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Final Report: Oglala National Grasslands Badlands Vegetational Survey

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FINAL REPORT
OGLALA NATIONAL GRASSLANDS
BADLANDS VEGETATIONAL SURVEY

MAY-AUGUST 1995

by

Joyce Hardy

Introduction

Twenty plant collection trips (forty-eight man-days) were taken to the badlands of the Oglala National Grasslands by Joyce Hardy and assistants. The collection dates and locations were as follows:

- 18 May 1995**, Joyce Phillips Hardy and Bob Hardy
Horn Quadrangle
- 21 May 1995**, Joyce Phillips Hardy and Bob Hardy
Horn Quadrangle
- 1 June 1995**, Joyce Phillips Hardy and Bill Bellah
Horn Quadrangle, Roundtop Quadrangle
- 2 June, 1995**, Joyce Phillips Hardy, Bill Bellah, and Penny Bellah
Horn Quadrangle, Roundtop Quadrangle
- 7 June 1995**, Joyce Phillips Hardy, Ron Weedon, Bill Bellah, and Anela Bonic
Roundtop Quadrangle
- 12 June 1995**, Joyce Phillips Hardy and Bill Bellah
Roundtop Quadrangle
- 17 June 1995**, Joyce Phillips Hardy, Bill Bellah, and Penny Bellah
Orella Quadrangle, Wolf Butte Quadrangle
- 22 June 1995**, Joyce Phillips Hardy and Bob Hardy
Roundtop Quadrangle
- 24 June 1995**, Joyce Phillips Hardy, Bill Bellah, and Penny Bellah
Roundtop Quadrangle
- 27 June 1995**, Joyce Phillips Hardy, Bob Hardy, and Penny Bellah
Roundtop Quadrangle
- 5 July 1995**, Joyce Phillips Hardy & Penny Bellah
Horn Quadrangle
- 9 July 1995**, Ron Weedon & Anela Bonic
Roundtop Quadrangle
- 13 July 1995**, Joyce Phillips Hardy & Penny Bellah
Wolf Butte and Orella Quadrangles
- 19 July 1995**, Joyce Phillips Hardy, Bob Hardy, & Penny Bellah

- Roundtop and Five Points Quadrangles
26 July 1995, Joyce Phillips Hardy & Penny Bellah
Roundtop Quadrangle
1 August 1995, Joyce Phillips Hardy & Penny Bellah
Roundtop and Horn Quadrangles
3 August 1995, Joyce Phillips Hardy & Bob Hardy
Roundtop and Horn Quadrangles
4 August 1995, Joyce Phillips Hardy & Johannah Hardy
Roundtop Quadrangle
9 August 1995, Joyce Phillips Hardy, Ron Weedon, and Anela Bonic
Sherrill Hills Quadrangle
15 August 1995, Joyce Phillips Hardy and Ron Weedon
Roundtop and Orella Quadrangles

A total of 637 plant collections were made. Collections were made under Hardy's number when possible. Identifications were completed by Hardy, with assistance by Ron Weedon, Steve Rolfsmeier, and Stan Welsch. Identifications were made using the Flora of the Great Plains, and synonymy follows the same source. These collections represent 233 taxonomic entities, including 41 families, 227 separate species, one known hybrid, and six subspecific pairs. Four of these collections are new to the state of Nebraska and 44 are newly collected for the county of collection (as compared with the Atlas of the Flora of the Great Plains). In addition, of the collected species are on the Nebraska Natural Heritage Program's Plant Element Species List. All specimens are located at the Chadron State College Herbarium (CSCN), Chadron Nebraska.

Species newly collected for Nebraska

Evax prolifera -- Commonly seen on the rims of badlands slopes, this plant occupies the disturbed habitat between the prairie and badlands vegetation. Associated species include *Plantago patagonica* vars. *patagonica* and *spinulosa*, *Picradeniopsis oppositifolia*, *Sphaeralcea coccinea*, *Gaura coccinea*, *Filago arvensis*, *Euphorbia glyptosperma*, *Buchloe dactyloides* and *Bouteloua gracilis*. This plant is widespread and probably is poorly represented by collections.

Filago arvensis -- A weedy species rarely seen in prairie swales near badlands, this plant is also probably under-represented in collections of this area. Common associated species include *Plantago patagonica* vars. *patagonica* and *spinulosa*, *Conyza canadensis*, and *Lepidium densiflorum*.

Halogeton glomeratus -- This weedy invader from the west is locally abundant in otherwise-barren slopes of badlands south and east of Toadstool Park. It apparently prefers gently sloping and bottom washes of badlands which are otherwise devoid of vegetation. No associated species were determined.

Haplopappus multicaulis -- Listed on the Nebraska Elements list, but not in the Atlas of the Flora of the Great Plains, this species is locally abundant on shallow soils in western Dawes and western Sioux counties. In western Dawes County, this plant is abundant in the shallow soils, wash bottoms, and gentle slopes of sites near Hwy #2 and 71. Associated species include *Crepis occidentalis*, *Hymenoxys acaulis*, *Senecio canus*, *Viola nuttallii*, and *Cryptantha celosioides*. At the Indian Springs site, this plant is found on the shallow soils of the eroding cliff bank above the creek, with *Distichlis spicata* var. *stricta*, *Ipomopsis congesta* subsp. *congesta*, *Chrysothamnus parryi* subsp. *howardii*, *Atriplex canescens*, and *Cryptantha jamesii*.

Additionally, *Centaureum pulchellum* is an unusual species, having been collected previously in only one county of Nebraska. Its collection here represents the second known county of its location. This plant was found in heavy overgrowth of moist, secondary floodplains of both Indian Springs Creek and in Whitehead Creek Drainage. At Indian Springs, associated plants include *Melilotus albus*, *Helianthus maximiliani*, *Mirabilis hirsuta*, *Sonchus arvensis*, and *Abronia fragrans*. In the Whitehead Creek Drainage, this plant was seen under a *Juniperus scopulorum*, with associated plants including *Campanula rotundifolia*, *Mentha arvensis*, *nepeta cataria*, *Oenothera villosa*, *Solidago canadensis* var. *scabra*, and *Asclepias speciosa*.

Species newly collected for Dawes County

Fifteen species were newly collected for Dawes County, as compared with the Atlas of the Flora of the Great Plains. In addition to the four listed above, *Toxicodendron rydbergii*, *Chrysothamnus parryi* subsp. *howardii*, *Lepidium densiflorum*, *Coryphantha missouriensis* var. *missouriensis*, *Cerastium brachypodum*, *Hedeoma hispidum*, *Bromus commutatus*, *Sitanion hystrix* var. *brevifolium*, *Sporobolus airoides*, *Eriogonum pauciflorum* var. *nebraskense*, and *Talinum parviflorum* were collected.

Species newly collected for Sioux County

Thirty-seven species were newly collected for Sioux County, as compared with the Atlas of the Flora of the Great Plains. In addition to the four listed as new for Nebraska, *Cymopterus montanus*, *Apocynum cannabinum*, *Chrysothamnus nauseosus* subsp. *nauseosus*, *Chrysothamnus parryi* subsp. *howardii*, *Erigeron canus*, *Erigeron ochroleucus*, *Helianthus maximiliana*, *Machaeranthera grindelioides*, *Sonchus arvensis* subsp. *uliginosus*, *Alyssum alyssoides*, *Alyssum desertorum*, *Conringia orientalis*, *Draba reptans* var. *micrantha*, *Lepidium perfoliatum*, *Triodanis perfoliata*, *Polanisia dodecandra* subsp. *trachysperma*, *Convolvulus arvensis*, *Elaeagnus angustifolia*, *Euphorbia spathulata*, *Centaureum pulchellum*, *Juncus interior*, *Hedeoma hispidum*, *Salvia reflexa*, *Orobancha fasciculata*, *Plantago patagonica* var. *spinulosa*, *Bromus commutatus*, *Poa compressa*, *Sitanion hystrix* var. *brevifolium*, *Eriogonum pauciflorum*

var. *nebraskense*, *Talinum parviflorum*, *Linaria canadensis* var. *texana* and *Veronica peregrina* var. *xalapensis* were collected in Sioux County during this study.

Species collected which are on the Nebraska Natural Heritage Program's Element Species List

Atriplex nuttalli [the taxonomic status of Nebraska collections of this species is presently unclear. The Nebraska Natural Heritage Program is presently considering Nebraska collections of *A. Nuttalli* to be *A. gardneri*] -- found in one site north of Toadstool Park, in Orella Quadrangle, this species is probably a bit wider spread than collections indicate. Associated species on these upper and gentle slopes include *Atriplex canescens*, *Prunus pumila* var. *besseyi*, *Sphaeralcea coccinea*, *Cryptantha celosioides*, *Sitanion hystrix* var. *brevifolium*, and *Penstemon eriantherus*

Chrysothamnus parryi subsp. *howardii* -- occasionally seen on the lower slopes and at the base of badlands slopes, this species is associated with *Poa sandbergii*, *Agropyron dasystachyum*, *Sitanion hystrix* var. *brevifolium*, *Machaeranthera grindelioides*, *Erigeron pumilus*, *Dalea candida* var. *oligophylla*, and *Artemisia tridentata*.

Coryphantha missouriensis var. *missouriensis* -- rarely encountered in *Poa sandbergii*-*Agropyron dasystachyum* prairie, in fairly well vegetated locales.

Erigeron ochroleucus -- a large, apparently vigorous population of this species was seen in the chert/chalcedony soils on the northeastern portion of Toadstool Park. Associated species in this area included *Arenaria hookeri*, *Machaeranthera grindelioides*, *Phlox andicola*, *Astragalus gilviflorus*, and *Eriogonum pauciflorum* vars. *pauciflorum* and *nebraskense*. This species apparently has a short and early flowering cycle -- its small stature and normally senescent state makes locating this species difficult. However, we searched specifically and heavily for this species in other locations, without success.

Fritillaria atropurpurea -- widely scattered in prairie and grassy sites, this plant also has a fairly short flowering cycle and probably does not produce above ground flowering stems in unfavorable years. This plant was found primarily in the *Stipa viridula*-*Agropyron dasystachyum*-*Oryzopsis hymenoides* prairie sites. When found within the badlands, they were present in grassy knolls or islands in the broad wash bottoms.

Haplopappus multicaulis -- see above under New for Nebraska description.

Lesquerella arenosa var. *argillosa* -- One collection was made in the shallow soils of the Twin Buttes area. Associated species include *Cryptantha celosioides*, *Oenothera caespitosa*, *Musineon divaricatum*, *Lappula fremontii*, *Erysimum repandum*, and *Camelina microcarpa*. Identification of this species was provided by Steve Rolfsmeier.

Lesquerella* cf. *montana -- our collections of this species do not have the normal growth habit of *L. ludoviciana*, and are tentatively placed within this taxon for now. Additional study of these specimens will continue. These forms occupy the mid to lower, generally steep slopes of badlands. Associated species include *Machaeranthera grindelioides*, *Astragalus gilviflorus*, *Dalea purpurea* var. *purpurea*, *Arenaria hookeri* var. *pinetorum*, *Aristida purpurea* var. *longiseta*, *Eriogonum pauciflorum* vars. *pauciflorum* and *nebraskense*, *Atriplex canescens*, *Haplopappus spinulosus* subsp. *spinulosus*, *Artemisia cana*, *Agropyron dasystachyum* x *A. spicatum*, *Atriplex argentea* subsp. *argentea*, and *Cryptantha thyrsoflora*.

Linaria canadensis* var. *texana -- this species was found at one site northeast of Sugar Loaf Butte where it was scattered in the shallow-soiled prairie along the eastern edge of the Wildlife Habitat site. Associated species include *Andropogon scoparius*, *Stipa viridula*, *Collomia linearis*, *Koeleria pyramidata*, *Linum rigidum* var. *rigidum*, *Hedeoma hispidum*, *Triodanis perfoliata*, *Veronica peregrina* var. *xalapensis*, and *Artemisia frigida*.

Mertensia lanceolata -- this species is found scattered in the prairie and badlands wash bottoms in early spring. It quickly senesces, contributing to its relatively low levels of scientific collections. However, this plant is widely scattered within these sites. Associated species include *Zigadenus venenosus*, *Thermopsis rhombifolia*, *Cryptantha celosioides*, *Oxytropis sericea*, *Townsendia exscapa*, *Vicia americana* var. *minor*, *Lesquerella ludoviciana*, and *Fritillaria atropurpurea*.

Complete Species List

AGAVACEAE

Yucca glauca Nutt. var. *glauca* [small soapweed] -- rare along upper edges of badlands slopes near shallow-soiled prairie. (JPH#4098).

ANACARDIACEAE

Rhus aromatica Ait. var. *trilobata* (Nutt.) A. Gray [Skunkbrush sumac] -- rare in bottom of badlands washes (JPH#3866).

Toxicodendron rydbergii (Small.) Greene [Poison ivy] -- rare along upper rims of badlands slopes and in bottoms of washes (JPH#3947).

APIACEAE

Cymopterus montanus T. & G. -- common in prairie near rim of badlands slopes. (JPH#3842, 3955, 3988).

Lomatium foeniculaceum (Nutt.) Coult. & Rose var. *foeniculaceum* -- rare on badlands wash bottoms (JPH#3861, 4140),

Lomatium orientale Coult. & Rose -- scattered in prairie along rim of badlands (JPH#3841, 3956, 3999).

Musineon divaricatum (Pursh) Nutt. -- common on lower badlands slopes and in badlands wash bottoms (JPH#3826, 3904, 4088, 4142, 4172, 4220).

APOCYNACEAE

Apocynum cannabinum L. [Indian hemp dogbane] -- rare in bottoms of badlands washes along water drainages (JPH#4108, 4150).

ASCLEPIADACEAE

Asclepias pumila (A. Gray) Vail [Plains milkweed] -- common in prairie above badlands; rare in swales at base of badlands buttes (JPH#4301, 4407).

Asclepias speciosa Torr. [Showy milkweed] -- widely scattered in drainageways along bottom of badlands (JPH #4271, 4349, 4430).

Asclepias viridiflora Raf. [Green milkweed] -- rare at bottoms and extreme lower slopes of badlands (JPH#4092, 4258, 4379).

ASTERACEAE

Achillea millefolium L. subsp. *lanulosa* (Nutt.) Piper [Yarrow] -- scattered in prairie along upper rims of badlands (JPH#4342).

Ambrosia psilostachya DC. [Western ragweed] -- Common along drainageways in badlands wash bottoms (JPH#4343).

Antennaria parvifolia Nutt [Field pussytoes] -- Scattered on shallow soils at base of badlands washes and in prairie (JPH#3868).

Artemisia cana Pursh [Dwarf sagebrush] -- scattered to common on lower badlands slopes and in washes (JPH #3937, 3964, 4113, 4171, 4333, 4352, 4410)

Artemisia dracunculus L. [Silky wormwood] -- Rare in prairies along upper rims of badlands slopes (JPH#4347).

Artemisia frigida Willd. [Fringed sage] -- rare on lower badlands slopes and on grassy islands in wash bottoms (JPH#4052).

Artemisia ludoviciana Nutt. var. *ludoviciana* [White sage] -- widely scattered on shallow-soiled lower badlands slopes (JPH#4259, 4356).

Artemisia tridentata Nutt. var. *vaseyana* (Rydb.) Beetle -- common on lower badlands slopes and in washes (JPH #4021, 4270, 4308, 4406; RRW#9901).

Aster commutatus (T. & G.) A. Gray -- Rare in broad washes of badlands (JPH#4364).

Chrysopsis villosa (Pursh) Nutt. var. *hispida* (Hook.) A. Gray -- rare along upper badlands slopes (JPH#4372a).

Chrysopsis villosa (Pursh) Nutt. var. *villosa* [Golden aster] -- rare on lower badlands slopes and along rims in prairie (JPH#4415).

Chrysothamnus nauseosus (Pall.) Britt. subsp. *nauseosus* [Rabbitbrush] -- rare on lower slopes and in wash bottoms (JPH#4399, 4015).

Chrysothamnus nauseosus (Pall.) Britt. subsp. *graveolens* (Nutt.) Piper [Rabbitbrush] -- scattered on lower slopes and in wash bottoms (JPH#4304, 4365, 4391, 4400).

Chrysothamnus parryi (A. Gray) Greene subsp. *howardii* (Parry) Hall & Clem. -- scattered on rocky outcrops; rare along lower slopes of badlands. (JPH#4056, 4260, 4278).

Cirsium arvense (L.) Scop. [Canada thistle] -- rare in bottoms of badlands washes, especially near areas where water pools (JPH#4188).

Cirsium undulatum (Nutt.) Spreng. [Wavy-leaved thistle] -- rare along upper badlands rims (JPH#4125).

Conyza canadensis (L.) Cronq. var. *canadensis* [Horse-weed] -- Common in badlands wash bottoms and drainageways (JPH#4315, 4448).

Crepis occidentalis Nutt. [Hawk's-beard] -- rare in shallow-soiled badlands prairie (JPH#4070).

Dyssodia papposa (Vent.) Hitchc. [Fetid marigold] -- scattered on disturbed sites, especially along roads and wash bottoms (JPH#4358, 4435).

Echinacea angustifolia DC. [Purple coneflower] -- rare in prairie along upper rims of badlands, and in broad, vegetated bottoms of badlands washes (JPH#4154, 4167, 4284, 4285).

Erigeron canus A. Gray [Fleabane] -- Rare in prairies along upper rims of badlands slopes (JPH#4413).

Erigeron ochroleucus Nutt. -- One large population seen on NE side of Toadstool Park on quartz/chalcedony shallow-soiled outcrops (JPH# 4128, 4151, 4436).

Erigeron pumilus Nutt. -- Scattered on badlands slopes and in shallow-soiled prairie near badlands rims (JPH #3933, 3940, 3978, 4145, 4206, 4255A).

Evax prolifera Nutt. ex DC. [Rabbit tobacco] -- scattered to common along rims of badlands in shallow-soiled prairie (JPH#4109, 4208, 4317, 4324, 4404).

Filago arvensis L. -- rarely encountered in prairie swales near badlands; one large colony seen in shortgrass prairie swale in Sioux County (JPH#4319, 4440, 4456).

Grindelia squarrosa (Pursh) Dun. var. *squarrosa* [Curlytop gumweed] -- common in badlands on slopes and in bottoms of washes (JPH #4161, 4202).

Gutierrezia sarothrae (Pursh) Britt. & Rusby [Snakeweed] -- scattered on lower badlands washes (JPH#4294, 4396, 4405).

Haplopappus multicaulis (Nutt.) A. Gray -- common in badlands sites near HWY #71 & 2, near Twin Buttes and in Indian Springs locality (JPH#4073, 4078, 4227, 4264, 4269, 4452).

Haplopappus spinulosus (Pursh) DC. subsp. *spinulosus* [cutleaf ironplant] -- rare on lower badlands slopes and in wash (JPH#4332, 4363, 4383).

Helianthus annuus L. [Common sunflower] -- common on slopes, along rims, and in drainage wash bottoms of badlands (JPH#4221, 4234; RRW#9900).

Helianthus maximiliana Schrad. [Maximilian sunflower] -- scattered on lower slopes and in drainageways of badlands (JPH#4397, 4442).

Hymenopappus filifolius Hook. var. *polycephalus* (Osterh.) B. L. Turner [Wooly-white] -- rare in badlands wash bottoms (JPH#3919, 4124, 4169).

Hymenoxys acaulis (Pursh) Parker [Stemless hymenoxys] -- scattered on upper slopes of badlands buttes (JPH#3877, 3887, 3894, 4072, 4254).

Iva axillaris Pursh [Povertyweed] -- Common on upper and mid-badlands slopes, and along drainageways (JPH#4068, 4207, 4386).

Lactuca oblongifolia Nutt. [Blue lettuce] -- Rare in prairie along upper rims of badlands slopes (JPH#4262).

Lactuca serriola L. [Prickly lettuce] -- widely scattered in badlands washes (JPH#4262).

Liatris punctata Hook. [Gayfeather] -- very rare on lower slopes of badlands washes (JPH#4380).

Lygodesmia juncea (Pursh) Hook. [Skeletonweed] -- rare on lower badlands slopes (JPH#4253).

Machaeranthera grindelioides (Nutt.) Shinnars [goldenweed] -- very common on lower badlands slopes (JPH#3885, 4049, 4130, 4245, 4250).

Microseris cuspidata (Pursh) Sch.-Bip. -- common in prairie along rim of badlands slopes (JPH#3839).

Picradeniopsis oppositifolia (Nutt.) Rydb. -- common along upper slopes, rims in prairie, and bottoms of badlands washes (JPH#4194, 4196, 4209, 4390, 4476).

Ratibida columnifera (Nutt.) Woot. & Standl. [prairie coneflower] -- scattered in washes of badlands and in surrounding prairies (JPH#4203, 4237, 4311).

Senecio canus Hook. [Gray ragwort] -- scattered on upper badlands slopes (JPH#3883, 3916, 3926, 4074, 4185).

Senecio integerrimus Nutt. -- rare along upper badlands slopes (JPH#3881).

Senecio plattensis Nutt. (Prairie ragwort) -- rare along upper badlands slopes near prairie edges (JPH#3917, 4004, 4047, 4136, 7173, 4277).

Solidago canadensis L. var. *scabra* T. & G. [Canada goldenrod] -- scattered along drainageways in wash bottoms (JPH#4425).

Solidago missouriensis Nutt. var. *fasciculata* Holz. [Prairie goldenrod] -- common to abundant in badlands washes and drainageways (JPH#4376, 4392, 4424).

Solidago rigida L. var. *humilis* Porter [Rigid goldenrod] -- widely scattered in badlands wash bottoms (JPH#4384).

Sonchus arvensis L. subsp. *uliginosus* (Bieb.) Nyman [Field sow thistle] -- rare in primary floodplain of Indian Springs (JPH#4444).

Taraxacum officinale Weber [Common dandelion] -- widely scattered on bottoms of badlands washes. (JPH #3825).

Townsendia exscapa (Richards.) Porter [Easter daisy] -- rare on shallow soils at base of badlands washes and on gravelly badlands ridges (JPH#3880).

Tragopogon dubius Scop. [Goat's beard] -- rare on lower badlands slopes (JPH#3900, 4296).

BORAGINACEAE

Cryptantha celosioides (Eastw.) Pays. [Miner's candle] -- scattered on wash bottoms and along badlands slopes (JPH#3876, 3898, 3924, 3954, 4007, 4117, 4183, 4265, 4246, 4375).

Cryptantha jamesii (Torr.) Pays. -- rare on shallow-soiled outcrops and on badlands slopes (JPH#4082, 4412, 4445).

Cryptantha thysiflora (Greene) Pays. -- scattered on lower slopes and in bottoms of badlands washes (JPH#4090, 4104, 4184, 4200, 4228, 4287, 7354).

Lappula echinata Gilib. [blue stickseed] -- rare on badlands slopes (JPH#3859, 3905, 3913, 4158, 4226).

Lappula redowskii (Hornem.) Greene [Stickseed] -- common on upper slopes of badlands buttes and at bottom of washes (JPH#3925, 3941, 3965, 4159).

Lappula texana (Scheele) Britt. [Cupseed stickseed] -- scattered along rim of badlands on upper slopes and in wash bottoms (JPH#4119, 4135, 4180).

Lithospermum incisum Lehm. [Puccoon] -- scattered at base of badlands slopes and in bottom of washes (JPH#3848, 3945).

Mertensia lanceolata (Pursh) A.DC. [Bluebells] -- rare along lower slopes of badlands and in wash bottoms; scattered along badlands rims in prairie (JPH#3882, 3892, 3950).

BRASSICACEAE

Alyssum alyssoides L. [pale alyssum] -- scattered in grassy areas in bottoms of badlands washes (JPH#3986, 4475).

Alyssum desertorum Stapf. [Alyssum] -- scattered in prairie at tops of badlands washes; very rare at bottom of washes (JPH#3843, 3891, 3966)

Camelina microcarpa Andr. ex DC. [Small-seeded false flax] -- common in bottom of badlands draws (JPH#3856, 3908, 3969)

Conringia orientalis (L.) Dum. [Hare's-ear mustard] -- widely scattered in draws of badlands in localized colonies (JPH#3846, 3903, 3970, 4149)

Descurainia pinnata (Walt.) Britt. subsp. *brachycarpa* (Richard.) Detling [Tansy mustard] -- common in bottom of badlands washes (JPH#3845).

Draba reptans (Lam.) Fern. var. *micrantha* (Nutt.) Fern. [White whitlowort] -- widely scattered to uncommon in bottoms of badlands washes (JPH #3830, 3850, 4000)

Erysimum asperum (Nutt.) DC. [Western wallflower] -- scattered in prairie near badlands slopes; rare along very upper and extreme lower slopes and in wash bottoms (JPH#3847, 3870, 3896).

Erysimum repandum L. [Bushy wallflower] -- widely scattered on upper slopes of badlands (JPH#3853, 3906,).

Lepidium densiflorum Schrad. [Peppergrass] -- scattered on bottom of badlands draws and on lower slopes (JPH#3854, 3942, 3963, 3998, 4165).

Lepidium perfoliatum L. [Clasping peppergrass] -- rare along roadside NE of Sugar Loaf Butte (JPH#4030)

Lesquerella arenosa (Richardson) Rydb. var. *argillosa* Rollins & Shaw. -- scattered in upper badlands slopes (JPH#3902).

Lesquerella ludoviciana (Nutt.) S. Wats. [Bladderpod] -- commonly seen in badlands, scattered on bottom of washes and on lower slopes. (JPH #3824, 3949, 3993, 4069, 4086, 4105, 4148).

Lesquerella cf. *montana* (A. Gray) S. Wats. -- rare along lower badlands slopes (JPH#4249, 4291, 4329, 4341, 4348, 4353, 4409, 4419; RRW#9895). [These are unusual in growth habit for *L. ludoviciana* -- we will take these specimens to a western herbarium to compare with other *L. montana* specimens].

Rorippa sinuata (Nutt.) Hitchc. [Spreading yellow cress] -- rare in prairie near badlands rims (JPH#4197).

Sisymbrium altissimum L. [Tumbling mustard] -- common on bottoms of badlands draws (JPH#4050).

Thlaspi arvense L. [Field pennycress] -- rare in bottom of washes (JPH#3852, 3907).

CACTACEAE

Coryphantha missouriensis (Sweet) Britt. & Rose var. *missouriensis* -- rare on rims of badlands and in prairie (JPH #3930, 4077).

Coryphantha vivipara (Nutt.) Britt. & Rose var. *vivipara* [Pincushion cactus] -- Rare on badlands rims and in prairie (JPH#4229).

Opuntia macrorhiza Engelm. var. *macrorhiza* [Plains prickly pear] -- Common in prairie and in vegetated wash bottoms (JPH#4062, 4111).

CAMPANULACEAE

Campanula rotundifolia L. [Harebell] -- rare on lower steep slopes in moist bottoms (JPH#4420, 4421).

Triodanis perfoliata (L.) Nieuw. -- one colony seen in shallow-soiled prairie NE of Sugar Loaf Butte (JPH#4038)

CAPPARACEAE

Cleome serrulata Pursh [Rocky Mountain bee plant] -- scattered in broad wash bottoms of badlands (JPH#4447).

Polanisia dodecandra (L.) DC. subsp. *trachysperma* (T. & G.) Iltis [Clammy-weed] -- very rare on lower badlands slopes, especially in western areas (JPH#4286).

CAPRIFOLIACEAE

Symphoricarpos occidentalis Hook. [western snowberry] -- scattered in wash bottoms of badlands (JPH#4306, 4335).

CARYOPHYLLACEAE

Arenaria hookeri Nutt. ex T. & G. var. *hookeri* [Prairie sandwort] -- rare on badlands slopes (JPH#4323).

Arenaria hookeri Nutt. var. *pinetorum* (A. Nels.) Maguire -- widely scattered on badlands slopes (JPH#3921, 4295, 4322, 4362, 4393).

Cerastium brachypodum (Engelm. ex A. Gray) Robins. -- scattered on rocky outcrops and in grassy "islands" in bottoms of broad badlands washes (JPH#3873, 4048, 4181).

Paronychia depressa Nutt. ex T. & G. [whitlow-wort] -- rare in prairie along upper margin of rim of deep ravine (JPH#4411).

CHENOPODIACEAE

Atriplex argentea Nutt. subsp. *argentea* [silver-scale saltbush] -- abundant on upper slopes of badlands (JPH #4079, 4094, 4198, 4211, 4223, 4355; RRW#9894}.

Atriplex canescens (Pursh) Nutt. [Fourwing saltbush] -- scattered on badlands slopes (JPH#3834, 3860, 4022, 4023, 4024, 4080, 4081, 4112, 4160, 4174, 4190, 4213, 4215, 4226, 4303, 4312, 4325, 4369, 4449, 4478).

Atriplex nuttallii S. Wats. -- Rare on upper slopes N of Toadstool Park (JPH#4479).

Chenopodium berlandieri Moq. var. *zschackei* (Murr) Murr [Pitseed goosefoot] -- rare on lower badlands slopes (JPH#4299).

Chenopodium pratericola Rydb. -- Scattered in badlands wash bottoms (JPH#4351).

Halogeton glomeratus (Bieb.) C.A. Mey [Halogeton] -- locally abundant on badlands slopes in western Dawes and eastern Sioux Counties (JPH#4186, 4337, 4338, 4366, 4389)

Monolepis nuttalliana (R. & S.) Greene [Povertyweed] -- abundant on gentle badlands slopes (JPH #3967, 4014, 4064, 4067, 4102, 4219).

Salsola iberica Senn. & Pau. [Russian thistle] -- scattered to common on lower slopes and in badlands washes (JPH#4222, 4302).

Sarcobatus vermiculatus (Hook.) Torr. [Greasewood] -- scattered on badlands slopes (JPH#3971, 3972, 4233, 4359, 4368, 4433).

COMMELINACEAE

Tradescantia occidentalis (Britt.) Smyth -- scattered in shallow-soiled prairie near badlands slopes (JPH#4041).

CONVOLVULACEAE

Convolvulus arvensis L. [Field bindweed] -- rare at base of badlands slopes (JPH#4331).

CUPRESSACEAE

Juniperus scopulorum Sarg. [Rocky Mountain juniper] -- rare in bottom of badlands washes (JPH#3973).

CYPERACEAE

Carex brevior (Dew.) Mack. ex Lunell -- found near stockpond NE of Sugar Loaf Butte (JPH#4039).

ELAEAGNACEAE

Elaeagnus angustifolia L. [Russian olive] -- rare along drainageways leading from badlands (JPH#4289, 4290).

Shepherdia argentea (Pursh) Nutt. [Buffaloberry] -- rare in bottom of broad badlands washes (JPH#3931).

EUPHORBIACEAE

Euphorbia glyptosperma Engelm. [Ridge-seeded spurge] -- rare along rim of badlands in shallow-soiled prairie (JPH#4225, 4318).

Euphorbia marginata Pursh [Snow-on-the-mountain] -- rare in shallow-soiled prairie near badlands (JPH#4184A, 4218).

Euphorbia spathulata (Lam.) -- one colony seen along north area of Sugar Loaf Butte (JPH #4027).

FABACEAE

Astragalus adsurgens Pall. var. *robustior* Hook. [Standing milkvetch] -- rare along lower slopes of badlands and in wash bottoms (JPH#3920, 3924, 3958).

Astragalus gilviflorus Sheld. [Plains orophaca] -- rare along extreme upper badlands butte edges (JPH#3865, 3867, 3884, 4251, 4255, 4395).

Astragalus gracilis Nutt. [Slender milkvetch] -- widely scattered along rims of badlands in prairies (JPH#4096).

Astragalus missouriensis Nutt. [Missouri milk-vetch] -- scattered on lower badlands slopes; common in grassy islands at base of broad badlands washes (JPH#3840, 3858, 3872, 3888, 3934, 3959, 3920, 3924, 4026, 4060).

Astragalus racemosus Pursh var. *longisetus* M.E. Jones [Alkali milk-vetch] -- common in wash bottoms and on lower slopes of badlands (JPH#3953, 4019, 4139, 4224).

Astragalus spatalatus Sheld. [Draba milkvetch] -- rare on gravelly upper badlands ridges and on grassy islands in broad badlands washes (JPH#3879, 4087).

Astragalus tenellus Pursh [Pulse milk-vetch] -- common on lower and mid badlands slopes and in badlands wash bottoms (JPH#3915, 3952, 4115, 4193; RRW#9897)

Dalea candida Michx. ex Willd. var. *oligophylla* (Torr.) Shinnars [white prairie clover] - - scattered on lower slopes and in washes of badlands (JPH#4042, 4132, 4205, 4257; RRW#9899).

Dalea purpurea Vent. var. *purpurea* [Purple prairie clover] -- widely scattered on rocky outcrops of badlands (JPH#4231, 4252, 4276).

Glycyrrhiza lepidota Pursh [Wild licorice] -- common along waterways in bottoms of badlands (JPH#4166, 4275, 4298).

Lathyrus polymorphus Nutt. [Hoary vetchling] -- scattered on upper slopes of badlands and in wash bottoms (JPH#3923, 3957).

Lupinus argenteus Pursh var. *argenteus* [Silvery lupine] -- widely scattered at base of badlands slopes (JPH#4408, 4414, 4446).

Lupinus plattensis S. Wats. [Platte lupine] -- locally abundant in shallow-soiled prairie near Roundtop (JPH#4083).

Medicago lupulina L. [Black medic] -- rare in badlands drainageways (JPH#4330).
Medicago sativa L. subsp. *sativa* -- very rare in broad badlands bottoms (JPH#4065, 4131).
Melilotus alba Medic [White sweet clover] -- rare in badlands drainages (JPH#4292).
Melilotus officinalis (L.) Pall. [Yellow sweet clover] -- common on lower slopes and in bottoms of badlands washes (JPH#4012, 4137).
Oxytropis lambertii Pursh [Purple locoweed] -- scattered in bottom of badlands washes and in prairie above badlands slopes (JPH#3869, 3939, 4040).
Oxytropis sericea Nutt. [White locoweed] -- common on lower slopes and in badlands wash bottoms (JPH#3818, 3864, 3869A, 3878, 3893, 3894, 3914, 3932, 3936, 3976A, 3985, 3992). -- Identified by Dr. Stanley Welsch, Brigham Young University Herbarium (taxonomic expert on group). However, these populations uniformly have pink-lavender flowers, and are a probable stable hybrid with *O. lambertii*.
Psoralea argophylla Pursh [Silver-leaf scurfpea] -- scattered in broad wash bottoms of badlands (JPH#4214; RRW#9898).
Psoralea esculenta Pursh [Prairie turnip] -- scattered in prairie along rims of badlands bluffs and in grassy knolls in base of badlands washes (JPH#3995, 4005, 4138).
Psoralea tenuiflora Pursh var. *tenuiflora* [Wild alfalfa] -- scattered in bottoms of badlands washes (JPH#4100, 4168, 4176, 4230).
Thermopsis rhombifolia Nutt. ex Richards. var. *rhombifolia* [Yellow pea] -- scattered at bottom of badlands washes and in prairie (JPH#3875, 3946).
Vicia americana Muhl. ex Willd. var. *minor* Hook. [American vetch] -- common on bottoms of badlands washes (JPH #3831, 3855, 3871, 3886, 4020).

GENTIANACEAE

Centaurium pulchellum (Sw.) Druce [Centaury] -- very rarely seen in drainages of badlands (JPH#4417, 4439).

JUNCACEAE

Juncus interior Wieg. [Inland rush] -- rare in drying washes of badlands (JPH#4039a, 4054, 4266).
Juncus torreyi Cov. [Torrey's rush] -- scattered in drying drainageways of badlands (JPH#4382).

LAMIACEAE

Hedeoma hispidum Pursh [Rough false pennyroyal] -- rare on badlands wash bottoms and in prairie along badlands rims (JPH#4037, 4101, 4157, 4256).
Mentha arvensis L. [Field mint] -- rare in moist drainageways of steep badlands washes (JPH#4422).
Monarda fistulosa L. var. *menthifolia* [Wild bergamot] -- rare in moist drainageways of badlands (JPH#4327, 4327, 4345).
Nepeta cataria L. [Catnip] -- rare in moist drainageways of badlands (JPH#4423).

Salvia reflexa Hornem. [Lance-leaved sage] -- rare near trail road along rims of badlands (JPH#4179, 4199).

LILIACEAE

Allium textile A. Nels. & Macbr. [White wild onion] -- very common in bottoms of badlands washes; scattered in prairie above slopes (JPH#3823, 3838, 4133)

Calochortus nuttallii T. & G. [Sego lily] -- common in prairie at upper rims of badlands slopes; rare on grassy knolls at bottoms of badlands washes (JPH#4006, 4071, 4093, 4147).

Fritillaria atropurpurea Nutt. [Leopard lily] -- widely scattered in grassy islands in broad badlands washes (JPH#3948, 3951, 3991, 4156, 4164, 4403).

Leucocrinum montanum Nutt. [Mountain lily] -- rare along upper edges of badlands in prairie (JPH#3836)

Smilacina stellata (L.) Desf. [Spikenard] -- one group seen in grassy knoll at broad wash bottom (JPH#4008)

Zigodenus venenosus S. Wats. var. *gramineus* (Rydb.) Walsh ex Peck [Death camas] -- widely scattered at bottom of badlands washes; common in prairie above badlands slopes (JPH#3849, 3874, 3962, 3991, 4170).

LINACEAE

Linum rigidum Pursh var. *rigidum* [Stiffstem flax] -- rare along edges of badlands in shallow-soiled prairie and in grassy islands at bottom of badlands washes (JPH#4036).

Linum rigidum Pursh var. *compactum* (A. Nels.) Rogers [compact stiffstem flax] -- scattered along edges of badlands in shallow-soiled prairie and in grassy bottoms (JPH#4121, 4217)

LOASACEAE

Mentzelia decapetala (Pursh) Urban & Gilg. [ten-petal mentzelia] -- scattered on badlands slopes (JPH#4402, 4344).

MALVACEAE

Sphaeralcea coccinea (Pursh) Rydb. [Red false mallow] -- common on upper slopes of badlands (JPH#3922, 3980, 4116, 4146, 4204).

NYCTAGINACEAE

Abronia fragrans Nutt. ex Hook. [Sweet sand verbena] -- rare on broad badlands wash bottoms (JPH#4441).

Mirabilis hirsuta (Pursh) MacM. [Hairy four o'clock] -- rare in broad wash bottoms (JPH#4443).

Mirabilis linearis (Pursh) Hiermerl. [Narrow-leaf four o'clock] -- rare in badlands wash bottoms and along rims in shallow-soiled prairie (JPH#4134, 4163, 4212).

OLEACEAE

Fraxinus pennsylvanica Marsh [Red or Green ash] -- rare in broad wash bottoms (JPH#3974, 4334).

ONAGRACEAE

Calylophus serrulatus (Nutt.) Raven [Plains yellow primrose] -- rare in prairie at base of badlands buttes and along upper rims in shallow-soiled prairie (JPH#4153)

Gaura coccinea Pursh [Scarlet gaura] -- common throughout badlands washes and along slopes of badlands (JPH#3918, 3943, 3987, 4107, 4191).

Oenothera albicaulis Pursh [Prairie evening primrose] -- rare in prairie along edges of badlands slopes (JPH#4002, 4043).

Oenothera caespitosa Nutt. subsp. *caespitosa* [Gumbo lily] -- commonly seen on lower slopes of badlands. (JPH #3829, 3899; RRW#9902).

Oenothera villosa Thunb. [Common evening primrose] -- rare in badlands drainageways (JPH#4426).

OROBANCHACEAE

Orobanche fasciculata Nutt. -- One colony seen on steep N-facing slope of badlands in western Sioux County (JPH#4320).

PLANTAGINACEAE

Plantago elongata Pursh [Slender plantain] -- very rare on badlands slopes (JPH#4232).

Plantago patagonica Jacq. var. *patagonica* [Patagonian plantain]-- rare in prairies at rims of badlands slopes (JPH#4045)

Plantago patagonica Jacq. var. *spinulosa* (Dcne.) A. Gray [Patagonian plantain] -- scattered in prairie at rims of badlands buttes and at bases in washes (JPH#3981, 3982, 4044, 4110, 4310, 4316).

POACEAE

Agropyron cristatum (L.) Gaertn. [Crested wheatgrass] -- rare in broad badlands wash bottoms (JPH#4350).

Agropyron dasystachyum (Hook.) Scribn. -- widely scattered in wash bottoms (JPH#3910 3944, 3977, 4013, 4059, 4106).

Agropyron dasystachyum x *A. spicatum* -- scattered to common on lower slopes of badlands (JPH#4236, 4340).

Agropyron spicatum (Pursh) Scribn. & Sm. [Bluebunch wheatgrass] -- rare on lower slopes of badlands (JPH#4238a, 4367, 4387).

Andropogon scoparius Michx. [Little bluestem] -- locally common on gravelly badlands in Dawes County (JPH#4381).

Aristida purpurea Nutt. var. *longiseta* (Steud.) Vasey [Fendler's three-awn] -- scattered on gentle badlands slopes and in badlands washes (JPH#4267, 4297, 4385).

Bouteloua curtipendula (Michx.) Torr. [Sideoats grama] -- scattered to rare on rocky outcrops (JPH#4243).

Bouteloua gracilis (H.B.K.) Lag. ex Griffiths [Blue grama] -- scattered on shallow-soiled outcrops (JPH#4239, 4261).

Bromus commutatus Schrad. [Hairy chess] -- locally abundant in disturbed sites within Toadstool Park [JPH#4155].

Bromus japonicus Thunb. ex Murr. [Japanese brome] -- scattered in badlands wash bottoms (JPH#4018, 4210, 4240, 4313).

Bromus latiglumis (Scribn. ex Shear) Hitchc. -- rare in grassy areas of badlands wash bottoms (JPH#3975, 3996, 4011).

Bromus tectorum L. [Downy brome] -- common in bottoms of badlands washes (JPH#3912, 4001).

Buchloe dactyloides (Nutt.) Engelm. [Buffalo grass] -- community dominant in prairie; rare on grassy islands in badlands washes (JPH#4051, 4097).

Calamovilfa longifolia (Hook.) Scribn. [Prairie sandreed] -- scattered in badlands wash bottoms (JPH#4388, 4429).

Distichlis spicata (L.) Greene var. *stricta* (Torr.) Beetle [Inland salt grass] -- abundant on exposed cliffs near Indian Springs; rare in bottom of drainageways elsewhere (JPH#4453).

Elymus canadensis L. [Canada wild rye] -- rare in drainageways (JPH#4428).

Festuca octoflora Walt. [Sixweeks fescue] -- widely scattered in moist swales of badlands bottoms (JPH#4061).

Hordeum jubatum L. [Foxtail barley] -- rare in broad wash bottoms (JPH#4141).

Koeleria pyramidata (Lam.) Beauv. [Junegrass] -- scattered in grassy areas at bottom of badlands washes (JPH#3990, 4033, 4066).

Oryzopsis hymenoides (R. & S.) Ricker [Indian ricegrass] -- scattered on upper and extreme lower bare badlands slopes (JPH#3989).

Poa bulbosa L. [Bulbous bluegrass] -- scattered on grassy islands in badlands wash bottoms (JPH #3968).

Poa compressa L. [Canada bluegrass] -- scattered in badlands bottoms (JPH#4057, 4273).

Poa sandbergii Vasey [Sandberg's bluegrass] -- commonly seen in bottoms of washes in badlands. (JPH #3828, 3851, 3911, 4055, 4123). (Also called *Poa secunda* Presl.)

Schedonnardus paniculatus (Nutt.) Trel. [Tumblegrass] -- rare on rocky outcrops (JPH#4152, 4241).

Sitanion hystrix (Nutt.) J. G. Sm. var. *brevifolium* (J. G. Sm.) Hitchc. [Squirreltail] -- common in broad badlands washes (JPH#4017, 4034, 4053, 4118, 4242, 4272).

Sporobolus airoides (Torr.) Torr. [Alkali sacaton] -- rare on wash bottoms and rocky outcrops (JPH#4244).

Stipa comata Trin. & Rupr. [needle-and-thread] -- scattered in prairie at rims of badlands slopes; rare on grassy islands in badlands wash bottoms (JPH#4058, 4143, 4279).

Stipa viridula Trin. [Green needlegrass] -- scattered in badlands washes and along lower slopes and in prairie along badlands rims (JPH#4016, 4028, 4122).

POLEMONIACEAE

Collomia linearis Nutt -- scattered in shallow-soiled prairie along badlands outcrops NE of Sugar Loaf Butte (JPH#4031).

Ipomopsis congesta (Hook.) V. Grant subsp. *congesta* [Ballhead] -- scattered at Indian Springs site (JPH#4451).

Phlox andicola Nutt. ex A. Gray subsp. *andicola* [Plains phlox] -- common in wash bottoms and along lower badlands slopes; widely scattered in prairie along edges of badlands slopes (JPH #3827, 3862, 4091, 4144).

Phlox hoodii Rich. [Hood's phlox] -- rare along upper badlands slopes (JPH#3935, 3961).

POLYGALACEAE

Polygala alba Nutt. [White milkwort] -- scattered to locally common on shallow soils near badlands (JPH#4095, 4103, 4127)

POLYGONACEAE

Eriogonum flavum Nutt. [Yellow buckwheat] -- rare on upper slopes of badlands outcrops (JPH#3890, 4374).

Eriogonum pauciflorum Pursh var. *nebraskense* (Rydb.) Reveal [Nebraska buckwheat] - - common on lower and mid-slopes of badlands (JPH#4300, 4321, 4361, 4372, 4373, 4432, 4437; RRW#9876).

Eriogonum pauciflorum Pursh var. *pauciflorum* -- very common on badlands slopes (JPH#4035, 4126, 4360, 4370, 4371, 4431, 4438)

Polygonum arenastrum Jord. ex Bor. [Knotweed] -- rare in bottoms of badlands washes (JPH#4477).

Rumex crispus L. [Curly dock] -- one seen in badlands erosion channel (RRW#9873).

Rumex patientia L. subsp. *patientia* -- rare in drying sites of badlands wash bottoms (JPH#4189), det. Steve Rolfsmeier.

PORTULACAEAE

Talinum parviflorum Nutt. [Prairie fameflower] -- locally common on shallow-soiled outcrops, in western Dawes Co., and NE of Sugarloaf Butte (JPH#4248, 4268, 4272).

PRIMULACEAE

Androsace occidentalis Pursh [Western rock jasmine] -- rare in prairie at upper rims of badlands slopes (JPH#3928, 4076).

RANUNCULACEAE

Clematis ligusticifolia Nutt. [Western clematis] -- rare on steep slopes in deep narrow badlands drainageways (JPH#3983, 4336).

ROSACEAE

Potentilla pensylvanica L. [Cinquefoil] -- one colony seen in shallow soiled prairie at base of rocky outcrop NE of Sugar Loaf Butte (JPH#4032).

Prunus pumila L. var. *besseyi* (Bailey) Gl. [Sand cherry] -- Very rare on steep N- and W-facing mid-slopes of badlands butte (JPH#4003, 4114).

Prunus virginiana L. (chokecherry) -- rare in moist bottoms of steep badlands drainages (JPH#4418).

Rosa woodsii Lindl. [western wild rose] -- rare in thickets on badlands washes and lower slopes (JPH#3979, 4035A).

SALICACEAE

Populus deltoides Marsh subsp. *monilifera* (Ait.) Eckenw. [Cottonwood] -- rare along intermittent stream in bottom of badlands drainages (JPH#4288).

Salix amygdaloides Anderss. [Peachleaf willow] -- one seen along drainage from badlands in western Sioux County (JPH#4307).

SANTALACEAE

Comandra umbellata (L.) Nutt. subsp. *pallida* (A.DC.) Piehl. [False toadflax] -- common on lower slopes and bottom of badlands slopes (JPH#3863, 3960).

SAXIFRAGACEAE

Ribes odoratum Wendl. [Buffalo currant] -- scattered in broad wash areas of badlands (JPH#3927, 3977).

SCROPHULARIACEAE

Linaria canadensis (L.) Dum. var. *texana* (Scheele) Penn. [Texas toadflax] -- scattered in shallow-soiled prairie along badlands outcrops NE of Sugar Loaf Butte (JPH#4029).

Orthocarpus luteus Nutt. [Owl clover] -- rare in grassy bottoms of badlands and in shallow-soiled prairie (JPH#4178, 4201, 4283, 4377).

Penstemon albidus Nutt. [White beardtongue] -- scattered on upper badlands slopes (JPH#3938, 4280).

Penstemon eriantherus Pursh var. *eriantherus* [Crested beardtongue] -- scattered on upper bare badlands slopes; rare in grassy areas at bottom of washes (JPH #3994, 4010, 4120, 4131).

Penstemon glaber Pursh var. *glaber* [Smooth penstemon] -- scattered on badlands slopes and at bases in badlands washes (JPH#4009, 4084, 4099, 4129, 4175).

Verbascum thapsus L. [Common mullein] -- rare in bottom of drainageways (JPH#4427).

Veronica peregrina L. var. *xalapensis* (H.B.K.) St. John & Warren. [Purslane speedwell] -- locally abundant near rocky outcrop NE of Sugar Loaf Butte (JPH#4046).

SOLANACEAE

Solanum rostratum Dun. [Buffalo bur] -- rare on upper badlands slopes (JPH#4195).

VERBENACEAE

Verbena bracteata Lag. & Rodr. [Prostrate vervain] -- rare along trailroads in badlands (JPH#4281).

Verbena stricta Vent. [Hoary vervain] -- rare along drainage in bottoms of badlands (JPH#4177).

VIOLACEAE

Viola nuttallii Pursh [Yellow prairie violet] -- scattered in prairie above badlands slopes (JPH #3837, 3901, 4075)

VITACEAE

Parthenocissus vitacea (Knerr) Kitch. [Woodbine] -- rare in broad wash bottoms in grassy island knolls (JPH#3976).

**RARE PLANT ELEMENT OCCURENCE RECORDS FOR
THE BADLANDS OF THE OGLALA NATIONAL GRASSLAND**
(locations shown on attached quad maps)

Nebraska Natural Heritage Program
February 15, 1996

| | | |
|-----------------|----------------------------------|------|
| CCURRENCE CODE: | PDCAC0X022 | 011 |
| SPECIES: | CORYPHANTHA MISSOURIENSIS | |
| COMMON NAME: | MISSOURI CORYCACTUS | |
| GRANK/SRANK: | G5 | S2S3 |
| SURVEY DATE: | 1995-06-01 | |
| COUNTY: | DAWES | |

QUAD MAP NAME: **HORN**
QUAD MAP #: 1
LAT/LONG: 424802N 1032845W
SITE DESCRIPTION: POA SANDBERGII-AGROPYRON SMITHII PRAIRIE.
OCCURRENCE DATA: 1995-06-01 RARE IN POA
SANDBERGII-AGROPYRON SMITHII PRAIRIE.
SPECIMEN: HARDY, J. (3930). 1995. SPECIMEN # _____. CS.

OCCURRENCE CODE: PMLIL0V020 013
SPECIES: **FRITILLARIA ATROPURPUREA**
COMMON NAME: PURPLE MISSION-BELLS
GRANK/SRANK: G5 S2
SURVEY DATE: 1995-08-03
COUNTY: DAWES
QUAD MAP NAME: **HORN**
QUAD MAP #: 2
LAT/LONG: 424808N 1032905W
SITE DESCRIPTION: GRAVELLY HILLTOP IN BADLANDS.
OCCURRENCE DATA: 1995-08-03 FEWER THAN 10 INDIVIDUALS
OBSERVED BY HARDY GROWING ON A GENTLY
SLOPING GRAVELLY HILLTOP.
SPECIMEN: HARDY, J.P. (4403). 1995. SPECIMEN #----. CS.

OCCURRENCE CODE: PDBRA1N042 013
SPECIES: **LESQUERELLA ARENOSA VAR ARGILLOSA**
COMMON NAME: SECUND BLADDERPOD
GRANK/SRANK: G5T3 S2
SURVEY DATE: 1995-06-01
COUNTY: DAWES
QUAD MAP NAME: **HORN**
QUAD MAP #: 3
LAT/LONG: 424813N 1032806W
SITE DESCRIPTION: BADLANDS.
OCCURRENCE DATA: 1995-06-01 COMMON ON UPPER BADLAND SLOPES,
FLOWERS PALE YELLOW.
SPECIMEN: HARDY, J. (3902), 1995. SPECIMEN # _____. CS.

OCCURRENCE CODE: PDBOR0N0C0 001

SPECIES: **MERTENSIA LANCEOLATA**
COMMON NAME:
GRANK/SRANK: G? S3
SURVEY DATE: 1995-05-21
COUNTY: DAWES
QUAD MAP NAME: **HORN**
QUAD MAP #: 4
LAT/LONG: 424845N 1032837W
SITE DESCRIPTION: BADLANDS, PRAIRIE WASH BOTTOMS.
OCCURRENCE DATA: 1995-05-21 COMMON TO SCATTERED ON PRAIRIE
AND WASH BOTTOMS.
SPECIMEN: HARDY, J. (3892). 1995. SPECIMEN #____. CS.
HARDY, J. (3882). 1995. SPECIMEN #____. CS.

SPECIES: **ATRIplex GARDNERI**
COMMON NAME: BASIN SALT BUSH
GRANK/SRANK: G5 SU
SURVEY DATE: 1995-08-15
COUNTY: SIOUX
QUAD MAP NAME: **ORELLA**
QUAD MAP #: 4
LAT/LONG: 425238N 1033645W
SITE DESCRIPTION: BADLANDS.
OCCURRENCE DATA: 1995-08-15 LESS THAN 10 PLANTS OBSERVED BY
HARDY ON UPPER SLOPES OF CRESTS OF
BADLANDS.
SPECIMEN: HARDY, J.P. (4479). 1995. SPECIMEN #----. CS.

OCCURRENCE CODE: PDAST2C090 008
SPECIES: **CHRYsoTHAMNUS PARRYI**
COMMON NAME: PARRY RABBIT-BUSH
GRANK/SRANK: G5 S1
SURVEY DATE: 1995-07-13
COUNTY: SIOUX
Dawes
QUAD MAP NAME: **ORELLA**
QUAD MAP #: 1
LAT/LONG: 425624N 1033008W
SITE DESCRIPTION: BADLANDS, ROCKY OUTCROPS.
OCCURRENCE DATA: 1995-07-13 LESS THAN 10 INDIVIDUALS OBSERVED
BY HARDY ON ROCKY OUTCROPS.

SPECIMEN: NO SPECIMEN COLLECTED.

OCCURRENCE CODE: PDAST2C090 009
SPECIES: **CHRYSOETHAMNUS PARRYI**
COMMON NAME: PARRY RABBIT-BUSH
GRANK/SRANK: G5 S1
SURVEY DATE: 1995-07-13
COUNTY: SIOUX
QUAD MAP NAME: **ORELLA**
QUAD MAP #: 2
LAT/LONG: 425357N 1033310W
SITE DESCRIPTION: BADLANDS, ROCK OUTCROPS.
OCCURRENCE DATA: 1995-07-13 PLANTS SCATTERED ON NW SIDE OF
SUGAR LOAF BUTTE, ON BADLANDS AND ROCK
OUTCROPS.
SPECIMEN: HARDY, J.P. (4278). 1995. SPECIMEN #----. CS.

OCCURRENCE CODE: PDBRA1N150 006
SPECIES: **LESQUERELLA MONTANA**
COMMON NAME: MOUNTAIN BLADDEROD
GRANK/SRANK: G5 S2
SURVEY DATE: 1995-07-13
COUNTY: SIOUX
QUAD MAP NAME: **ORELLA**
QUAD MAP #: 1
LAT/LONG: 425624N 1033008W
SITE DESCRIPTION: BADLANDS.
OCCURRENCE DATA: 1995-07-13 COMMON IN LOCALIZED AREAS OF
BADLANDS.
SPECIMEN: HARDY, J.P. (4249). 1995. SPECIMEN #----. CS.

OCCURRENCE CODE: PDSCR2P010 001
SPECIES: **LINARIA CANADENSIS**
COMMON NAME: OLD-FIELD TOADFLAX
GRANK/SRANK: G? S1
SURVEY DATE: 1995-06-17
COUNTY: SIOUX
QUAD MAP NAME: **ORELLA**
QUAD MAP #: 3
LAT/LONG: 425407N 1033308W
SITE DESCRIPTION: BADLANDS, SHALLOW SOILED PRAIRIE.

OCCURRENCE DATA: 1995-06-17 SCATTERED IN SHALLOW SOILED
PRAIRIE.
SPECIMEN: HARDY, J. (4029). 1995. SPECIMEN #____. CS.

OCCURRENCE CODE: PDAST3M2V0 009
SPECIES: **ERIGERON OCHROLEUCUS**
COMMON NAME: BUFF FLEABANE
GRANK/SRANK: G5 S2
SURVEY DATE: 1995-08-04
COUNTY: SIOUX
QUAD MAP NAME: **ROUNDTOP**
QUAD MAP #: 1
LAT/LONG: 425205N 1033504W
SITE DESCRIPTION: BADLANDS.
OCCURRENCE DATA: 1995-08-04 HARDY STATED PLANTS WERE
COMMON AND WIDELY SPREAD ON GRAVELLY,
SHALLOW SOILS.
SPECIMEN: HARDY, J.P. (4128). 1995. SPECIMEN #-----. CS.

OCCURRENCE CODE: PDBOR0N0C0 002
SPECIES: **MERTENSIA LANCEOLATA**
COMMON NAME: WILD FORGET-ME-NOT
GRANK/SRANK: G? S3
SURVEY DATE: 1995-06-02
COUNTY: SIOUX
QUAD MAP NAME: **ROUNDTOP**
QUAD MAP #: 2
LAT/LONG: 424844N 1033114W
SITE DESCRIPTION: BADLANDS.
OCCURRENCE DATA: 1995-06-02 RARE ON SLOPES, FLOWERS
PURPLE-BLUE.
SPECIMEN: HARDY, J. (3950). 1995. SPECIMEN #____. CS.

OCCURRENCE CODE: PDASTDQ030 002
SPECIES: **HAPLOPAPPUS MULTICAULIS**
COMMON NAME:
GRANK/SRANK: G4 S2
SURVEY DATE: 1995
COUNTY: SIOUX

QUAD MAP NAME: **SHERILL HILLS**
QUAD MAP #: 1
LAT/LONG: 425923N 1040210W
SITE DESCRIPTION: BADLANDS
OCCURRENCE DATA: 1995 OBSERVED BY HARDY.
SPECIMEN: NO SPECIMEN COLLECTED.

OCCURRENCE CODE: PDAST2C090 010
SPECIES: **CHRYSOETHAMNUS PARRYI**
COMMON NAME: PARRY RABBIT-BUSH
GRANK/SRANK: G5 S
SURVEY DATE: 1995-07-13
COUNTY: DAWES
QUAD MAP NAME: **WOLF BUTTE**
QUAD MAP #: 1
LAT/LONG: 425619N 1032956W
SITE DESCRIPTION: BADLANDS.
OCCURRENCE DATA: 1995-07-13 HARDY STATED THAT PLANTS WERE
WIDELY SCATTERED THROUGH BADLANDS IN
THE AREA, GROWING IN ASSOCIATION WITH
MACHAERANTERA GRINDELOIDES,
HAPLOPAPPUS MULTICAULIS, PHLOX HOODII,
ARENARIA HOOKERI.
SPECIMEN: NO SPECIMEN COLLECTED.

OCCURRENCE CODE: PDCAC0X022 012
SPECIES: **CORYPHANTHA MISSOURIENSIS**
COMMON NAME: MISSOURI CORYCACTUS
GRANK/SRANK: G5 S2S3
SURVEY DATE: 1995-06-17
COUNTY: DAWES
QUAD MAP NAME: **WOLF BUTTE**
QUAD MAP #: 1
LAT/LONG: 425618N 1032958W
SITE DESCRIPTION: NATIVE PRAIRIE.
OCCURRENCE DATA: 1995-06-17 RARE IN NATIVE PRAIRIE, FLOWERS
YELLOW.
SPECIMEN: HARDY, J. (4077). 1995. SPECIMEN #____. CS.

OCCURRENCE CODE: PDASTDQ030 001
SPECIES: **HAPLOPAPPUS MULTICAULIS**
COMMON NAME:

GRANK/SRANK: G4 S2
SURVEY DATE: 1995-07-15
COUNTY: DAWES
QUAD MAP NAME: **WOLF BUTTE**
QUAD MAP #: 2
LAT/LONG: 425623N 1032917W
SITE DESCRIPTION: BADLANDS.
OCCURRENCE DATA: 1995-07-15 HARDY STATED THAT PLANTS WERE
COMMON IN THE AREA ON BADLANDS AND
ROCKY OUTCROPS.
SPECIMEN: HARDY, J.P. (4264). 1995. SPECIMEN #----. CS.
HARDY, J.P. (4269). 1995. SPECIMEN #----. CS.
HARDY, J.P. (4227). 1995. SPECIMEN #----. CS.