis</i>		G5	S4S5	W	A-FORB	GRS						X				X	X	X		2
AST	<i>Crepis acuminata</i>		G5	S5	W	FORB	RMF	X									X				1
AST	<i>Crepis atribarba</i>	<i>C. atrabarba</i>	G5	S3S4	W	FORB	RMF													X	4
AST	<i>Crepis modocensis</i>		G4G5	S4S5	W	FORB	RMF													X	4
AST	<i>Crepis occidentalis</i> var. <i>costata</i>		G5T?	S3	W	FORB	IDS							X			X	X		X	2
AST	<i>Crepis runcinata</i> var. <i>runcinata</i>		G5T5	S3S4	W	FORB	WET				X						X				2
AST	<i>Dyssodia papposa</i>		G5	S3	W	A-FORB	GRS	X									X		X		1
AST	<i>Echinacea angustifolia</i>	<i>E. pallida</i> var. <i>angustifolia</i>	G4Q	S3	W	FORB	GRS	X					X				X		X		1
AST	<i>Erigeron canus</i>		G4	S3	W	FORB	GRS	X											X	X	1
AST	<i>Erigeron compositus</i> var. <i>discoideus</i>		G5T?	S5	W	FORB	RMF													X	4
AST	<i>Erigeron divergens</i>		G5	S3S4	W	FORB	IDS										X				3
AST	<i>Erigeron flagellaris</i>		G5	S2S3	W	FORB	GRS										X		X		3
AST	<i>Erigeron formosissimus</i> var. <i>formosissimus</i>		G5T?	S2S3	W	FORB	RMF										X				3
AST	<i>Erigeron glabellus</i> var. <i>glabellus</i>		G5T?	S3S4	W	FORB	RMF										X		X		3
AST	<i>Erigeron glabellus</i> var. <i>pubescens</i>		G5T?	S1	P	FORB	GRS										X				3
AST	<i>Erigeron ochroleucus</i> var. <i>ochroleucus</i>		G5T3	S4	W	FORB	RMF	X													1
AST	<i>Erigeron ochroleucus</i> var. <i>scribneri</i>		G5T5	S2S3	W	FORB	RMF										X				3
AST	<i>Erigeron philadelphicus</i>		G5	S2	P	FORB	GRS		X	X			X				X				2
AST	<i>Erigeron pumilus</i> var. <i>pumilus</i>		G5T?	S5	W	FORB	GRS													X	4
AST	<i>Erigeron strigosus</i>		G5	S3	W	A-FORB	GRS	X									X		X		1
AST	<i>Erigeron subtrinervis</i> var. <i>subtrinervis</i>		G5T?	S3S4	W	FORB	RMF	X						X			X	X	X		1
AST	<i>Eupatorium maculatum</i> var. <i>bruneri</i>		G5TU	S2	W	FORB	WET										X				3
AST	<i>Filago arvensis</i>	<i>Logfia arvensis</i>	G?	SE		A-FORB											X				3
AST	<i>Gaillardia aristata</i>		G5	S5	W	FORB	GRS										X				3
AST	<i>Gnaphalium palustre</i>		G5	S3	W	A-FORB	WET										X				3
AST	<i>Gnaphalium uliginosum</i>	<i>G. exilifolium</i>	G5	S2	W	A-FORB	WET										X				3
AST	<i>Gnaphalium viscosum</i>	<i>G. macounii</i>	G5	S2	W	A-FORB	WET	X									X				1
AST	<i>Grindelia squarrosa</i> var. <i>quasiperennis</i>		G5T?	S4	W	FORB	GRS	X									X				1

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AST	<i>Grindelia squarrosa</i> var. <i>squarrosa</i>	Incl. var. <i>serrulata</i>	G5T?	S4S5	W	FORB	GRS												X		3
AST	<i>Gutierrezia sarothrae</i>		G5	S5	W	SHRUB	GRS	X									X	X	X		1
AST	<i>Haplopappus multicaulis</i>	<i>Oonopsis multicaulis</i>	G4	S3	R	FORB	GRS												X		3
AST	<i>Haplopappus nuttallii</i>	<i>Machaeranthera grindelioides</i>	G5	S5	W	FORB	GRS	X												X	1
AST	<i>Haplopappus spinulosus</i> var. <i>spinulosus</i>	<i>Machaeranthera pinnatifida</i>	G5T4Q	S3S4	W	FORB	GRS	X										X	X		1
AST	<i>Helianthella quinquenervis</i>		G5	S3S4	W	FORB	RMF										X				3
AST	<i>Helianthus annuus</i>		G5	S5	W	A-FORB	GRS	X						X			X	X	X		1
AST	<i>Helianthus maximiliani</i>		G5	S2	W	FORB	GRS	X						X			X				1
AST	<i>Helianthus nuttallii</i>		G5	S3S4	W	FORB	RMF													X	4
AST	<i>Helianthus pauciflorus</i> var. <i>subrhomboideus</i>	<i>H. rigidus</i> var. <i>subrhomboideus</i>	G5T?	S3	W	FORB	GRS	X									X		X		1
AST	<i>Helianthus petiolaris</i>		G4G5	S4	W	A-FORB	GRS	X											X		1
AST	<i>Helianthus tuberosus</i> var. <i>subcanescens</i>		G5	S1	P	FORB	GRS										X			X	3
AST	<i>Heterotheca villosa</i> var. <i>villosa</i>	<i>Chrysopsis villosa</i> var. <i>villosa</i>	G5	S3	W	FORB	GRS	X									X	X	X		1
AST	<i>Hieracium albiflorum</i>		G4G5	S3S4	W	FORB	RMF	X						X			X				1
AST	<i>Hieracium fendleri</i>		G4	S1	D	FORB	IDS										X				3
AST	<i>Hieracium umbellatum</i> var. <i>scabriusculum</i>	<i>H. canadense</i>	G5T?	S2	W	FORB	RMF	X									X				1
AST	<i>Hieracium umbellatum</i> var. <i>umbellatum</i>		G5?	S2	W	FORB	RMF			X				X			X				2
AST	<i>Hymenopappus polycephalus</i>	<i>H. filifolius</i> var. <i>polycephalus</i>	G5T4T5	S4S5	W	FORB	GRS	X													1
AST	<i>Hymenopappus tenuifolius</i>		G5	SH	P	FORB	GRS										X?				3?
AST	<i>Hymenoxys acaulis</i> var. <i>acaulis</i>	<i>Tetrameuris acaulis</i>	G5T?	S5	W	FORB	GRS	X	X								X		X		1
AST	<i>Iva axillaris</i>		G5	S5	W	FORB	IDS													X	4
AST	<i>Iva xanthifolia</i>		G5	S4	W	A-FORB	GRS	X													1
AST	<i>Lactuca biennis</i>		G5	S1	S	FORB	WET										X				3
AST	<i>Lactuca canadensis</i>		G5	S1	P	FORB	GRS	X						X			X				1
AST	<i>Lactuca ludoviciana</i>		G4G5	S1S2	S	FORB	GRS													X	4
AST	<i>Lactuca oblongifolia</i>	<i>L. pulchella</i> , <i>L. tatarica</i> var. <i>pulchella</i>	G5T5	S5	W	FORB	RMF	X									X		X		1

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AST	<i>Lactuca serriola</i>		G?	SE		A-FORB		X										X	X		1
AST	<i>Liatris ligulistylis</i>		G5?	S2	W	FORB	GRS			X							X				2
AST	<i>Liatris punctata</i>		G5	S4	W	FORB	GRS	X	X						X		X	X			1
AST	<i>Lygodesmia juncea</i>		G5	S4S5	W	FORB	GRS	X							X		X	X			1
AST	<i>Machaeranthera canescens</i> var. <i>canescens</i>	<i>Aster canescens</i>	G5T5	S5	W	FORB	RMF	X													1
AST	<i>Machaeranthera tanacetifolia</i>		G5	S3	W	A-FORB	GRS													X	4
AST	<i>Madia glomerata</i>		G5	S3S4	W	A-FORB	RMF										X				3
AST	<i>Matricaria matricarioides</i>		G5	S4S5	W	A-FORB	RMF	X									X		X		1
AST	<i>Microseris nutans</i>		G5	S5	W	FORB	RMF	X									X				1
AST	<i>Nothocalais cuspidata</i>	<i>Microseris cuspidata</i>	G5	S3	W	FORB	GRS	X											X		1
AST	<i>Onopordum acanthium</i>		G?	SE		FORB		X		X							X				1
AST	<i>Prenanthes racemosa</i> var. <i>multiflora</i>		G5T4?	S1	P	FORB	WET										X				3
AST	<i>Ratibida columnifera</i>		G5	S4S5	W	FORB	GRS	X									X		X		1
AST	<i>Ratibida tagetes</i>		G4G5	SE*		FORB		X													1
AST	<i>Rudbeckia hirta</i>		G5	S3	W	FORB	GRS		X				X	X			X				2
AST	<i>Rudbeckia laciniata</i> var. <i>ampla</i>		G5T?	S3	W	FORB	WET										X				3
AST	<i>Senecio canus</i>	<i>Packera cana</i>	G5	S5	W	FORB	RMF	X	X								X		X		1
AST	<i>Senecio integerrimus</i> var. <i>exaltatus</i>		G5T?	S5	W	FORB	RMF										X				3
AST	<i>Senecio integerrimus</i> var. <i>integerrimus</i>		G5T?	S3	W	FORB	GRS		X								X	X			2
AST	<i>Senecio pauperculus</i>		G5	S3	W	FORB	RMF		X	X							X		X		2
AST	<i>Senecio plattensis</i>		G5	S3	W	FORB	GRS	X									X				1
AST	<i>Senecio pseud aureus</i> var. <i>pseud aureus</i>		G5T?	S2	W	FORB	WET													X	4
AST	<i>Senecio rapifolius</i>		G4?	S3	R	FORB	RMF	X						X							1
AST	<i>Senecio spartioides</i> var. <i>fremontii</i>	<i>S. riddellii</i>	G4G5	S3	W	FORB	GRS													X	4
AST	<i>Senecio spartioides</i> var. <i>spartioides</i>		G5	S3	W	FORB	IDS													X	4
AST	<i>Senecio vulgaris</i>		G?	SE		A-FORB														X	4
AST	<i>Solidago canadensis</i> var. <i>gilvocanescens</i>		G5T?	S3	W	FORB	GRS										X	X			3
AST	<i>Solidago canadensis</i> var. <i>salebrosa</i>		G5T?	S4	W	FORB	RMF							X			X				2
AST	<i>Solidago gigantea</i>		G5	S3	W	FORB	GRS													X	4

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AST	<i>Solidago missouriensis</i> var. <i>fasciculata</i>		G5T?	S3	W	FORB	GRS	X			X						X	X	X		1
AST	<i>Solidago missouriensis</i> var. <i>missouriensis</i>	Incl var. <i>extraria</i>	G5T?	S5	W	FORB	RMF										X	X	X	X	3
AST	<i>Solidago mollis</i>		G5	S3	W	FORB	GRS	X										X			1
AST	<i>Solidago nemoralis</i> var. <i>longipetiolata</i>		G5T5	S3	W	FORB	GRS	X						X			X	X			1
AST	<i>Solidago rigida</i> var. <i>humilis</i>		G5T?	S3	W	FORB	GRS	X	X				X				X				1
AST	<i>Solidago simplex</i>	<i>S. spathulata</i> (incl vars <i>nana</i> and <i>neomexicana</i>)	G5	S3S4	W	FORB	RMF										X				3
AST	<i>Solidago sparsiflora</i>	<i>S. velutina</i>	G5?	S3	W	FORB	IDS							X			X		X		2
AST	<i>Solidago speciosa</i> var. <i>pallida</i>	<i>S. speciosa</i> var. <i>rigidiuscula</i>	G5T4	S1	P	FORB	GRS										X				3
AST	<i>Sonchus asper</i>		G?	SE		A-FORB												X	X	X	3
AST	<i>Tanacetum vulgare</i>		G?	SE		FORB				X							X				2
AST	<i>Taraxacum laevigatum</i>		G?	SE		FORB		X		X							X				1
AST	<i>Taraxacum officinale</i>		G5	SE		FORB		X									X	X			1
AST	<i>Townsendia exscapa</i>		G5	S1	S	FORB	GRS													X	4
AST	<i>Townsendia hookeri</i>		G5	S4	W	FORB	RMF										X				3
AST	<i>Tragopogon dubius</i>		G?	SE		FORB		X	X	X							X		X		1
AST	<i>Unamia alba</i>	<i>Solidago</i> <i>ptarmicoides</i>	G5	S2	W	FORB	GRS		X	X							X		X		2
AST	<i>Verbesina encelioides</i> var. <i>exauriculata</i>	<i>Ximensia</i> <i>encelioides</i>	G5T?	S2	W	A-FORB	GRS	X													1
AST	<i>Xanthium strumarium</i> var. <i>canadense</i>		G5T5	S5	W	A-FORB	GRS										X	X			3
BER	<i>Berberis thunbergii</i>		G?	SE		SHRUB											X				3
BER	<i>Mahonia repens</i>	<i>Berberis repens</i>	G5	S4S5	W	SHRUB	RMF	X	X	X							X				1
BET	<i>Betula occidentalis</i>		G4G5	S4	W	TREE	WET													X	4
BET	<i>Betula papyrifera</i>		G5	S2S3	P	TREE	EDF		X	X	X		X				X		X?		2
BET	<i>Corylus cornuta</i>		G5	S2	D	SHRUB	EDF		X	X	X						X				2
BET	<i>Ostrya virginiana</i>		G5	S1	P	TREE	EDF		X	X							X				2
BOR	<i>Anchusa arvensis</i>		G?	SE		A-FORB															
BOR	<i>Cryptantha affinis</i>		G4	S2	W	A-FORB	RMF										X			X	4
BOR	<i>Cryptantha cana</i>		G5	S3	R	FORB	GRS												X		3
BOR	<i>Cryptantha celosioides</i>		G5	S5	W	FORB	GRS	X	X								X		X		1
BOR	<i>Cryptantha cinerea</i> var. <i>jamesii</i>	<i>C. jamesii</i>	G5T5?	S3S4	W	FORB	GRS											X			3
BOR	<i>Cryptantha kelseyana</i>		G4	S4	W	A-FORB	IDS											X		X	3
BOR	<i>Cryptantha minima</i>		G5	S3	W	A-FORB	GRS													X	4

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
BOR	<i>Cryptantha torreyana</i>		G5	S3	W	A-FORB	RMF	X													
BOR	<i>Cynoglossum officinale</i>		G?	SE		FORB		X	X	X							X			X	1
BOR	<i>Hackelia deflexa</i> var. <i>americana</i>		G5TU	S3	W	FORB	RMF	X	X								X				1
BOR	<i>Hackelia floribunda</i>		G5?	S5	W	FORB	RMF										X	X			3
BOR	<i>Lappula redowskii</i> var. <i>redowskii</i>	<i>L. occidentalis</i>		S5	W	A-FORB	IDS	X	X								X		X		1
BOR	<i>Lappula squarrosa</i>	<i>L. echinata</i> , Incl. <i>L. squarrosa</i> var. <i>erecta</i>	G?	SE		A-FORB							X				X		X		2
BOR	<i>Lithospermum incisum</i>		G5	S5	W	FORB	GRS	X	X								X	X	X		1
BOR	<i>Mertensia lanceolata</i>		G5	S3	W	FORB	GRS	X		X							X	X	X		1
BOR	<i>Myosotis scorpioides</i>		G5	SE		FORB											X	X	X		4
BOR	<i>Myosotis verna</i>		G5	S1	P	A-FORB	EDF										X			X	3
BOR	<i>Onosmodium molle</i> var. <i>occidentale</i>		G4G5T4?	S3	W	FORB	GRS	X	X								X		X		1
BOR	<i>Plagiobothrys scouleri</i> var. <i>hispidulus</i>	<i>P. scouleri</i> var. <i>penicillatus</i>	G5Q	S5	W	A-FORB	WET													X	4
BRA	<i>Alyssum alyssoides</i>		G?	SE		A-FORB			X	X							X		X		2
BRA	<i>Alyssum desertorum</i>		G?	SE		A-FORB		X									X	X	X		1
BRA	<i>Arabis confinis</i>	<i>A. x divaricarpa</i>	G4G5T?	S4	W	FORB	RMF	X									X				1
BRA	<i>Arabis drummondii</i>		G5	S4S5	W	FORB	RMF			X							X		X		2
BRA	<i>Arabis glabra</i> var. <i>glabra</i>		G5T5	S4S5	W	FORB	RMF	X	X	X	X		X				X		X		1
BRA	<i>Arabis hirsuta</i> var. <i>pycnocarpa</i>		G5T5	S3S4	W	FORB	RMF	X	X				X				X		X		1
BRA	<i>Arabis holboellii</i> var. <i>collinsii</i>		G5T?	S3S4	W	FORB	GRS	X		X				X			X	X		X	1
BRA	<i>Arabis holboellii</i> var. <i>pinetorum</i>		G5T?	S4	W	FORB	RMF		X								X	X	X		2
BRA	<i>Arabis holboellii</i> var. <i>secunda</i>	<i>A. holboellii</i> var. <i>retrofracta</i>	G5T5	S5	W	FORB	RMF			X							X			X	2
BRA	<i>Arabis pendulocarpa</i> var. <i>pendulocarpa</i>	<i>A. holboellii</i> var. <i>pendulocarpa</i>	G5T5?	S4	W	FORB	RMF										X			X	3
BRA	<i>Armoracia rusticiana</i>		G?	SE		FORB											X				3
BRA	<i>Barbarea vulgaris</i>		G?	SE		FORB				X			X				X				2
BRA	<i>Brassica juncea</i>		G?	SE		A-FORB														X	4
BRA	<i>Brassica kaber</i>	<i>Sinapis arvensis</i>	G?	SE		A-FORB														X	4
BRA	<i>Camelina microcarpa</i>		G?	SE		A-FORB		X	X								X		X		1
BRA	<i>Capsella bursa-pastoris</i>		G?	SE		A-FORB		X	X	X			X				X	X			1
BRA	<i>Cardamine pensylvanica</i>		G5	S3	W	FORB	WET				X						X				2
BRA	<i>Cardaria draba</i>		G?	SE		FORB														X	4
BRA	<i>Chorispora tenella</i>		G?	SE		A-FORB		X									X	X			1

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BRA	<i>Descurainia pinnata</i> var. <i>brachycarpa</i>		G5T5	S3	W	A-FORB	GRS										X		X		3
BRA	<i>Descurainia pinnata</i> var. <i>filipes</i>	<i>D. incisa</i> ssp. <i>filipes</i>	G5T?	S3	W	A-FORB	IDS	X													1
BRA	<i>Descurainia pinnata</i> var. <i>intermedia</i>		G5T?	S3	W	A-FORB	RMF		X								X		X		2
BRA	<i>Descurainia pinnata</i> var. <i>osmiarum</i>	<i>D. pinnata</i> ssp. <i>halictorum</i>	G5T?	S2	W	A-FORB	IDS	X						X			X				1
BRA	<i>Descurainia sophia</i>		G?	SE		A-FORB		X	X								X				1
BRA	<i>Draba nemorosa</i>		G5	SE		A-FORB		X	X								X	X	X		1
BRA	<i>Draba reptans</i>		G5	S3	W	A-FORB	GRS	X									X		X		1
BRA	<i>Erucastrum gallicum</i>		G5	SE		A-FORB														X	4
BRA	<i>Erysimum asperum</i> var. <i>asperum</i>		G5	S4	W	FORB	GRS	X	X								X		X		1
BRA	<i>Erysimum cheiranthoides</i>		G5	S3	W	FORB	RMF	X					X						X		1
BRA	<i>Erysimum inconspicuum</i>		G4G5	S4	W	FORB	RMF											X	X		3
BRA	<i>Hesperis matronalis</i>		G4G5	SE		FORB		X										X			1
BRA	<i>Lepidium densiflorum</i> var. <i>densiflorum</i>		G5T?	S3	W	A-FORB	GRS												X		3
BRA	<i>Lepidium densiflorum</i> var. <i>intermedia</i>		G5T?	S5	W	FORB	GRS	X										X?			1
BRA	<i>Lepidium perfoliatum</i>		G?	SE		A-FORB												X	X		3
BRA	<i>Lesquerella alpina</i> var. <i>alpina</i>	Incl var <i>spatulata</i>	G4	S5	W	FORB	IDS	X									X		X		1
BRA	<i>Lesquerella arenosa</i> var. <i>arenosa</i>	<i>L. ludoviciana</i> var. <i>arenosa</i>	G5T5	S4	W	FORB	GRS										X				3
BRA	<i>Lesquerella ludoviciana</i>		G5	S4S5	W	FORB	GRS		X								X				2
BRA	<i>Physaria brassicoides</i>		G5	S3	R	FORB	GRS	X												X	1
BRA	<i>Rorippa curvipes</i> var. <i>curvipes</i>		G5T?	S3	W	FORB	WET	X									X	X			1
BRA	<i>Rorippa nasturtium-aquaticum</i>		G5	SE		FORB			X								X				2
BRA	<i>Rorippa palustris</i> var. <i>fernaldiana</i>		G5T?	S3	W	FORB	WET	X					X	X			X	X			1
BRA	<i>Rorippa sinuata</i>		G5	S3	W	FORB	GRS													X	4
BRA	<i>Rorippa tenerima</i>		G5	S2	W	A-FORB	WET													X	4
BRA	<i>Sisymbrium altissimum</i>		G?	SE		A-FORB		X										X			1
BRA	<i>Sisymbrium loeselii</i>		G?	SE		A-FORB		X													1
BRA	<i>Stanleya pinnata</i>		G4G5	S4	W	FORB	IDS													X	4
BRA	<i>Thelypodium integrifolium</i> var. <i>integrifolium</i>		G5T?	S2	W	FORB	IDS													X	4
BRA	<i>Thlaspi arvense</i>		G?	SE		A-FORB		X	X	X							X	X	X		1
CAC	<i>Coryphantha missouriensis</i>		G5	S2	W	FORB	GRS	X						X			X			X	1
CAC	<i>Coryphantha vivipara</i>		G5	S3	W	FORB	GRS													X	4

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CAC	<i>Opuntia fragilis</i>		G4G5	S2S3	W	FORB	GRS	X													1
CAC	<i>Opuntia macrorhiza</i> var. <i>macrorhiza</i>		G5T5	S2	W	FORB	GRS												X?		3?
CAC	<i>Opuntia polyacantha</i> var. <i>polyacantha</i>		G5T5	S5	W	FORB	IDS	X											X		1
CAM	<i>Campanula aparinoides</i>		G5	S1	P	FORB	EDF										X				3
CAM	<i>Campanula rotundifolia</i>		G5	S5	W	FORB	RMF	X	X	X	X						X		X		1
CAM	<i>Triodanis leptocarpa</i>		G5?	S1	P	A-FORB	GRS										X				3
CAM	<i>Triodanis perfoliata</i>		G5	S3	W	A-FORB	GRS	X									X		X		1
CAN	<i>Humulus lupulus</i> var. <i>neomexicanus</i>		G5T4T5	S3	W	FORB	GRS		X								X	X			2
CEL	<i>Celastrus scandens</i>		G5	S1S2	P	FORB	EDF		X				X				X				2
CHN	<i>Atriplex argentea</i>		G5	S3S4	W	A-FORB	IDS												X	X	3
CHN	<i>Atriplex canescens</i> var. <i>canescens</i>		G5T?	S4	W	SHRUB	IDS												X		3
CHN	<i>Atriplex gardneri</i>	<i>A. nuttallii</i>	G5	S5	W	SHRUB	IDS													X	4
CHN	<i>Atriplex heterosperma</i>		G?	SE		A-FORB															2
CHN	<i>Atriplex patula</i>		G5	S2	P	A-FORB	GRS	X						X			X			X	1
CHN	<i>Atriplex powellii</i>		G4G5	S2	W	A-FORB	GRS												X		3
CHN	<i>Atriplex subspicata</i>	incl in <i>A. patula</i> in Grt PI Flora atlas; <i>A. patula</i> var. <i>triangularis</i>	G5	S3	W	A-FORB	GRS	X											X?	X	1
CHN	<i>Atriplex suckleyi</i>	<i>Atriplex dioica</i>	G4?	S3	W	A-FORB	IDS												X	X	3
CHN	<i>Chenopodium album</i>		G5	SE		A-FORB											X			X	3
CHN	<i>Chenopodium atrovirens</i>	<i>C. fremontii</i> var. <i>atrovirens</i>	G5	S4	W	A-FORB	RMF													X	4
CHN	<i>Chenopodium berlandieri</i> var. <i>zschackei</i>	<i>C. album</i> var. <i>berlandieri</i>	G5T?	S5	W	A-FORB	GRS	X						X			X	X	X		1
CHN	<i>Chenopodium capitatum</i> var. <i>capitatum</i>		G5T?	S1	S	A-FORB	RMF												X		3
CHN	<i>Chenopodium desiccatum</i>		G5	S3	W	A-FORB	GRS	X												X	1
CHN	<i>Chenopodium fremontii</i>		G5	S3	W	A-FORB	RMF	X											X		1
CHN	<i>Chenopodium glaucum</i> var. <i>salinum</i>		G5	S3S4	W	A-FORB	RMF											X		X	3
CHN	<i>Chenopodium pratericola</i>	<i>C. leptophyllum</i> var. <i>oblongifolium</i>	G5	S4	W	A-FORB	IDS	X									X		X		1
CHN	<i>Chenopodium rubrum</i> var. <i>rubrum</i>		G5	S2	W	A-FORB	GRS	X										X			1

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CHN	<i>Chenopodium simplex</i>	<i>C. hybridum</i> ; <i>C. gigantospermum</i>	G5	S2	W	A-FORB	RMF	X													1
CHN	<i>Chenopodium strictum</i> var. <i>glaucophyllum</i>		G5TU	S1	P	A-FORB	GRS													X	4
CHN	<i>Kochia scoparia</i>		G?	SE		A-FORB		X									X	X			1
CHN	<i>Krascheninnikovia lanata</i>	<i>Eurotia lanata</i>	G5	S5	W	SHRUB	IDS													X	4
CHN	<i>Monolepis nuttalliana</i>		G5	S5	W	A-FORB	IDS												X		3
CHN	<i>Salsola australis</i>	<i>S. kali</i> ; <i>S. iberica</i> ; <i>S. pestifer</i>	G?	SE		A-FORB		X									X				1
CHN	<i>Sarcobatus vermiculatus</i>		G5	S5	W	SHRUB	IDS												X	X	3
CHN	<i>Suaeda calceoliformis</i>	<i>S. depressa</i>	G5	S3	W	A-FORB	IDS													X	4
CIS	<i>Helianthemum bicknellii</i>		G5	S1	P	FORB	GRS	X			X						X				1
CIS	<i>Lechea intermedia</i>		G5	S1	D	FORB	EDF										X				3
CLL	<i>Callitriche hermaphroditica</i>		G5	S2	W	FORB	WET													X	4
CLL	<i>Callitriche heterophylla</i>		G5	S2	W	FORB	WET										X				3
CLL	<i>Callitriche palustris</i>	<i>C. verna</i>	G5	S4	W	FORB	WET				X						X				2
CMM	<i>Tradescantia bracteata</i>		G5	S1	P	FORB	GRS										X?				3?
CMM	<i>Tradescantia occidentalis</i>		G5	S3S4	W	FORB	GRS	X									X	X	X		1
CNV	<i>Calystegia sepium</i> var. <i>angulata</i>	<i>Convolvulus sepium</i>	G5T5	S2	W	FORB	GRS												X		3
CNV	<i>Convolvulus arvensis</i>		G?	SE		FORB		X	X								X		X		1
CNV	<i>Cuscuta approximata</i>		G?	SE		FORB														X	4
CNV	<i>Evolvulus nuttallianus</i>		G5	S3	W	FORB	GRS	X									X				1
COR	<i>Cornus canadensis</i>		G5	S2	P	FORB	RMF			X	X						X				2
COR	<i>Cornus sericea</i>	<i>C. stolonifera</i>	G5	S4	W	SHRUB	WET	X		X			X				X		X		1
CPP	<i>Cleome serrulata</i>		G5	S5	W	A-FORB	GRS	X													1
CPP	<i>Polanisia trachysperma</i>	<i>P. dodecandra</i> ssp. <i>trachysperma</i>	G5T?	S3	W	A-FORB	GRS	X									X				1
CPR	<i>Linnaea borealis</i> var. <i>longiflora</i>		G5T?	S3	W	SHRUB	RMF			X							X				2
CPR	<i>Lonicera dioica</i> var. <i>glaucescens</i>		G5TU	S2	P	FORB	EDF			X	X		X	X			X				2
CPR	<i>Sambucus racemosa</i> var. <i>pubens</i>	<i>S. racemosa</i> var. <i>leucocarpa</i>	G5T4T5	S2	P	SHRUB	RMF		X	X			X				X				2
CPR	<i>Symphoricarpos albus</i> var. <i>albus</i>		G5T4	S2S3	W	SHRUB	GRS	X	X								X				1
CPR	<i>Symphoricarpos occidentalis</i>		G5	S4	W	SHRUB	RMF	X					X	X			X	X			1
CPR	<i>Symphoricarpos oreophilus</i> var. <i>utahensis</i>		G5T?	S4S5	W	SHRUB	RMF													X?	4
CPR	<i>Viburnum lantana</i>		G?	SE		SHRUB														X	4

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CPR	Viburnum lentago		G5	S2	P	SHRUB	EDF	X	X?	X			X				X				1
CPR	Viburnum opulus var. americana		G5T5	S1	D	SHRUB	EDF		X	X							X				2
CRS	Sedum lanceolatum		G5	S5	W	FORB	RMF			X	X		X				X				2
CRY	Arenaria hookeri var. hookeri		G4G5T?	S5	W	FORB	IDS										X				3
CRY	Arenaria lateriflora	Moehringia lateriflora	G5	S3	W	FORB	RMF		X	X			X				X			X	2
CRY	Arenaria rubella	Minuartia rubella	G5	S3S4	W	FORB	ALP										X				3
CRY	Cerastium arvense		G5	S5	W	FORB	RMF	X	X	X							X	X	X		1
CRY	Cerastium brachypodium	Incl in C. nutans by some authors	G5	S2	W	A-FORB	GRS										X				3
CRY	Cerastium fontanum	C. vulgatum	G?	SE		FORB			X	X	X		X				X				2
CRY	Cerastium nutans		G5	S1?	S	A-FORB	EDF	X													1
CRY	Loeflingia squarrosa var. texana		G5T4?	S1	D	A-FORB	GRS												X?	X	3?
CRY	Paronychia depressa		G4	S4	R	FORB	GRS		X					X			X			X	2
CRY	Silene antirrhina		G5	S3	W	A-FORB	GRS	X											X		1
CRY	Silene drummondii	Lychnis drummondii, incl vars striata and drummondii; Gastrolychnis drummondii	G5	S4S5	W	FORB	RMF				X						X		X		2
CRY	Silene latifolia	Lychnis alba; Melandrium dioicum	G?	SE		FORB											X			X	3
CRY	Silene menziesii var. menziesii	Anotites menziesii var. menziesii	G5T?	S3S4	W	FORB	RMF	X													1
CRY	Silene noctiflora		G?	SE		A-FORB														X	4
CRY	Silene vulgaris	S. cucubalus	G?	SE		FORB											X				3
CRY	Spergularia rubra		G5	SE		A-FORB												X			3
CRY	Stellaria longifolia		G5	S3	W	FORB	WET		X	X							X				2
CRY	Stellaria media		G?	SE		A-FORB		X													1
CRY	Vaccaria hispanica		G?	SE		A-FORB															4
CUC	Echinocystis lobata		G5	S2S3	W	A-FORB	GRS	X												X	1
CUP	Juniperus communis var. depressa		G5T5	S5	W	SHRUB	RMF	X	X	X							X	X			1
CUP	Juniperus horizontalis		G5	S3	W	SHRUB	RMF						X				X		X		2
CUP	Juniperus scopulorum		G5	S5	W	TREE	RMF	X	X						X		X	X	X		1

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
CYP	Carex alopecoidea		G5	S1	D	GRASS	WET			X							X				2
CYP	Carex atherodes		G5	S2	W	GRASS	WET													X	4
CYP	Carex aurea		G5	S4	W	GRASS	WET										X			X	3
CYP	Carex backii var. backii		G4	S2	P	GRASS	RMF	X	X	X							X			X	1
CYP	Carex bebbii		G5	S2	W	GRASS	WET		X				X				X				2
CYP	Carex blanda		G5?	S2	P	GRASS	EDF	X	X												1
CYP	Carex brevior		G5?	S3	W	GRASS	GRS	X									X	X	X		1
CYP	Carex deweyana var. deweyana		G5T?	S2	P	GRASS	EDF		X	X			X				X				2
CYP	Carex disperma		G5	S3	W	GRASS	RMF										X				3
CYP	Carex eburnea		G5	S1	P	GRASS	EDF		X								X				2
CYP	Carex emoryi		G5	S1	P	GRASS	WET	X													1
CYP	Carex filifolia		G5	S5	W	GRASS	RMF	X									X		X		1
CYP	Carex foenea	C. siccata	G5	S3	W	GRASS	GRS	X	X								X				1
CYP	Carex granularis var. haleana		G5T4	S1	P	GRASS	WET		X								X				2
CYP	Carex gravida var. gravida		G5T?	S2	P	GRASS	GRS	X													1
CYP	Carex hoodii		G4G5	S5	W	GRASS	RMF	X		X			X				X				1
CYP	Carex hystericina	C. hystricina	G5	S2	W	GRASS	WET		X								X				2
CYP	Carex interior		G5	S2	W	GRASS	WET		X		X						X				2
CYP	Carex lanuginosa		G5	S5	W	GRASS	WET	X			X						X	X	X		1
CYP	Carex microptera var. microptera	C. festivella, C. macloviana var. microptera	G5?	S4S5	W	GRASS	RMF	X	X	X							X				1
CYP	Carex nebrascensis		G5	S5	W	GRASS	WET	X									X				1
CYP	Carex obtusata		G5	S3	W	GRASS	RMF										X				3
CYP	Carex parryana var. parryana		G4T4	S2	S	GRASS	WET													X	4
CYP	Carex peckii		G4G5	S2	P	GRASS	EDF		X	X							X				2
CYP	Carex pensylvanica var. digyna	C. heliophila	G5	S3S4	W	GRASS	GRS	X					X				X	X	X		1
CYP	Carex petastata		G5	S3	W	GRASS	RMF										X?				3?
CYP	Carex praegracilis		G5	S5	W	GRASS	WET	X	X								X				1
CYP	Carex praticola		G5	S3	W	GRASS	WET										X?				3?
CYP	Carex retrorsa		G5	S2	P	GRASS	WET		X								X				2
CYP	Carex richardsonii		G4	S1	D	GRASS	EDF										X		X		3
CYP	Carex rosea		G5	S1	D	GRASS	EDF		X								X				2
CYP	Carex rossii		G5	S4S5	W	GRASS	RMF	X	X	X			X				X				1
CYP	Carex sprengelii		G5?	S3	W	GRASS	RMF	X	X	X							X		X		1
CYP	Carex stenophylla	C. eleocharis	G5	S5	W	GRASS	GRS	X									X		X		1

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CYP	Carex stipata		G5	S2	W	GRASS	WET														
CYP	Carex tenera		G5	S2	P	GRASS	EDF				X		X				X			X	2
CYP	Carex torreyi		G4	S2	W	GRASS	GRS	X	X	X			X				X		X		2
CYP	Carex utriculata	C. rostrata (sensu lato)	G5	S4S5	W	GRASS	WET	X									X				1
																	X				1
CYP	Carex vallicola		G5	S4	W	GRASS	RMF										X				3
CYP	Carex vulpinoidea		G5	S2	W	GRASS	WET										X			X	3
CYP	Cyperus erythrorhizos		G5	S1	P	A-GRASS	WET											X			3
CYP	Cyperus schweinitzii		G5	S2	W	GRASS	GRS										X		X		3
CYP	Eleocharis acicularis		G5	S3	W	GRASS	WET										X				3
CYP	Eleocharis ovata	E. obtusa var. ovata	G5	S1	P	A-GRASS	WET										X				3
CYP	Eleocharis palustris	E. macrostachya	G5	S5	W	GRASS	WET	X						X			X	X	X		1
CYP	Scirpus acutus		G5	S3	W	GRASS	WET													X	4
CYP	Scirpus atrocinctus	S. cyperinus	G5	S1	D	GRASS	WET			X							X				2
CYP	Scirpus heterochaetus		G5	S1	P	GRASS	WET													X	4
CYP	Scirpus maritimus var. paludosus		G5	S3	W	GRASS	WET													X	4
CYP	Scirpus microcarpus		G5	S3	W	GRASS	WET	X									X				1
CYP	Scirpus pallidus	S. atrovirens var. pallidus	G5	S3	W	GRASS	WET		X		X			X			X				2
CYP	Scirpus pungens var. polyphyllus	S. americanus, misapplied	G5	S5	W	GRASS	WET	X												X	1
CYP	Scirpus validus		G5	S4	W	GRASS	WET										X	X			3
DRY	Onoclea sensibilis		G5	S1	P	FERN	EDF										X				3
DST	Pteridium aquilinum var. latiusculum			S2	D	FERN	RMF			X	X		X				X				2
ELE	Elaeagnus angustifolia		G?	SE		TREE														X	4
ELE	Shepherdia argentea		G5	S3S4	W	SHRUB	WET	X					X				X				1
ELE	Shepherdia canadensis		G5	S4S5	W	SHRUB	RMF		X	X							X		X		2
ELT	Elatine brachysperma		G5	S1	S	A-FORB	WET													X	4
EQU	Equisetum arvense		G5	S5	W	FERN	WET	X	X	X	X			X			X				1
EQU	Equisetum hyemale var. affine		G5T5	S3S4	W	FERN	WET		X	X							X				2
EQU	Equisetum laevigatum		G5	S5	W	FERN	WET	X						X			X	X	X		1
EQU	Equisetum scirpoides		G5	S1	D	FERN	EDF			X							X				2
EQU	Equisetum sylvaticum		G5	S1	D	FERN	EDF										X				3
ERI	Arctostaphylos uva-ursi var. adenotricha		G5T?	S3	W	SHRUB	RMF	X		X	X						X				1
ERI	Arctostaphylos uva-ursi var. uva-ursi		G5T?	S3	W	SHRUB	RMF	X									X		X		1

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ERI	Chimaphila umbellata var. occidentalis		G5T5	S3	W	FORB	RMF			X							X				2
ERI	Orthilia secunda	Pyrola secunda	G5	S4	W	FORB	RMF			X							X				2
ERI	Pteropora andromedea		G5	S3	W	FORB	RMF	X		X				X			X				1
ERI	Pyrola asarifolia		G5	S4	W	FORB	WET		X				X				X				2
ERI	Pyrola chlorantha	P. virens	G5	S3	W	FORB	RMF							X			X				2
ERI	Pyrola elliptica		G5	S2	P	FORB	EDF		X								X				2
ERI	Pyrola picta var. picta		G4G5	S2	W	FORB	RMF										X				3?
ERI	Vaccinium membranaceum		G5	S2	W	SHRUB	RMF			X							X				2
ERI	Vaccinium scoparium		G5	S4S5	W	SHRUB	RMF			X							X				2
EUP	Croton texensis		G5	S2	W	A-FORB	GRS														2
EUP	Euphorbia brachycera var. robusta	E. robusta	G5	S4	W	FORB	GRS	X												X	4
EUP	Euphorbia dentata		G5	S2	W	A-FORB	GRS		X?								X				2?
EUP	Euphorbia esula var. uralensis		G5T?	SE		FORB		X												X	1
EUP	Euphorbia fendleri	Chamaesyce fendleri	G5	S3	W	FORB	GRS												X	X	3
EUP	Euphorbia glyptosperma	Chamaesyce glyptosperma	G5	S5	W	A-FORB	GRS	X											X		1
EUP	Euphorbia marginata		G5	S1S2	S	A-FORB	GRS													X	4
EUP	Euphorbia missurica var. petaloidea		G5	S3	W	A-FORB	GRS													X	4
EUP	Euphorbia serpens		G5	S1	P	A-FORB	GRS													X	4
EUP	Euphorbia serpyllifolia	Chamaesyce serpyllifolia	G5	S3	W	A-FORB	GRS													X	4
EUP	Euphorbia spathulata		G5	S2	W	A-FORB	GRS	X													1
FAB	Amorpha canescens		G5	S2	P	SHRUB	GRS										X			X	3
FAB	Amorpha fruticosa		G5	S2	W	SHRUB	GRS													X	4
FAB	Astragalus adsurgens var. robustior		G5T5	S5	W	FORB	GRS	X	X								X	X	X		1
FAB	Astragalus agrestis	A. dasyglottis	G5	S5	W	FORB	RMF	X									X		X		1
FAB	Astragalus alpinus		G5	S4	W	FORB	RMF			X			X				X				2
FAB	Astragalus australis var. glabriusculus	A. aboriginorum	G5	S3	W	FORB	RMF		X				X				X		X		2
FAB	Astragalus bisulcatus var. bisulcatus		G5T5	S5	W	FORB	GRS	X											X		1
FAB	Astragalus canadensis var. canadensis		G5T5	S2	W	FORB	GRS							X			X				2
FAB	Astragalus crassicaulus var. crassicaulus	Incl. var. paysonii	G5T5	S4	W	FORB	GRS	X	X								X	X	X		1

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FAB	<i>Astragalus drummondii</i>		G5	S4S5	W	FORB	GRS	X													
FAB	<i>Astragalus flexuosus</i>		G5	S3	W	FORB	GRS	X											X		1
FAB	<i>Astragalus gilviflorus</i> var. <i>gilviflorus</i>		G5T?	S3	W	FORB	GRS	X									X		X		1
FAB	<i>Astragalus gracilis</i>		G5	S4	W	FORB	GRS													X	1
FAB	<i>Astragalus lotiflorus</i>		G5	S3	W	FORB	GRS	X									X			X	3
FAB	<i>Astragalus missouriensis</i>		G5	S4S5	W	FORB	GRS	X													1
FAB	<i>Astragalus plattensis</i>		G5	S3	W	FORB	GRS										X	X	X		1
FAB	<i>Astragalus purshii</i> var. <i>purshii</i>		G5T?	S5	W	FORB	RMF	X						X			X		X	X	2
FAB	<i>Astragalus spatulatus</i>		G5	S5	W	FORB	GRS	X										X		X	1
FAB	<i>Astragalus tenellus</i>		G5	S5	W	FORB	RMF										X				1
FAB	<i>Dalea candida</i> var. <i>oligophylla</i>	<i>Petalostemon candidum</i>	G5T?	S4S5	W	FORB	GRS	X	X								X	X	X		3
FAB	<i>Dalea enneandra</i>		G5	S1	P	FORB	GRS														1
FAB	<i>Dalea purpurea</i>	<i>Petalostemon purpureum</i>	G5	S4	W	FORB	GRS	X									X		X	X	3
FAB	<i>Glycyrrhiza lepidota</i> var. <i>lepidota</i>		G5	S5	W	FORB	GRS	X					X	X			X		X		1
FAB	<i>Hedysarum alpinum</i> var. <i>americanum</i>		G5T?	S2	W	FORB	RMF										X				3
FAB	<i>Hedysarum boreale</i>		G5	S3	W	FORB	RMF	X													1
FAB	<i>Lathyrus ochroleucus</i>		G4G5	S2S3	P	FORB	EDF	X	X	X			X				X				1
FAB	<i>Lathyrus polymorphus</i> var. <i>incanus</i>		G5?TU	SH	P	FORB	GRS	X													1
FAB	<i>Lotus corniculatus</i>		G?	SE		FORB											X				3
FAB	<i>Lotus unifoliolatus</i>	<i>L. purshianus</i>	G5	S2S3	P	A-FORB	GRS	X									X	X		X	1
FAB	<i>Lupinus argenteus</i> var. <i>argenteus</i>		G5?T?	S5	W	FORB	RMF	X		X?							X				1
FAB	<i>Lupinus argenteus</i> var. <i>laxiflorus</i>	<i>L. argenteus</i> var. <i>parviflorus</i>	G5?T?	S3S4	W	FORB	RMF										X			X	3
FAB	<i>Lupinus argenteus</i> var. <i>rubicaulis</i>		G5?T?	S4S5	W	FORB	RMF		X								X		X	X	2
FAB	<i>Lupinus polyphyllus</i> var. <i>humicola</i>	<i>L. wyethii</i>	G5	S4	W	FORB	RMF						X				X				2
FAB	<i>Lupinus sericeus</i>		G5	S3	W	FORB	RMF				X						X				2
FAB	<i>Medicago falcata</i>	<i>M. sativa</i> var. <i>falcata</i>	G?T?	SE		FORB													X		3
FAB	<i>Medicago lupulina</i>		G?	SE		A-FORB		X	X	X							X		X		1
FAB	<i>Medicago sativa</i>		G?T?	SE		FORB		X										X			1

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FAB	Melilotus albus		G?	SE		A-FORB		X	X								X		X		1
FAB	Melilotus officinalis		G?	SE		FORB		X	X								X	X	X		1
FAB	Onobrychis viciifolia		G?	SE		FORB														X	4
FAB	Oxytropis besseyi var. besseyi		G5T5	S4	R	FORB	GRS	X													1
FAB	Oxytropis campestris var. gracilis			S3	W	FORB	RMF	X									X		X	X	1
FAB	Oxytropis lambertii		G5	S4	W	FORB	GRS	X										X	X		1
FAB	Oxytropis sericea var. sericea		G5T?	S5	W	FORB	GRS										X				3
FAB	Pedimelum argophyllum	Psoralea argophylla	G5	S4	W	FORB	GRS	X					X				X		X		1
FAB	Pedimelum esculentum	Psoralea esculenta	G5	S4	W	FORB	GRS	X									X		X		1
FAB	Psoralidium lanceolatum	Psoralea lanceolata	G5	S4S5	W	FORB	GRS	X	X								X	X			1
FAB	Thermopsis rhombifolia	Incl. var annulocarpa	G5T?	S4S5	W	FORB	GRS	X									X		X		1
FAB	Trifolium hybridum		G?	SE		FORB											X		X		3
FAB	Trifolium pratense		G?	SE		FORB			X	X			X				X		X		2
FAB	Trifolium repens		G?	SE		FORB		X	X	X	X		X				X				1
FAB	Vicia americana var. americana		G5TU	S3	W	FORB	RMF	X	X	X			X				X		X		1
FAB	Vicia americana var. minor		G5T?	S5	W	FORB	RMF	X			X		X?				X		X		1
FAB	Vicia villosa		G5	SE		A-FORB														X	4
FAG	Quercus macrocarpa		G5	S2S3	P	TREE	EDF	X	X	X			X				X		X		1
FUM	Corydalis aurea var. aurea		G5T5	S4	W	FORB	RMF	X	X	X			X				X				1
FUM	Corydalis aurea var. occidentalis		G5T5	S1	P	FORB	GRS													X	4
GEN	Gentianella amarella var. amarella	Gentiana amarella	G5	S4	W	FORB	RMF							X			X				2
GEN	Halenia deflexa		G5	S2	D	A-FORB	WET		X	X			X				X				2
GEN	Swertia radiata	Frasera speciosa	G4G5	S4S5	W	FORB	RMF			X							X		X		2
GER	Geranium bicknellii		G5	S2	W	FORB	RMF	X		X							X				1
GER	Geranium carolinianum		G5	S2	P	A-FORB	GRS	X					X				X		X		1
GER	Geranium pusillum		G?	SE		A-FORB		X													1
GER	Geranium richardsonii		G4G5	S5	W	FORB	WET		X	X	X		X	X			X				2
GER	Geranium viscosissimum var. nervosum	G. viscosissimum var. incisum	G5T?	S3	W	FORB	RMF										X				3
GER	Geranium viscosissimum var. viscosissimum		G5T?	S5	W	FORB	RMF										X				3

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GRS	<i>Ribes americanum</i>		G5	S2	W	SHRUB	WET			X							X				2
GRS	<i>Ribes aureum</i> var. <i>villosum</i>	<i>R. odoratum</i>	G4G5	S3	W	SHRUB	GRS	X									X				1
GRS	<i>Ribes cereum</i> var. <i>pedicellare</i>	<i>R. cereum</i> var. <i>inebrians</i>	G5T5	S5	W	SHRUB	RMF	X									X		X		1
GRS	<i>Ribes lacustre</i>		G5	S4	W	SHRUB	RMF			X							X				2
GRS	<i>Ribes oxycanthoides</i> var. <i>oxycanthoides</i>		G5T?	S2	W	SHRUB	GRS	X		X							X		X		1
GRS	<i>Ribes oxycanthoides</i> var. <i>setosum</i>	<i>R. setosum</i>	G5T4?	S4	W	SHRUB	RMF	X					X				X				1
HAL	<i>Myriophyllum sibiricum</i>	<i>M. exalbescens</i> ; <i>M. spicatum</i> var. <i>exalbescens</i>	G5	S3	W	FORB	WET											X			3
HDR	<i>Philadelphus pubescens</i>		G5?	SE*		SHRUB															
HYD	<i>Ellisia nyctelea</i>		G5	S3	W	A-FORB	GRS	X	X	X							X			X	4
HYD	<i>Phacelia hastata</i> var. <i>hastata</i>	<i>P. hastata</i> var. <i>leucophylla</i>	G5T5	S5	W	FORB	RMF													X?	4?
HYD	<i>Phacelia linearis</i>		G5	S4	W	A-FORB	RMF	X	X				X				X	X			1
HYP	<i>Hypericum perforatum</i>		G?	SE		FORB											X				3
IRI	<i>Iris missouriensis</i>		G5	S4	W	FORB	WET										X			X	3
IRI	<i>Sisyrinchium montanum</i>		G5	S3	W	FORB	WET	X	X		X						X				1
JCG	<i>Triglochin maritimum</i>		G5	S4	W	GRASS	WET													X	4
JUN	<i>Juncus balticus</i> var. <i>montanus</i>	<i>J. arcticus</i> var. <i>balticus</i>	G5T?	S5	W	GRASS	WET	X													1
JUN	<i>Juncus bufonius</i>		G5	S3S4	W	A-GRASS	WET										X				3
JUN	<i>Juncus compressus</i>		G5	SE		GRASS												X			3
JUN	<i>Juncus confusus</i>		G5	S4	W	GRASS	WET										X				3
JUN	<i>Juncus ensifolius</i> var. <i>ensifolius</i>		G?	S3	W	GRASS	WET		X		X						X				2
JUN	<i>Juncus ensifolius</i> var. <i>montanus</i>	<i>J. saximontanus</i>	G?	S3	W	GRASS	WET		X								X				2
JUN	<i>Juncus interior</i>		G4G5	S3S4	W	GRASS	GRS	X						X			X	X	X		1
JUN	<i>Juncus longistylus</i>		G5	S3	W	GRASS	WET										X				3
JUN	<i>Juncus nevadensis</i>		G5	S2	W	GRASS	WET		X								X				2
JUN	<i>Juncus nodosus</i>		G5	S3	W	GRASS	WET										X				2
JUN	<i>Juncus tenuis</i> var. <i>dudleyi</i>	<i>J. dudleyi</i> [incl var. <i>tenuis</i>]	G5	S3	W	GRASS	WET		X		X		X	X			X				2
JUN	<i>Juncus torreyi</i>		G5	S3	W	GRASS	WET											X		X	3
JUN	<i>Luzula multiflora</i>	<i>L. campestris</i> var. <i>multiflora</i>	G5	S2	W	GRASS	RMF			X							X				2
LAM	<i>Agastache foeniculum</i>		G4G5	S2	P	FORB	GRS			X			X				X				2

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
LAM	<i>Dracocephalum parviflorum</i>	<i>Moldavica parviflora</i>	G5	S3	W	FORB	RMF										X			X	3
LAM	<i>Dracocephalum thymiflorum</i>	<i>Moldavica thymiflora</i>	G?	SE		A-FORB											X			X	3
LAM	<i>Glechoma hederacea</i>		G?	SE		FORB				X							X				2
LAM	<i>Hedeoma drummondii</i>		G5	S3S4	W	FORB	GRS	X	X								X		X		1
LAM	<i>Hedeoma hispidum</i>	<i>H. hispida</i>	G5	S3	W	FORB	GRS	X									X		X		1
LAM	<i>Lycopus americanus</i>		G5	S3	W	FORB	WET				?X						X				2?
LAM	<i>Lycopus asper</i>		G5	S3	W	FORB	WET													x	4
LAM	<i>Lycopus uniflorus</i>		G5	S1	P	FORB	WET										X				3
LAM	<i>Marrubium vulgare</i>		G?	SE		FORB														X	4
LAM	<i>Mentha arvensis</i>		G5	S5	W	FORB	WET	X		X			X	X			X	X	X		1
LAM	<i>Monarda fistulosa</i> var. <i>menthifolia</i>		G5T?	S4	W	FORB	GRS	X		X			X				X		X		1
LAM	<i>Nepeta cataria</i>		G?	SE		FORB		X													1
LAM	<i>Prunella vulgaris</i> var. <i>lanceolata</i>		G5T?	S3	W	FORB	WET		X		X		X	X			X				2
LAM	<i>Salvia reflexa</i>		G5	S2S3	W	FORB	GRS	X									X				1
LAM	<i>Scutellaria galericulata</i>		G5	S3	W	FORB	WET		X		X		X				X				2
LAM	<i>Stachys palustris</i> var. <i>pilosa</i>		G5T?	S3	W	FORB	WET						X				X				3
LIL	<i>Allium cernuum</i>		G5	S4	W	FORB	RMF							X			X		X		2
LIL	<i>Allium textile</i>		G5?	S5	W	FORB	IDS	X	X								X	X	X		1
LIL	<i>Asparagus officinalis</i>		G5?	SE		FORB											X			X	4
LIL	<i>Calochortus gunnisonii</i>		G5	S4	W	FORB	GRS	X			X						X		X		1
LIL	<i>Calochortus nuttallii</i>		G5	S5	W	FORB	RMF	X	X												1
LIL	<i>Disporum trachycarpum</i>		G5	S3S4	W	FORB	RMF	X	X	X			X	X			X		X		1
LIL	<i>Fritillaria atropurpurea</i>		G5	S4	W	FORB	RMF										X				4
LIL	<i>Leucocrinum montanum</i>		G5	S4	W	FORB	GRS	X									X	X	X		1
LIL	<i>Lilium philadelphicum</i>		G5	S2	S	FORB	RMF		X								X				2
LIL	<i>Maianthemum canadense</i>		G5	S2	W	FORB	EDF		X	X			X				X				1
LIL	<i>Maianthemum racemosum</i> var. <i>amplexicaule</i>	<i>Smilacina racemosa</i>	G5T?	S3	W	FORB	RMF										X				3
LIL	<i>Maianthemum stellatum</i>	<i>Smilacina stellata</i>	G5	S5	W	FORB	RMF	X	X	X							X	X			1
LIL	<i>Polygonatum biflorum</i>		G5	S1	P	FORB	EDF		X								X				2
LIL	<i>Smilax herbacea</i> var. <i>lasioneuron</i>		G5	S2	W	FORB	GRS	X													1
LIL	<i>Zigadenus elegans</i>		G5	S4S5	W	FORB	WET		X								X		X		2
LIL	<i>Zigadenus venenosus</i> var. <i>gramineus</i>		G5T5	S5	W	FORB	RMF	X									X		X		1
LIN	<i>Linum australe</i>		G5	S2	S	A-FORB	GRS	X													1

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LIN	Linum lewisii	L. perenne var. lewisii	G4G5	S5	W	FORB	RMF	X	X								X		X		1
LIN	Linum rigidum var. compactum		G4?	S2	W	A-FORB	GRS	X											X	X	1
LIN	Linum rigidum var. rigidum		G4G5T?	S3	W	A-FORB	GRS	X												X	1
LMN	Lemna minor		G5	S3S4	W	FORB	WET				X						X	X			2
LMN	Lemna trisulca		G5	S2	W	FORB	WET				X						X				2
LOA	Mentzelia decapetala	Nuttallia decapetala	G5	S3	W	FORB	GRS	X									X				1
LOA	Mentzelia dispersa	Acrolasia dispersa	G5	S3S4	W	A-FORB	IDS	X													1
LOA	Mentzelia nuda	Nuttallia nuda	G5	S3	W	FORB	GRS													X	4
LOA	Mentzelia oligosperma		G4	S1	P	FORB	GRS													X	4
LYC	Lycopodium annotinum		G5	S2	W	FERN	RMF			X							X				2
LYC	Lycopodium complanatum	Diphasiastrum complanatum	G5	S1	D	FERN	EDF			X							X				2
LYC	Lycopodium dendroideum		G5	S1	D	FERN	EDF										X				3
LYT	Ammannia robusta		G5	S1	P	A-FORB	WET													X	4
LYT	Lythrum alatum		G5	S1	P	FORB	GRS													X	4
MLV	Alcea rosea	Althaea rosea	GU	SE		FORB														X	4
MLV	Malva neglecta		G?	SE		A-FORB														X	4
MLV	Malva rotundifolia		G?	SE		A-FORB		X												X	4
MLV	Sphaeralcea coccinea		G5?	S5	W	FORB	IDS	X													1
NYC	Abronia fragrans var. fragrans		G5	S3	W	FORB	GRS										X		X		1
NYC	Mirabilis hirsuta		G5	S2	W	FORB	GRS													X	4
NYC	Mirabilis linearis		G5	S3S4	W	FORB	GRS	X									X				3
NYC	Mirabilis nyctaginea		G5	S3	W	FORB	GRS	X									X				1
OLE	Fraxinus pennsylvanica		G5	S3	W	TREE	WET	X										X			1
ONA	Boisduvalia glabella	Epilobium pygmaeum	G5	S2	S	A-FORB	WET										X			X	4
ONA	Calylophus serrulatus		G5	S3S4	W	FORB	GRS														3
ONA	Circaea alpina var. alpina		G5T?	S1S2	S	FORB	RMF			X			X				X				2
ONA	Circaea alpina var. pacifica		G5T?	S2	W	FORB	RMF				X						X				2
ONA	Epilobium angustifolium var. canescens	Chamerion angustifolium var. canescens	G5T5	S3	W	FORB	RMF										X				3
ONA	Epilobium brachycarpum	E. paniculatum	G5	S5	W	A-FORB	RMF										X		X		3
ONA	Epilobium ciliatum var. ciliatum	E. watsonii	G5T?	S5	W	FORB	WET	X			X		X	X			X	X			1
ONA	Epilobium ciliatum var. glandulosum	E. glandulosum	G5T?	S3	W	FORB	WET										X				3
ONA	Epilobium halleanum		G5	S4	W	FORB	WET										X				3

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ONA	<i>Gaura coccinea</i>		G5	S4S5	W	FORB	GRS	X	X												
ONA	<i>Gaura parviflora</i>		G4G5	S3S4	W	A-FORB	GRS										X		X		1
ONA	<i>Gayophytum diffusum</i> var. <i>strictipes</i>			S4S5	W	A-FORB	RMF	X						X			X			X	4
ONA	<i>Gayophytum racemosum</i>		G5	S3	W	A-FORB	RMF														1
ONA	<i>Oenothera albicaulis</i>		G5	S3	W	A-FORB	GRS	X												X	4
ONA	<i>Oenothera caespitosa</i> var. <i>caespitosa</i>		G5TU	S5	W	FORB	IDS	X									X				1
ONA	<i>Oenothera coronopifolia</i>		G5	S3S4	W	FORB	GRS	X													1
ONA	<i>Oenothera laciniata</i>		G5	S1	P	A-FORB	GRS	X													1
ONA	<i>Oenothera nuttallii</i>		G5?	S3	W	FORB	GRS										X				1
ONA	<i>Oenothera villosa</i> var. <i>strigosa</i>	<i>O. strigosa</i>	G5T?	S3S4	W	FORB	GRS	X					X	X			X	X			3
ONA	<i>Oenothera villosa</i> var. <i>villosa</i>	<i>O. villosa</i> ssp. <i>canovirens</i>	G5T?	S3	W	FORB	GRS						X	X			X	X			1
OPH	<i>Botrychium campestre</i>		G3	S1	P	FERN	GRS														3
OPH	<i>Botrychium virginianum</i>		G5	S1	P	FERN	RMF		X	X							X				2
ORC	<i>Calypso bulbosa</i>		G5	S3	W	FORB	RMF	X									X				1
ORC	<i>Corallorrhiza maculata</i>		G5	S3	W	FORB	RMF	X		X			X				X				1
ORC	<i>Corallorrhiza striata</i>		G5	S2	W	FORB	RMF						X				X				3
ORC	<i>Corallorrhiza wisteriana</i>		G5	S2	W	FORB	RMF			X							X				2
ORC	<i>Cypripedium calceolus</i> var. <i>pubescens</i>	<i>C. pubescens</i>	G5	S1S2	D	FORB	RMF		X?								X				2?
ORC	<i>Goodyera oblongifolia</i>		G5?	S3	W	FORB	RMF			X							X				2
ORC	<i>Habenaria hyperborea</i>	<i>Platanthera hyperborea</i>	G5	S3S4	W	FORB	WET		X								X				2
ORC	<i>Habenaria orbiculata</i>	<i>Platanthera orbiculata</i>	G5?	S1	D	FORB	RMF										X				3
ORC	<i>Habenaria unalascensis</i>	<i>Piperia unalascensis</i>	G5	S3	W	FORB	RMF			X							X				2
ORC	<i>Habenaria viridis</i> var. <i>bracteata</i>	<i>Coeloglossum viride</i>	G5	S2	W	FORB	RMF			X			X				X				2
ORC	<i>Spiranthes romanzoffiana</i>		G5	S3	W	FORB	WET							X			X				2
ORO	<i>Orobancha fasciculata</i>		G4	S4S5	W	FORB	RMF	X													1
ORO	<i>Orobancha ludoviciana</i> var. <i>ludoviciana</i>		G5	S3	W	FORB	GRS	X													1
ORO	<i>Orobancha uniflora</i>		G5	S2S3	W	FORB	RMF													X?	4
OXL	<i>Oxalis dillenii</i>		G5	S3	W	FORB	GRS	X		X							X		X		1
OXL	<i>Oxalis stricta</i>		G5	S2	P	FORB	GRS	X	X				X				X				1
PAP	<i>Argemone polyanthemus</i>		G4G5	S3	W	A-FORB	GRS						X				X				3
PGL	<i>Polygala alba</i>		G5	S2	P	FORB	GRS	X									X				1
PGL	<i>Polygala senega</i>		G4G5	S2	P	FORB	EDF		X	X			X				X		X		2

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PGL	<i>Polygala verticillata</i>		G5	S1	P	A-FORB	EDF										X		X		3
PIN	<i>Picea glauca</i>		G5	S2	D	TREE	RMF			X							X				2
PIN	<i>Pinus ponderosa</i>		G5	S4	W	TREE	RMF	X	X	X					X		X		X		1
PLG	<i>Eriogonum annuum</i>		G5	S3	W	A-FORB	GRS											X			3
PLG	<i>Eriogonum flavum</i> var. <i>flavum</i>		G5T4T5	S5	W	FORB	GRS	X									X				1
PLG	<i>Eriogonum pauciflorum</i> var. <i>pauciflorum</i>	Incl var <i>gnaphalodes</i>	G5T4	S3	W	FORB	GRS	X											X		1
PLG	<i>Polygonum achoreum</i>	<i>P. erectum</i> var. <i>achoreum</i>	G5	S3	W	A-FORB	RMF						X				X		X		2
PLG	<i>Polygonum amphibium</i> var. <i>emersum</i>	<i>P. coccineum</i> ; <i>Persicaria coccinea</i>	G5T5	S3	W	FORB	WET										X				3
PLG	<i>Polygonum amphibium</i> var. <i>stipulaceum</i>	<i>Persicaria amphibia</i>	G5T?	S3	W	FORB	WET										X				3
PLG	<i>Polygonum aviculare</i>	<i>P. arenastrum</i>	G?	SE		A-FORB		X					X				X		X		1
PLG	<i>Polygonum bicornae</i>	<i>Persicaria bicornis</i>	G?	S1	P	A-FORB	GRS												X	X	3
PLG	<i>Polygonum convolvulus</i>	<i>Fallopia convolvulus</i>	G?	SE		A-FORB		X						X			X		X		1
PLG	<i>Polygonum douglasii</i> var. <i>douglasii</i>		G5T?	S5	W	A-FORB	RMF	X													1
PLG	<i>Polygonum erectum</i>		G5	S1	P	A-FORB	GRS										X?			X	3?
PLG	<i>Polygonum kelloggii</i> var. <i>confertiflorum</i>	<i>Polygonum confertiflorum</i>	G?	S2S3	W	A-FORB	RMF										X				3
PLG	<i>Polygonum lapathifolium</i>	<i>Persicaria lapathifolia</i>	G5	SE		A-FORB								X			X	X			2
PLG	<i>Polygonum persicaria</i>	<i>Persicaria maculata</i>	G?	SE		A-FORB											X			X	3
PLG	<i>Polygonum ramosissimum</i>		G5	S3	W	A-FORB	GRS							X			X		X		2
PLG	<i>Polygonum sawatchense</i>	<i>P. douglasii</i> var. <i>johnstonii</i>		S3	W	A-FORB	RMF										X		X		3
PLG	<i>Polygonum scandens</i>	<i>Fallopia scandens</i>	G5	S1	P	FORB	GRS										X				3
PLG	<i>Rumex acetosella</i>		G?	SE		FORB				X							X				2
PLG	<i>Rumex aquaticus</i> var. <i>fenestratus</i>	<i>R. occidentalis</i>	G5T5	S3	W	FORB	WET		X								X				2
PLG	<i>Rumex crispus</i>		G?	SE		FORB		X			X			X			X	X	X		1
PLG	<i>Rumex maritimus</i> var. <i>fueginus</i>		G5	S3	W	A-FORB	WET											X		X	3
PLG	<i>Rumex patientia</i>		G?	SE		FORB											X				3

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PLG	<i>Rumex salicifolius</i> var. <i>triangulivalvis</i>	<i>R. mexicanus</i>	G5	S5	W	FORB	RMF	X						X			X	X	X		1
PLG	<i>Rumex stenophyllus</i>		G?	SE		FORB														X	4
PLG	<i>Rumex utahensis</i>	<i>R. salicifolius</i> var. <i>montigenitus</i>	G?	S3	W	FORB	RMF												X	X	3
PLG	<i>Rumex venosus</i>		G5?	S3	W	FORB	GRS	X													1
PLM	<i>Collomia linearis</i>		G5	S5	W	A-FORB	RMF	X	X	X			X				X		X		1
PLM	<i>Ipomopsis congesta</i> var. <i>pseudotypica</i>		G5T?	S2	R	FORB	GRS	X										X	X		1
PLM	<i>Linanthus septentrionalis</i>		G5	S5	W	A-FORB	RMF	X													1
PLM	<i>Microsteris gracilis</i> var. <i>humilior</i>		G5T?	S4	W	A-FORB	GRS	X	X	X			X				X	X	X		1
PLM	<i>Navarretia intertexta</i> var. <i>propinqua</i>	<i>N. saximontana</i>	G5?T5	S2S3	W	FORB	WET										X			X	3
PLM	<i>Phlox alyssifolia</i>		G5	S3	W	FORB	GRS	X	X								X				1
PLM	<i>Phlox hoodii</i>		G5	S5	W	FORB	RMF	X									X	X	X		1
PLM	<i>Phlox kelseyi</i> var. <i>kelseyi</i>		G4T?	S2	W	FORB	WET													X	4
POA	<i>Agropyron cristatum</i> var. <i>cristatum</i>		G5	SE		GRASS		X									X			X	1
POA	<i>Agropyron cristatum</i> var. <i>desertorum</i>	<i>A. desertorum</i>	G?	SE		GRASS											X	X	X	X	3
POA	<i>Agropyron triticeum</i>	<i>Eremopyrum triticeum</i>	G?	SE		A-GRASS													X	X	3
POA	<i>Agrostis exarata</i>		G5	S3S4	W	GRASS	WET	X		X	X		X	X			X				1
POA	<i>Agrostis scabra</i>	<i>A. hiemalis</i>	G5	S5	W	GRASS	WET	X									X	X	X		1
POA	<i>Agrostis stolonifera</i>	<i>A. alba</i>	G5	SE		GRASS		X		X							X	X		X	1
POA	<i>Alopecurus aequalis</i>		G5	S4	W	GRASS	WET	X						X			X	X			1
POA	<i>Alopecurus carolinianus</i>		G5	S2	W	A-GRASS	GRS												X	X	3
POA	<i>Alopecurus geniculatus</i>		G5	S2	W	GRASS	WET										X			X	3
POA	<i>Andropogon gerardii</i>		G5	S3	W	GRASS	GRS	X									X				1
POA	<i>Andropogon scoparius</i>	<i>Schizachyrium scoparium</i>	G5	S4	W	GRASS	GRS	X	X						X		X		X		1
POA	<i>Apera interrupta</i>		G?	SE		A-GRASS														X	4
POA	<i>Aristida curtissii</i>		G5	S1	P	A-GRASS	GRS													X	4
POA	<i>Aristida oligantha</i>		G5	S1	P	A-GRASS	GRS													X	4
POA	<i>Aristida purpurea</i> var. <i>fendleriana</i>	<i>A. fendleriana</i> ; Incl. In <i>A. purpurea</i> var. <i>longiseta</i> by some authors	G5T?	S3	W	GRASS	GRS											X	X	X	3

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
POA	<i>Aristida purpurea</i> var. <i>longiseta</i>	<i>A. longiseta</i>	G5T5?	S3S4	W	GRASS	GRS	X							X		X		X		1
POA	<i>Avena sativa</i>		G?	SE		A-GRASS		X													1
POA	<i>Beckmannia syzigachne</i>		G5	S4	W	A-GRASS	WET	X										X	X		1
POA	<i>Bouteloua curtipendula</i>		G5	S3	W	GRASS	GRS	X	X						X		X	X	X		1
POA	<i>Bouteloua gracilis</i>		G5	S5	W	GRASS	GRS	X							X		X	X	X		1
POA	<i>Bouteloua hirsuta</i>		G5T5	S1	P	GRASS	GRS								X				X		2
POA	<i>Bromus anomalus</i>		G5	S4	W	GRASS	RMF	X									X		X		1
POA	<i>Bromus carinatus</i>	<i>B. marginatus</i>	G5	S5	W	GRASS	RMF	X									X				1
POA	<i>Bromus ciliatus</i>		G5	S5	W	GRASS	RMF										X				3
POA	<i>Bromus commutatus</i>		G?	SE		A-GRASS		X	X	X				X			X		X		1
POA	<i>Bromus inermis</i> var. <i>inermis</i>		G4G5T?	SE		GRASS		X		X							X		X		1
POA	<i>Bromus inermis</i> var. <i>purpurascens</i>		G4G5T?	S3	W	GRASS	RMF	X									X				1
POA	<i>Bromus japonicus</i>		G?	SE		A-GRASS		X					X		X		X		X		1
POA	<i>Bromus secalinus</i>		G?	SE		A-GRASS														X	4
POA	<i>Bromus squarrosus</i>		G?	SE		A-GRASS											X		X	X	3
POA	<i>Bromus tectorum</i>		G?	SE		A-GRASS		X	X	X					X		X		X		1
POA	<i>Buchloe dactyloides</i>		G4G5	S3	W	GRASS	GRS	X							X		X		X		1
POA	<i>Calamagrostis canadensis</i>	Incl. <i>C. scribneri</i>	G5	S4S5	W	GRASS	WET			X							X				2
POA	<i>Calamagrostis inexpansa</i>	Incl. In <i>C. stricta</i> by some authors	G5T5	S3	W	GRASS	WET													X	4
POA	<i>Calamagrostis montanensis</i>		G5	S3	W	GRASS	RMF	X													1
POA	<i>Calamagrostis stricta</i>	<i>C. neglecta</i>	G5	S3	W	GRASS	WET													X	4
POA	<i>Calamovilfa longifolia</i>		G5	S4S5	W	GRASS	GRS	X							X			X	X		1
POA	<i>Catabrosa aquatica</i>		G5	S3	W	GRASS	WET										X				3
POA	<i>Cenchrus longispinus</i>		G5	S2S3	W	A-GRASS	GRS													X	4
POA	<i>Cinna latifolia</i>		G5	S2	W	GRASS	RMF			X							X				2
POA	<i>Dactylis glomerata</i>		G?	SE		GRASS		X	X								X				1
POA	<i>Danthonia intermedia</i>		G5	S4	W	GRASS	RMF										X				3
POA	<i>Danthonia spicata</i>		G5	S3	W	GRASS	RMF	X	X		X			X			X	X	X		1
POA	<i>Danthonia unispicata</i>		G5	S3S4	W	GRASS	RMF	X									X		X		1
POA	<i>Deschampsia cespitosa</i>		G5	S5	W	GRASS	WET													X	4
POA	<i>Distichlis spicata</i> var. <i>stricta</i>		G5	S5	W	GRASS	GRS	X													1
POA	<i>Echinochloa crus-galli</i>		G?	SE		A-GRASS								X?			X?			X	2?
POA	<i>Echinochloa muricata</i>		G5	S4	W	A-GRASS	GRS	X						X			X		X		1
POA	<i>Elymus albicans</i> var. <i>albicans</i>	<i>Agropyron albicans</i> var. <i>albicans</i>	G5T5?	S2	W	GRASS	RMF													X	4

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
POA	<i>Elymus albicans</i> var. <i>griffithsii</i>	<i>Agropyron albicans</i> var. <i>griffithsii</i>	G5T?	S3	W	GRASS	RMF										X			X	3
POA	<i>Elymus canadensis</i> var. <i>canadensis</i>		G5T?	S3	W	GRASS	RMF	X						X			X	X	X		1
POA	<i>Elymus canadensis</i> var. <i>hirsutus</i>	<i>Elymus wiegandii</i>	G5T?	S1	P	GRASS	RMF													X?	4
POA	<i>Elymus cinereus</i>	<i>Leymus cinereus</i>	G5	S4S5	W	GRASS	IDS										X?				3?
POA	<i>Elymus diversiglumis</i>	<i>Elymus interruptus</i>	G3?Q	S1	P	GRASS	EDF			X							X				2
POA	<i>Elymus elongatus</i> var. <i>ponticus</i>	<i>Agropyron elongatum</i>	G?	SE		GRASS														X	4
POA	<i>Elymus elymoides</i> var. <i>breviflorus</i>	<i>Sitanion hystrix</i>	G5T?	S3S4	W	GRASS	RMF	X									X		X		1
POA	<i>Elymus elymoides</i> var. <i>elymoides</i>	<i>Sitanion hystrix</i>	G5T5	S5	W	GRASS	RMF	X													1
POA	<i>Elymus glaucus</i>		G5	S4	W	GRASS	RMF	X			X						X				1
POA	<i>Elymus hispidus</i> var. <i>hispidus</i>	<i>Agropyron intermedium</i> ; <i>Elytrigia intermedia</i>	G?	SE		GRASS								X			X	X			2
POA	<i>Elymus hispidus</i> var. <i>ruthenicus</i>	<i>Agropyron intermedium</i> ; <i>Elytrigia intermedia</i>	G?	SE		GRASS		X												X	1
POA	<i>Elymus innovatus</i>	<i>Leymus innovatus</i>	G5	S2	P	GRASS	RMF										X		X		3
POA	<i>Elymus lanceolatus</i> var. <i>lanceolatus</i>	<i>Agropyron dasystachyum</i> var. <i>dasystachyum</i>	G5T5	S5	W	GRASS	RMF										X				3
POA	<i>Elymus lanceolatus</i> var. <i>riparius</i>	<i>Agropyron dasystachyum</i> var. <i>riparium</i>		S3	W	GRASS	RMF										X		X	X	3
POA	<i>Elymus repens</i>	<i>Agropyron repens</i> ; <i>Elytrigia repens</i>	G5	SE		GRASS		X												X	1
POA	<i>Elymus smithii</i>	<i>Agropyron smithii</i> ; <i>Pascopyrum smithii</i>	G5	S5	W	GRASS	GRS	X	X					X	X		X		X		1

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Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M	DG SBA (1)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
POA	<i>Elymus spicatus</i>	<i>Agropyron spicatum</i> ; <i>Pseudroegneria spicata</i>	G5	S5	W	GRASS	IDS	X	X								X				1
POA	<i>Elymus trachycaulus</i> var. <i>andinus</i>	<i>Agropyron caninum</i> var. <i>andinum</i> ; <i>A. subsecundum</i>	G5T?	S4	W	GRASS	RMF	X						X			X				1
POA	<i>Elymus trachycaulus</i> var. <i>trachycaulus</i>	<i>Agropyron caninum</i>	G5T5	S5	W	GRASS	RMF	X						X			X	X			1
POA	<i>Elymus villosus</i>		G5	S1	P	GRASS	EDF	X									X		X?	X	1
POA	<i>Elymus virginicus</i>		G5	S2	W	GRASS	WET	X						X			X		X		1
POA	<i>Elymus x macounii</i>	<i>xElyhordeum macounii</i>	HYB	S3	W	GRASS	RMF													X	4
POA	<i>Elymus x saundersii</i>		HYB	S2	W	GRASS	RMF										X		X		3
POA	<i>Eragrostis cilianensis</i>		G?	SE		A-GRASS		X													1
POA	<i>Festuca arundinacea</i>		G?	SE		GRASS		X									X				1
POA	<i>Festuca idahoensis</i>	<i>F. ovina</i> var. <i>ingrata</i>	G5	S4S5	W	GRASS	RMF	X									X		X		1
POA	<i>Festuca octoflora</i>	<i>Vulpia octoflora</i>	G5	S4	W	A-GRASS	IDS	X									X		X		1
POA	<i>Festuca pratensis</i>		G5	SE		GRASS		X									X				1
POA	<i>Festuca rubra</i> var. <i>rubra</i>		G5T4	S2	W	GRASS	RMF	X													1
POA	<i>Festuca saximontana</i>	<i>F. ovina</i> var. <i>rydbergii</i>	G5	S4S5	W	GRASS	RMF	X													1
POA	<i>Festuca subulata</i>		G5	S2	W	GRASS	RMF		X								X				2
POA	<i>Glyceria borealis</i>		G5	S2	W	GRASS	WET										X				3
POA	<i>Glyceria elata</i>		G4G5	S2S3	W	GRASS	WET										X				3
POA	<i>Glyceria grandis</i>		G5	S3	W	GRASS	WET										X				3
POA	<i>Glyceria striata</i>		G5	S4	W	GRASS	WET	X	X		X			X			X		X		1
POA	<i>Hierochloa odorata</i>		G?	S3	W	GRASS	RMF										X				3
POA	<i>Hordeum jubatum</i>		G5	S5	W	GRASS	GRS	X					X				X	X	X		1
POA	<i>Hordeum pusillum</i>		G5	S3	W	A-GRASS	GRS										X?			X	3?
POA	<i>Hordeum vulgare</i> var. <i>vulgare</i>		G?	SE		A-GRASS														X	4
POA	<i>Hordeum x caespitosum</i>	<i>H. adscendens</i>	G?	S3	W	GRASS	GRS	X												X	1
POA	<i>Koeleria macrantha</i>	<i>K. cristata</i> ; <i>K. pyramidata</i>	G5	S5	W	GRASS	GRS	X	X		X						X		X		1
POA	<i>Leersia oryzoides</i>		G5	S1S2	P	GRASS	WET	X												X	1
POA	<i>Lolium multiflorum</i>		G?	SE		GRASS														X	4
POA	<i>Melica bulbosa</i>		G5	S3S4	W	GRASS	RMF													X	4
POA	<i>Melica subulata</i>		G5	S2	W	GRASS	RMF						X				X				2

Appendix A. Checklist and Protection Status of the Black Hills Flora

Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M	DG SBA	USC SBA	GS LSL	MC LSL	SC LSL	IK HS	WC ACEC	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
POA	Monroa squarrosa	Munroa squarrosa	G5	S3	W	A-GRASS	GRS										X		X		3
POA	Muhlenbergia asperifolia		G5	S3	W	GRASS	WET													X	4
POA	Muhlenbergia cuspidata		G4	S3	W	GRASS	GRS	X						X			X		X		1
POA	Muhlenbergia filiculmis		G4	S2	P	GRASS	RMF													X	4
POA	Muhlenbergia filiformis		G5	S3	W	A-GRASS	RMF													X	4
POA	Muhlenbergia glomerata	Incl. in M. racemosa by some authors	G5	S1	S	GRASS	WET										X			X?	3
POA	Muhlenbergia mexicana		G5	S1	P	GRASS	WET	X													1
POA	Muhlenbergia racemosa		G5	S3	W	GRASS	RMF	X						X			X		X		2
POA	Oryzopsis asperifolia		G5	S3	W	GRASS	RMF	X	X	X							X				1
POA	Oryzopsis hymenoides		G5	S5	W	GRASS	IDS	X											X		1
POA	Oryzopsis micrantha		G5	S3	W	GRASS	GRS	X	X								X		X		1
POA	Oryzopsis pungens		G5	SH	D	GRASS	EDF							X			X				2
POA	Panicum capillare		G5	S4	W	A-GRASS	GRS	X						X			X		X		1
POA	Panicum linearifolium	Dichanthelium linearifolium	G5	S1	D	GRASS	GRS										X				3
POA	Panicum oligosanthos var. scribnerianum	Dichanthelium oligosanthos var. scribnerianum	G5T5	S3	W	GRASS	GRS	X	X								X	X	X		1
POA	Panicum virgatum		G5	S2S3	W	GRASS	GRS													X	4
POA	Panicum wilcoxianum	Dichanthelium wilcoxianum; D. oligosanthos var. wilcoxianum	G5	S1S2	P	GRASS	GRS	X									X		X		1
POA	Phalaris arundinacea		G5	S3S4	W	GRASS	WET	X									X				1
POA	Phalaris canariensis		G?	SE		A-GRASS														X	4
POA	Phleum pratense		G?	SE		GRASS		X		X				X			X		X		1
POA	Phragmites australis		G5	S2S3	W	GRASS	WET													X	4
POA	Poa annua		G?	SE		A-GRASS											X				2
POA	Poa arida		G5	S2	W	GRASS	GRS						X				X			X	4
POA	Poa bulbosa		G?	SE		GRASS		X									X				1
POA	Poa compressa		G?	SE		GRASS		X	X								X	X	X		1
POA	Poa fendleriana		G5	S4S5	W	GRASS	RMF										X				3
POA	Poa glaucifolia		G?	S2	W	GRASS	WET												X		3
POA	Poa interior	P. glauca var. glauca	G5	S4S5	W	GRASS	RMF	X	X	X							X		X		1
POA	Poa juncifolia var. ampla	P. ampla	G5T?	S4	W	GRASS	RMF										X		X		3
POA	Poa juncifolia var. juncifolia	P. nevadensis var. juncifolia	G5T?	S3S4	W	GRASS	WET										X		X		3

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Family	Species	Synonym	GRank	SRank	Dist	Form	Biome	DTN M (1)	DG SBA (2)	USC SBA (2)	GS LSL (2)	MC LSL (2)	SC LSL (2)	IK HS (2)	WC ACEC (2)	TNC (2)	BH NF (3)	KSP (3)	New BLM (3)	Priv (4)	SCORE
POA	<i>Poa nervosa</i> var. <i>wheeleri</i>		G5	S4S5	W	GRASS	RMF										X				3
POA	<i>Poa palustris</i>		G5	SE		GRASS			X								X	X			2
POA	<i>Poa pratensis</i>		G?	SE		GRASS		X	X	X	X						X		X		1
POA	<i>Poa secunda</i> var. <i>elongata</i>	<i>P. canbyi</i>	G5	S5	W	GRASS	RMF	X									X		X		1
POA	<i>Poa secunda</i> var. <i>secunda</i>	<i>P. sandbergii</i>	G5	S5	W	GRASS	IDS	X									X		X		1
POA	<i>Poa trivialis</i>		G?	SE		GRASS											X				3
POA	<i>Polypogon monspeliensis</i>		G?	SE		A-GRASS														X	4
POA	<i>Puccinellia cusickii</i>		G3G4Q	S1	S	GRASS	GRS													X	4
POA	<i>Puccinellia nuttalliana</i>		G5	S4	W	GRASS	GRS											X	X	X	3
POA	<i>Schedonnardus paniculatus</i>		G5	S3	W	GRASS	GRS	X													1
POA	<i>Schizachne purpurascens</i>		G5	S3	W	GRASS	RMF	X	X	X	X		X				X				1
POA	<i>Secale cereale</i>		G?	SE		A-GRASS		X													1
POA	<i>Setaria viridis</i>		G?	SE		A-GRASS		X									X				1
POA	<i>Sorghastrum nutans</i>	<i>S. avenaceum</i>	G5	S1	P	GRASS	GRS										X				3
POA	<i>Spartina gracilis</i>		G5	S4	W	GRASS	WET													X	4
POA	<i>Spartina pectinata</i>		G5	S3S4	W	GRASS	WET	X											X		1
POA	<i>Sphenopholis obtusata</i> var. <i>major</i>	<i>S. intermedia</i>	G?	S2	W	GRASS	WET										X				3
POA	<i>Sphenopholis obtusata</i> var. <i>obtusata</i>		G?	S2	W	GRASS	WET										X	X		X	3
POA	<i>Sporobolus airoides</i>		G5	S4	W	GRASS	GRS													X	4
POA	<i>Sporobolus asper</i> var. <i>asper</i>		G5T5	S1	P	GRASS	GRS													X	4
POA	<i>Sporobolus cryptandrus</i>		G5	S4	W	GRASS	GRS	X													1
POA	<i>Sporobolus heterolepis</i>		G5	S1	P	GRASS	GRS													X	4
POA	<i>Stipa comata</i> var. <i>comata</i>		G5T?	S5	W	GRASS	GRS	X	X					X	X		X		X		1
POA	<i>Stipa nelsonii</i> var. <i>dorei</i>	<i>S. occidentalis</i> var. <i>nelsonii</i>	G5T?	S4	W	GRASS	RMF										X		X		3
POA	<i>Stipa nelsonii</i> var. <i>nelsonii</i>		G5T?	S5	W	GRASS	RMF										X				3
POA	<i>Stipa richardsonii</i>		G5	S3	W	GRASS	RMF										X		X		3
POA	<i>Stipa robusta</i>		G5	S2	D	GRASS	GRS										X			X	4
POA	<i>Stipa spartea</i>		G5	S2	P	GRASS	GRS	X	X								X				1
POA	<i>Stipa viridula</i>		G5	S4	W	GRASS	GRS	X	X								X		X		1
POA	<i>Torreyochloa pallida</i> var. <i>pauciflora</i>	<i>Puccinellia pauciflora</i> var. <i>holmii</i>	G5T?	S3	W	GRASS	WET										X				3
POA	<i>Trisetum spicatum</i>		G5	S4S5	W	GRASS	RMF										X				3
POA	<i>Triticum aestivum</i>		G?	SE		A-GRASS														X	4
POR	<i>Claytonia perfoliata</i>	<i>Montia perfoliata</i>	G5	S2	W	A-FORB	RMF										X				3
POR	<i>Lewisia pygmaea</i>		G5	S4	W	FORB	RMF										X				3

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POR	<i>Lewisia rediviva</i>		G5	S3S4	W	FORB	RMF											X			3
POR	<i>Portulaca oleracea</i>		G?	SE*		A-FORB		X													1
POR	<i>Talinum parviflorum</i>		G5	S1	S	FORB	GRS													X	4
POT	<i>Potamogeton diversifolius</i>		G5	S1	P	FORB	WET										X				3
POT	<i>Potamogeton filiformis</i>	<i>Stuckenia filiformis</i>	G5	S3	W	FORB	WET										X				3
POT	<i>Potamogeton foliosus</i>		G5	S3	W	FORB	WET										X				3
POT	<i>Potamogeton gramineus</i>		G5	S3	W	FORB	WET										X				3
POT	<i>Potamogeton pectinatus</i>	<i>Stuckenia pectinata</i>	G5	S3	W	FORB	WET	X													1
POT	<i>Potamogeton pusillus</i>		G5	S3	W	FORB	WET													X	4
POT	<i>Potamogeton richardsonii</i>		G5	S3	W	FORB	WET										X				3
PRM	<i>Androsace occidentalis</i>		G5	S3	W	A-FORB	GRS	X									X		X		1
PRM	<i>Androsace septentrionalis</i> var. <i>subulifera</i>		G5T?	S4S5	W	A-FORB	RMF		X	X			X				X				2
PRM	<i>Centunculus minimus</i>		G5	S1	P	A-FORB	WET										X				3
PRM	<i>Dodecatheon pulchellum</i>	<i>D. pauciflorum</i>	G5	S4	W	FORB	RMF	X	X	X							X				1
PRM	<i>Lysimachia ciliata</i>	<i>Steironema ciliatum</i>	G5	S3	W	FORB	WET	X		X	X			X			X				1
PTG	<i>Plantago elongata</i>		G4	S2S3	W	A-FORB	GRS										X		X		3
PTG	<i>Plantago major</i>	Incl. "native" var. <i>pachyphylla</i>	G5	SE		FORB		X	X	X			X	X			X		X		1
PTG	<i>Plantago patagonica</i> var. <i>patagonica</i>		G5	S5	W	A-FORB	GRS	X									X		X		1
PTG	<i>Plantago patagonica</i> var. <i>spinulosa</i>		G5	S3	W	A-FORB	GRS	X													1
RAN	<i>Aconitum columbianum</i> var. <i>columbianum</i>		G4G5T?	S3	W	FORB	RMF			X							X				2
RAN	<i>Actaea rubra</i>		G5	S4	W	FORB	RMF		X	X				X			X				2
RAN	<i>Anemone cylindrica</i>		G5	S2S3	W	FORB	GRS	X					X				X		X		1
RAN	<i>Anemone multifida</i> var. <i>multifida</i>		G5T5Q	S4	W	FORB	RMF		X				X				X		X		2
RAN	<i>Anemone patens</i> var. <i>multifida</i>	<i>A. nuttalliana</i>	G5T?	S4	W	FORB	RMF	X									X		X		1
RAN	<i>Anemone virginiana</i>		G5	S1	P	FORB	EDF										X				3
RAN	<i>Aquilegia brevistyla</i>		G5	S1	D	FORB	EDF										X?		X?		3
RAN	<i>Clematis columbiana</i> var. <i>tenuiloba</i>	<i>C. tenuiloba</i>	G5?T?	S3	W	FORB	RMF										X				3
RAN	<i>Clematis ligusticifolia</i>		G5	S3S4	W	FORB	GRS	X													1
RAN	<i>Delphinium bicolor</i>		G4G5	S4S5	W	FORB	RMF	X	X	X			X				X	X			1
RAN	<i>Myosurus minimus</i>		G5	S3	W	A-FORB	WET	X											X		1

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RAN	Ranunculus abortivus		G5	S3	W	FORB	RMF	X	X	X	X						X				1
RAN	Ranunculus aquatilis var. diffusus	R. circinatus var. subrigidus & R. longirostris		S4S5	W	FORB	WET	X									X	X			1
RAN	Ranunculus cymbalaria	Incl. vars. alpinus & saximontanus	G5	S5	W	FORB	WET	X										X			1
RAN	Ranunculus glaberrimus var. ellipticus	Incl. var. glaberrimus	G5T5	S5	W	FORB	RMF	X													1
RAN	Ranunculus inamoenus		G5	S3S4	W	FORB	RMF			X							X				2
RAN	Ranunculus macounii		G5	S4	W	FORB	WET	X	X	X							X				1
RAN	Ranunculus natans var. intertextus	R. hyperboreus		S3	W	FORB	WET													X	4
RAN	Ranunculus pensylvanicus		G5	S2	W	A-FORB	WET				X		X				X				2
RAN	Ranunculus sceleratus var. multifidus	Hecatonia scelerata	G5T5	S3	W	A-FORB	WET	X						X			X				1
RAN	Ranunculus testiculatus	Ceratocephala orthoceras		SE		A-FORB		X													1
RAN	Ranunculus uncinatus	Incl. var. uncinatus & parviflorus	G5	S3	W	FORB	WET													X	4
RAN	Thalictrum dasycarpum		G5	S2S3	W	FORB	RMF	X	X								X				1
RAN	Thalictrum fendleri		G5	S3S4	W	FORB	RMF		X	X							X				2
RAN	Thalictrum occidentale		G5	S3	W	FORB	RMF		X				X				X				2
RAN	Thalictrum revolutum		G5	S1	D	FORB	EDF										X				3
RAN	Thalictrum venulosum		G5	S3	W	FORB	RMF										X				3
RHM	Ceanothus fendleri		G5	S2	W	SHRUB	RMF												X	X	3
RHM	Ceanothus herbaceus		G5	S1	P	SHRUB	GRS										X				3
RHM	Ceanothus velutinus var. velutinus		G5	S3S4	W	SHRUB	RMF	X									X				1
RHM	Rhamnus cathartica		G?	SE		SHRUB														X	4
RHM	Rhamnus frangula		G?	SE		SHRUB														X	4
ROS	Agrimonia gryposepala		G5	S1	P	FORB	EDF										X				3
ROS	Agrimonia striata		G5	S2S3	W	FORB	RMF			X	X			X			X				2
ROS	Amelanchier alnifolia var. alnifolia		G5T?	S4S5	W	SHRUB	RMF	X	X	X			X				X	X			1
ROS	Cercocarpus montanus		G5	S3S4	W	SHRUB	IDS										X		X		3
ROS	Crataegus columbiana var. chrysocarpa	C. chrysocarpa; C. rotundifolia	G5	S2	W	SHRUB	RMF	X	X				X				X				1
ROS	Fragaria virginiana		G5	S5	W	FORB	RMF	X	X	X	X						X		X		1
ROS	Geum aleppicum		G5	S3	W	FORB	WET	X	X				X	X			X				1
ROS	Geum canadense		G5	S2	P	FORB	EDF		X								X				2

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ROS	<i>Geum macrophyllum</i> var. <i>pericisum</i>		G5T?	S4S5	W	FORB	RMF	X	X	X				X			X				1
ROS	<i>Geum rivale</i>		G5	S1S2	S	FORB	WET										X				3
ROS	<i>Geum triflorum</i>		G4G5	S4S5	W	FORB	RMF	X					X				X	X	X		1
ROS	<i>Pentaphylloides floribunda</i>	<i>Potentilla fruticosa</i>	G5	S4S5	W	SHRUB	RMF										X		X		3
ROS	<i>Physocarpus monogynus</i>		G4	S3	W	SHRUB	RMF										X		X		3
ROS	<i>Potentilla anserina</i>		G5	S3	W	FORB	WET													X	4
ROS	<i>Potentilla arguta</i>	<i>Drymocallis arguta</i>	G5	S4S5	W	FORB	RMF	X			X		X	X			X	X	X		1
ROS	<i>Potentilla concinna</i> var. <i>concinna</i>		G5?T?	S4	W	FORB	RMF										X				3
ROS	<i>Potentilla fissa</i>	<i>Drymocallis fissa</i>	G4G5	S3	W	FORB	RMF	X												X	1
ROS	<i>Potentilla glandulosa</i> var. <i>pseudorupestris</i>	<i>Drymocallis glandulosa</i>	G5T?	S4S5	W	FORB	RMF		X								X		X		2
ROS	<i>Potentilla gracilis</i> var. <i>nuttallii</i>	<i>P. gracilis</i> var. <i>fastigiata</i>	G5T?	S5	W	FORB	RMF				X			X			X		X		2
ROS	<i>Potentilla gracilis</i> var. <i>pulcherrima</i>		G5	S4S5	W	FORB	RMF										X				3
ROS	<i>Potentilla hippiana</i> var. <i>effusa</i>		G5?	S4	W	FORB	RMF							X			X				2
ROS	<i>Potentilla hippiana</i> var. <i>hippiana</i>		G5T?	S3	W	FORB	RMF										X		X	X	3
ROS	<i>Potentilla norvegica</i>		G5	SE		A-FORB			X				X				X	X	X		2
ROS	<i>Potentilla paradoxa</i>	<i>P. supina</i> ssp. <i>paradoxa</i>	G5	S2	W	A-FORB	WET											X			3
ROS	<i>Potentilla pensylvanica</i>		G5	S3	W	FORB	RMF	X											X		1
ROS	<i>Potentilla recta</i>		G?	SE		FORB														X	4
ROS	<i>Prunus americana</i>		G5	S3	W	SHRUB	EDF	X	X				X				X				1
ROS	<i>Prunus pensylvanica</i>		G5	S2	P	TREE	RMF	X		X							X				1
ROS	<i>Prunus pumila</i> var. <i>besseyi</i>		G5T?	S2	W	SHRUB	GRS												X	X	3
ROS	<i>Prunus virginiana</i> var. <i>melanocarpa</i>		G5T?	S5	W	SHRUB	RMF	X	X	X							X		X		1
ROS	<i>Purshia tridentata</i>		G5	S4S5	W	SHRUB	RMF										X				3
ROS	<i>Pyrus malus</i>	<i>Malus pumila</i>		SE		TREE		X													1
ROS	<i>Rosa arkansana</i>		G5	S3S4	W	SHRUB	GRS	X	X								X	X	X		1
ROS	<i>Rosa sayi</i>	<i>R. acicularis</i> var. <i>sayi</i>	G5TU	S4S5	W	SHRUB	RMF			X							X				2
ROS	<i>Rosa woodsii</i>		G5	S5	W	SHRUB	RMF	X					X				X	X			1

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ROS	<i>Rubus idaeus</i> var. <i>aculeatissimus</i>		G5	S4	W	FORB	RMF	X	X	X							X				1
ROS	<i>Rubus parviflorus</i>		G5	S3	W	SHRUB	RMF		X	X			X				X				2
ROS	<i>Rubus pubescens</i>		G5	S2	P	FORB	RMF		X	X			X				X				2
ROS	<i>Sorbus scopulina</i> var. <i>scopulina</i>		G5T?	S3	W	SHRUB	RMF			X							X				2
ROS	<i>Spiraea betulifolia</i> var. <i>lucida</i>		G4G5T?	S3	W	SHRUB	RMF		X	X	X			X			X				2
RUB	<i>Galium aparine</i> var. <i>aparine</i>		G5T?	S2	W	A-FORB	WET		X	X							X				2
RUB	<i>Galium aparine</i> var. <i>echinospermon</i>		G5T?	S3	W	A-FORB	WET	X					X?				X			X	1
RUB	<i>Galium boreale</i>		G5	S5	W	FORB	RMF	X	X	X	X			X			X		X		1
RUB	<i>Galium trifidum</i>	Incl. vars <i>trifidum</i> & <i>subbiflorum</i>	G5	S3	W	FORB	WET										X				3
RUB	<i>Galium triflorum</i>		G5	S3	W	FORB	RMF	X	X	X	X			X			X				1
RUP	<i>Ruppia maritima</i>	<i>R. cirrhosa</i>	G5	S2	W	FORB	WET													X	4
SAL	<i>Populus angustifolia</i>		G5	S4S5	W	TREE	WET						X				X				2
SAL	<i>Populus deltoides</i> var. <i>occidentalis</i>	<i>P. deltoides</i> ssp. <i>monilifera</i>	G5	S4S5	W	TREE	WET	X									X	X	X		1
SAL	<i>Populus tremuloides</i>		G5	S5	W	TREE	RMF	X	X	X			X				X		X		1
SAL	<i>Populus x acuminata</i>	<i>P. x acuminata</i>	HYB	S3	W	TREE	WET													X	4
SAL	<i>Salix amygdaloides</i>		G5	S4	W	TREE	WET	X									X	X	X		1
SAL	<i>Salix bebbiana</i>		G5	S5	W	SHRUB	WET		X	X	X						X				2
SAL	<i>Salix discolor</i>		G5	S2	W	SHRUB	WET										X			X	3
SAL	<i>Salix eriocephala</i> var. <i>famelica</i>	<i>S. eriocephala</i> ; incl. in <i>S. lutea</i> in Grt Pl Flora	G5	S3	W	SHRUB	WET	X		X?							X	X		X	1
SAL	<i>Salix exigua</i> var. <i>exigua</i>		G5	S5	W	SHRUB	WET			X							X	X?	X		2
SAL	<i>Salix fragilis</i>		G?	SE		TREE	WET														4
SAL	<i>Salix planifolia</i>	<i>S. phylicifolia</i> ; incl. vars <i>monica</i> and <i>planifolia</i>	G5	S4	W	SHRUB	WET										X				3
SAL	<i>Salix scouleriana</i>		G5	S3	W	SHRUB	RMF			X							X			X	2
SAN	<i>Comandra umbellata</i> var. <i>pallida</i>		G5T?	S5	W	FORB	IDS	X	X				X				X	X	X		1
SAX	<i>Heuchera richardsonii</i>		G5	S3	W	FORB	GRS	X	X		X						X				1
SAX	<i>Lithophragma glabrum</i> var. <i>ramulosum</i>	<i>L. bulbifera</i> , <i>L. glabra</i>	G4G5	S4	W	FORB	RMF													X	4
SAX	<i>Lithophragma parviflorum</i>	<i>L. parviflora</i>	G5	S3S4	W	FORB	RMF	X		X			X				X				1
SAX	<i>Mitella pentandra</i>		G5?	S3S4	W	FORB	RMF			X							X				2

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SAX	<i>Saxifraga occidentalis</i> var. <i>occidentalis</i>		G5	S3	W	FORB	RMF										X				3
SCR	<i>Bacopa rotundifolia</i>		G5	S1	P	FORB	WET													X	4
SCR	<i>Besseyia wyomingensis</i>		G5	S5	W	FORB	RMF	X	X								X	X	X		1
SCR	<i>Castilleja sessiliflora</i>		G5	S3	W	FORB	GRS	X	X								X				1
SCR	<i>Castilleja sulphurea</i>		G4	S4	W	FORB	RMF		X	X			X				X		X		2
SCR	<i>Collinsia parviflora</i>		G5	S5	W	A-FORB	RMF			X			X				X	X			2
SCR	<i>Gratiola neglecta</i>		G5	S2	P	A-FORB	WET										X				3
SCR	<i>Limosella aquatica</i>		G5	S3	W	FORB	WET										X				3
SCR	<i>Linaria canadensis</i> var. <i>texana</i>		G4G5	S2	P	A-FORB	GRS										X				3
SCR	<i>Linaria vulgaris</i>		G?	SE		FORB											X				3
SCR	<i>Mimulus guttatus</i>		G5	S5	W	FORB	WET			X							X				2
SCR	<i>Orthocarpus luteus</i>		G5	S5	W	A-FORB	RMF	X			X						X		X		1
SCR	<i>Penstemon albidus</i>		G5	S4	W	FORB	GRS	X	X								X				1
SCR	<i>Penstemon eriantherus</i> var. <i>eriantherus</i>		G4T?	S4S5	W	FORB	GRS	X									X		X		1
SCR	<i>Penstemon glaber</i> var. <i>alpinus</i>		G5T?	S3	R	FORB	RMF													X?	4?
SCR	<i>Penstemon glaber</i> var. <i>glaber</i>		G5T?	S4	W	FORB	GRS	X	X				X				X	X	X		1
SCR	<i>Penstemon gracilis</i>		G5	S3	W	FORB	GRS	X			X		X						X		1
SCR	<i>Penstemon grandiflorus</i>		G5?	S2	P	FORB	GRS	X					X				X				1
SCR	<i>Penstemon nitidus</i> var. <i>nitidus</i>		G5T?	S3	W	FORB	RMF												X	X	3
SCR	<i>Scrophularia lanceolata</i>		G5	S3	W	FORB	RMF	X						X			X				1
SCR	<i>Verbascum thapsus</i>		G?	SE		FORB		X		X			X				X				1
SCR	<i>Veronica americana</i>		G5	S5	W	FORB	WET	X	X	X	X		X	X			X				1
SCR	<i>Veronica arvensis</i>		G?	SE		A-FORB			X				X				X				2
SCR	<i>Veronica biloba</i>		G?	SE		A-FORB				X							X				2
SCR	<i>Veronica catenata</i>			S2	W	FORB	WET										X		X?	X	3
SCR	<i>Veronica peregrina</i> var. <i>xalapensis</i>		G5T5	S4	W	A-FORB	WET	X			X						X				1
SCR	<i>Veronica serpyllifolia</i> var. <i>humifusa</i>		G?T?	S4S5	W	FORB	WET										X				3
SEL	<i>Selaginella densa</i>	Incl. vars <i>standleyi</i> , <i>densa</i> , & <i>scopulorum</i>	G5	S5	W	FERN	RMF	X									X	X	X		1
SEL	<i>Selaginella rupestris</i>		G5	S1	D	FERN	EDF										X				3
SOL	<i>Hyoscyamus niger</i>		G?	SE		A-FORB											X				3
SOL	<i>Lycium barbarum</i>		G?	SE		SHRUB														X	4
SOL	<i>Physalis heterophylla</i>		G5	S2	P	FORB	GRS		X								X				2
SOL	<i>Physalis longifolia</i>	<i>P. virginiana</i> var. <i>sonorae</i>	G5	S2	W	FORB	GRS										X			X	3

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SOL	<i>Physalis virginiana</i> var. <i>virginiana</i>		G5	S1	P	FORB	GRS										X				3
SOL	<i>Solanum nigrum</i>	<i>S. ptycanthum</i> ; <i>S. americanum</i>		S2	W	A-FORB	GRS	X													1
SOL	<i>Solanum rostratum</i>		G5	S3	W	A-FORB	GRS										X				3
SOL	<i>Solanum triflorum</i>		G5	S3	W	A-FORB	GRS	X													1
SPG	<i>Sparganium emersum</i>	<i>S. simplex</i>		S3	W	FORB	WET				X			X			X				2
SPG	<i>Sparganium eurycarpum</i>		G5	S1	P	FORB	WET										X				3
TAM	<i>Tamarix chinensis</i>		G?	SE		SHRUB												X			3
TYP	<i>Typha latifolia</i>		G5	S3S4	W	GRASS	WET							X			X		X		2
ULM	<i>Ulmus americana</i>		G5?	S2	P	TREE	EDF		X				X				X				2
ULM	<i>Ulmus pumila</i>		G?	SE		TREE												X		X	3
URT	<i>Parietaria pensylvanica</i>		G5	S3	W	A-FORB	RMF	X	X								X		X		1
URT	<i>Urtica dioica</i> var. <i>procera</i>		G5	S4S5	W	FORB	RMF	X	X	X				X			X				1
VAL	<i>Valeriana edulis</i>		G5	S4	W	FORB	RMF										X				3
VAL	<i>Valeriana occidentalis</i>		G5	S4	W	FORB	RMF			X							X				2
VIO	<i>Viola adunca</i>		G5	S5	W	FORB	RMF	X	X	X	X		X				X				1
VIO	<i>Viola canadensis</i>		G5	S3	W	FORB	RMF	X	X	X							X				1
VIO	<i>Viola nephrophylla</i>		G5	S3	W	FORB	WET	X	X	X							X				1
VIO	<i>Viola nuttallii</i>		G5	S3S4	W	FORB	GRS	X									X	X	X		1
VIO	<i>Viola pedatifida</i>		G5	S1	P	FORB	GRS	X									X		X?		1
VIO	<i>Viola praemorsa</i> var. <i>altior</i>	<i>V. nuttallii</i> var. <i>praemorsa</i>	G5	S4S5	W	FORB	RMF													X	4
VIO	<i>Viola pubescens</i>		G5	S2	P	FORB	EDF		X	X							X				2
VIO	<i>Viola renifolia</i> var. <i>brainerdii</i>		G5T5	S1	D	FORB	RMF						X				X				2
VIO	<i>Viola vallicola</i>	<i>V. nuttallii</i> var. <i>vallicola</i>	G4Q	S5	W	FORB	RMF	X									X				1
VIT	<i>Parthenocissus vitacea</i>		G4	S2	W	SHRUB	EDF	X													1
VIT	<i>Vitis riparia</i>		G5	S3	W	SHRUB	EDF	X	X								X				1
VRB	<i>Glandularia bipinnatifida</i>	<i>Verbena bipinnatifida</i>	G5	S1	P	FORB	GRS	X													1
VRB	<i>Phryma leptostachya</i>		G5	S1	P	FORB	EDF													X	4
VRB	<i>Verbena bracteata</i>		G4G5	S5	W	FORB	GRS	X	X		X		X				X		X		1
VRB	<i>Verbena stricta</i>		G5	S2	W	FORB	GRS						X				X		X		2
ZAN	<i>Zannichellia palustris</i>		G5	S3	W	FORB	WET											X			3
ZYG	<i>Tribulus terrestris</i>		G?	SE		A-FORB													X	X	3

Appendix B.

Natural Heritage Ranking System

WYNDD uses The Nature Conservancy's standardized ranking system to assess the global and state rarity of all plant and animal species, subspecies, and varieties. Each taxon is ranked on a scale of 1-5 (rarest to most common) based on population size, geographic range, habitat specificity, and downward trend at the state and global levels. Codes are as follows:

- G Global rank: based on the rangewide status of a species.
- T Trinomial rank: based on the rangewide status of a subspecies or variety.
- S State rank: based on the status of a taxon in Wyoming (state ranks may differ in other states).
- 1 Critically imperiled because of extreme rarity (5 or fewer extant occurrences, or very few remaining individuals), or because of some factor of a species' life history that makes it vulnerable to extinction.
- 2 Imperiled because of rarity (6-20 occurrences) or because of factors demonstrably making a species vulnerable to extinction.
- 3 Rare or local throughout its range or found locally in a restricted range (21-100 occurrences).
- 4 Apparently secure, although the species may be quite rare in parts of its range, especially at the periphery.
- 5 Demonstrably secure, although the species may be quite rare in parts of its range, especially at the periphery.
- E Exotic (not native to North America)
- E* Exotic in Wyoming (native to North America, but probably not native to Wyoming prior to this century and dependent on human disturbance for establishment).
- H Known only from historical records (last observed prior to 1950).
- U Status uncertain, more information is needed.
- Q Questions exist regarding the taxonomic validity of a species, subspecies, or variety.
- ? Questions exist regarding the assigned G, T, or S rank of a taxon.