

Annual Status Report:

1999 Plant Community Monitoring for
Agate Fossil Beds National Monument



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National Park Service
Prairie Cluster Long-term Ecological Monitoring Program

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Plant Communities Monitored

The locations of plant community sampling sites were determined using a stratified random approach based on plant communities defined The USGS-NPS Vegetation Mapping Program. The following plant communities were sampled in 1999.

Northern Great Plains little bluestem prairie. The community occurs on uplands throughout the monument typically on shoulders of flat-topped hills and on eroding sandstone slopes of the sides of hills. Soils are poorly developed or absent. The community is sparsely vegetated (25%-50% average herbaceous cover), and dominated by dwarf caespitose, perennial forbs. The community possesses several noteworthy species that are disjunct from populations further south in the state including *Lesquerella alpina*, *Paronychia sessiliflora*, *Phlox hoodii* ssp. *muscoides*, and *Stenotus amerioides*. Two sample sites (20 plots) are located in the Northern Great Plains little bluestem community.

Needle & thread- Blue grama mixedgrass prairie. The community is found away from the floodplain throughout the monument, primarily on upper slopes and flat summits of hills. Soils are fine sands and fine loamy sands and often shallow. The community is dominated by graminoids less than 1m tall (*Carex filifolia*, *Stipa comata*). Two sample sites (20 plots) are located in the Needle & thread – Blue grama community.

Prairie Sandreed – Sand bluestem prairie. The community occurs throughout the monument, primarily on lower slopes and valley bottoms. Soils are mostly fine sand and loamy fine sands. The community is dominated by mid and tall grasses (*Calamovilfa longifolia*, *Stipa comata*) and forb diversity and abundance is typically low. Four sample sites (40 plots) are located in the Prairie Sandreed – Sandbluestem community.

Prairie Sandreed – Sand bluestem prairie, upland disturbance. Areas adjacent to the main road were briefly in cultivation and future plans include restoration of the area. Two sample sites (20 plots) are located in the disturbed areas of this community.

Western wheatgrass mixedgrass prairie. The community occurs on higher terraces throughout the monument on fairly level ground on either side of the river. Soils are fine sands and loamy fine sands. A relatively dense layer of graminoids (*Pascopyrum smithii*, *Poa pratense*) dominates the community, with *Equisetum laevigatum* being a diagnostic species. One sample site (10 plots) is located in the Western wheatgrass community.

Eleven sample sites (110 10 m² plots) were sampled in June and again in July 1999. Sampling procedures follow Buck et al., 1999. Data collection, processing and summary by Mike DeBacker, Karola Mlekush, Lisa Thomas, Cindy Buck, and Jennifer Haack.

Buck, C., S. Jenkins, G. Willson, M. DeBacker, L. Thomas. 1999. Protocol Design for Plant Community Monitoring. Draft.

1999 Vegetation Summary: Northern Great Plains Little Bluestem Prairie, Agate Fossil Beds, NM

Table 1a. Community Summary: Richness and Shannon Diversity.

<u>Richness (S)</u>	<u>Diversity (H')</u>	<u>Evenness (E)</u>
86 (200 m ²)	2.95	0.663

Table 1b. Community Summary: Relative Frequency and Cover of Exotic Species.

Number of Exotic Species: 7
 Number of Native Species: 79
 Exotic Ratio (R): 0.081

<u>Origin</u>	<u>Relative Frequency</u>	<u>Relative Cover</u>
Native	97.35%	99.53%
Exotic	2.65%	0.47%

Table 2a. Community Structure Summary: Ground Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Bare Rock	21.72%
Bare Soil	58.75%
Grass Litter	25.05%
Leaf Litter	0.02%
Unvegetated Surface	65.88%
Woody Debris	0.05%

Table 2b. Community Structure Summary: Shrub and Herbaceous Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Shrubs	6.40%
Herbs	68.53%

Table 3. Community Composition Summary: Herbaceous and Shrub Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>SCHIZACHYRIUM SCOPARIUM</i>	Little bluestem	100.00%	21.08%	0.1595
<i>STIPA COMATA</i>	Needle-and-thread grass	100.00%	8.83%	0.0778
<i>GUTIERREZIA SAROTHRAE</i>	Matchbrush	70.00%	10.36%	0.0616
<i>YUCCA GLAUCA</i>	Soap plant	80.00%	4.75%	0.0405
<i>BOUTELOUA GRACILIS</i>	Blue grama-grass	75.00%	5.20%	0.0402
<i>CALAMOVILFA LONGIFOLIA</i>	Sand-reed	45.00%	5.61%	0.0254
<i>RHUS TRILOBATA</i>	Squaw-bush	40.00%	5.38%	0.0219
<i>ARISTIDA PURPUREA</i>	purple threeawn	65.00%	2.19%	0.0218
<i>BOUTELOUA CURTIPENDULA</i>	Side-oats grama-grass	35.00%	6.43%	0.0216
<i>MUHLENBERGIA PUNGENS</i>	Muhly	50.00%	2.95%	0.0193
<i>ALLIUM TEXTILE</i>	Onion	85.00%	0.50%	0.0189
<i>ARTEMISIA FRIGIDA</i>	Prairie-sagewort	40.00%	4.19%	0.0187
<i>ARENARIA HOOKERI</i>	Sandwort	65.00%	1.46%	0.0186
<i>KOELERIA MACRANTHA</i>	Junegrass	45.00%	3.22%	0.0182
<i>ANDROPOGON HALLII</i>	Sand bluestem	50.00%	2.45%	0.0176
<i>CALYLOPHUS SERRULATUS</i>	Evening-primrose	60.00%	1.33%	0.0167
<i>LEPIDIUM DENSIFLORUM</i>	Prairie-pepperweed	75.00%	0.50%	0.0167
<i>LITHOSPERMUM INCISUM</i>	Narrow-leaved puccoon	75.00%	0.50%	0.0167
<i>CAREX FILIFOLIA</i>	Sedge	40.00%	3.25%	0.0162
<i>LUPINUS PLATTENSIS</i>	Lupine	25.00%	6.80%	0.0161
<i>PARONYCHIA DEPRESSA</i>	Whitlow-wort	60.00%	0.92%	0.0150
<i>ASTRAGALUS MISSOURIENSIS</i>	Nuttall milk-vetch	55.00%	0.50%	0.0122
<i>GAURA COCCINEA</i>	Scarlet gaura	55.00%	0.50%	0.0122
<i>PHLOX ANDICOLA</i>	Phlox, Sweet William	55.00%	0.50%	0.0122
<i>LIATRIS PUNCTATA</i>	Blazing star, gay feather	50.00%	0.75%	0.0120
<i>LESQUERELLA LUDOVICIANA</i>	Mustard	50.00%	0.50%	0.0111
<i>ERIOGONUM FLAVUM</i>	Yellow wild buckwheat	35.00%	1.57%	0.0103
<i>VULPIA OCTOFLORA</i>	Six-weeks fescue	45.00%	0.50%	0.0100
<i>OPUNTIA FRAGILIS</i>	Little prickly pear	40.00%	0.81%	0.0097
<i>PSORALIDIUM LANCEOLATUM</i>	Pea, Bean	35.00%	1.21%	0.0095
<i>THERMOPSIS RHOMBIFOLIA</i>	Buckbean	35.00%	1.21%	0.0095
<i>COMANDRA UMBELLATA</i>	Bastard toad-flax	40.00%	0.50%	0.0089
<i>ELYMUS ELYMOIDES</i>	Wild rye	40.00%	0.50%	0.0089
<i>ELYMUS LANCEOLATUS</i> ssp. <i>LANCEOLATUS</i>	Wild rye	40.00%	0.50%	0.0089
<i>ERIOGONUM ANNUUM</i>	Annual eriogonum	40.00%	0.50%	0.0089
<i>ERYSIMUM ASPERUM</i>	Western wallflower	40.00%	0.50%	0.0089
<i>MIRABILIS HIRSUTA</i>	Hairy umbrella-wort	40.00%	0.50%	0.0089
<i>MACHAERANTHERA GRINDELIODES</i>	Rayless aster	15.00%	5.33%	0.0082
<i>SILENE DRUMMONDII</i>	Drummond's campion	35.00%	0.50%	0.0078
<i>TRADESCANTIA OCCIDENTALIS</i>	Prairie spiderwort	35.00%	0.50%	0.0078

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>VIOLA NUTTALLII</i>	Yellow prairie violet	35.00%	0.50%	0.0078
<i>TETRANEURIS ACAULIS</i>	Bitterweed	30.00%	0.92%	0.0075
<i>PHACELIA HASTATA</i>	Phacelia	25.00%	1.50%	0.0072
<i>LESQUERELLA ARENOSA</i>	Great plains bladderpod	30.00%	0.50%	0.0067
<i>HETEROTHECA VILLOSA</i>	Golden aster	25.00%	1.00%	0.0064
<i>CYMOPTERUS ACAULIS</i>	Wild parsley	25.00%	0.50%	0.0056
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	25.00%	0.50%	0.0056
<i>MUSINEON TENUIFOLIUM</i>	Parsley	20.00%	1.12%	0.0053
<i>CIRSIUM CANESCENS</i>	Thistle	20.00%	0.50%	0.0044
<i>DESCURAINIA PINNATA</i>	Tansy-mustard	20.00%	0.50%	0.0044
<i>OPUNTIA MACRORHIZA</i>	Plains prickly pear	20.00%	0.50%	0.0044
<i>PSORALEA ESCULENTA</i>	Breadroot scurf-pea	20.00%	0.50%	0.0044
<i>PSORALIDIUM TENUIFLORUM</i>	Gray scurf-pea	20.00%	0.50%	0.0044
<i>CHENOPODIUM PRATERICOLA</i>	Narrow-leaf goosefoot	15.00%	0.50%	0.0033
<i>PARONYCHIA SESSILIFLORA</i>	Nailwort	15.00%	0.50%	0.0033
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	15.00%	0.50%	0.0033
<i>ASTRAGALUS SERICOLEUCUS</i>	Milk-vetch	10.00%	1.75%	0.0031
<i>ARABIS HOLBOELLII</i>	Rock-cress	10.00%	0.50%	0.0022
<i>ASTRAGALUS CRASSICARPUS</i>	Ground-plum, prairie plum	10.00%	0.50%	0.0022
<i>ASTRAGALUS SPATULATUS</i>	Milk-vetch	10.00%	0.50%	0.0022
<i>CASTILLEJA SESSILIFLORA</i>	Downy paintbrush	10.00%	0.50%	0.0022
<i>DALEA CANDIDA</i> var. <i>OLIGOPHYLLA</i>	White prairie clover	10.00%	0.50%	0.0022
<i>EUPHORBIA ROBUSTA</i>	Spurge	10.00%	0.50%	0.0022
<i>HELIANTHUS PETIOLARIS</i>	Plains sunflower	10.00%	0.50%	0.0022
<i>HYMENOPAPPUS FILIFOLIUS</i> var. <i>POLYCEPHALUS</i>	Aster	10.00%	0.50%	0.0022
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	10.00%	0.50%	0.0022
<i>LATHYRUS POLYMORPHUS</i>	Vetchling, wild pea	10.00%	0.50%	0.0022
<i>LYGODESMIA JUNCEA</i>	Skeleton-weed	10.00%	0.50%	0.0022
<i>MIRABILIS LINEARIS</i>	Narrow-leaved umbrella-wort	10.00%	0.50%	0.0022
<i>OXYTROPIS SERICEA</i>	White locoweed	10.00%	0.50%	0.0022
<i>SENECIO RIDDELLII</i>	Groundsel, ragwort	10.00%	0.50%	0.0022
<i>ANNUAL BROMUS</i> SPP	B. tectorum, B. japonicus	5.00%	0.50%	0.0011
<i>CHAMAESYCE SERPENS</i>	Round-leaved spurge	5.00%	0.50%	0.0011
<i>CORISPERMUM HYSSOIFOLIUM</i>	Bugseed	5.00%	0.50%	0.0011
<i>CORYPHANTHA VIVIPARA</i>	Pincushion cactus	5.00%	0.50%	0.0011
<i>CRYPTANTHA CELOSIODES</i>	Borage	5.00%	0.50%	0.0011
<i>HEDEOMA DRUMMONDII</i>	Drummond false pennyroyal	5.00%	0.50%	0.0011
<i>LINUM PUBERULUM</i>	Plains flax	5.00%	0.50%	0.0011
<i>ORYZOPSIS HYMENOIDES</i>	Indian ricegrass	5.00%	0.50%	0.0011
<i>PENSTEMON ERIANTHERUS</i>	Beard-tongue	5.00%	0.50%	0.0011
<i>POA PRATENSIS</i>	Kentucky bluegrass	5.00%	0.50%	0.0011
<i>SPOROBOLUS CRYPTANDRUS</i>	Sand dropseed	5.00%	0.50%	0.0011

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>TARAXACUM OFFICINALE</i>	Common dandelion	5.00%	0.50%	0.0011
<i>LINUM RIGIDUM</i>	Stiffstem yellow flax	5.00%	0.50%	0.0011
<i>MACHAERANTHERA PINNATIFIDA</i> ssp. <i>PINNATIFIDA</i> var. <i>PINNATIFIDA</i>	Aster	5.00%	0.50%	0.0011
<i>TOWNSENDIA GRANDIFLORA</i>	Easter daisy	5.00%	0.50%	0.0011

Table 4. Community Composition Summary: Exotic Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	0.25	0.005	0.0056
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	0.15	0.005	0.0033
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	0.1	0.005	0.0022
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	0.05	0.005	0.0011
<i>CORISPERMUM HYSSOPIFOLIUM</i>	Bugseed	0.05	0.005	0.0011
<i>POA PRATENSIS</i>	Kentucky bluegrass	0.05	0.005	0.0011
<i>TARAXACUM OFFICINALE</i>	Common dandelion	0.05	0.005	0.0011

**1999 Vegetation Summary: Needle and Thread – Blue Grama Mixedgrass Prairie,
Agate Fossil Beds, NM**

Table 1a. Community Summary: Richness and Shannon Diversity.

<u>Richness (S)</u>	<u>Diversity (H')</u>	<u>Evenness (E)</u>
80 (200 m ²)	2.08	0.475

Table 1b. Community Summary: Relative Frequency and Cover of Exotic Species.

Number of Exotic Species: 7
 Number of Native Species: 73
 Exotic Ratio (R): 0.087

<u>Origin</u>	<u>Relative Frequency</u>	<u>Relative Cover</u>
Native	94.03%	97.15%
Exotic	5.97%	2.85%

Table 2a. Community Structure Summary: Ground Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Bare Rock	5.13%
Bare Soil	27.90%
Grass Litter	50.00%
Leaf Litter	0.02%
Unvegetated Surface	42.88%
Woody Debris	0.07%

Table 2b. Community Structure Summary: Shrub and Herbaceous Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Shrubs	4.70%
Herbs	106.63%

Table 3. Community Composition Summary: Herbaceous and Shrub Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>CAREX FILIFOLIA</i>	Sedge	100.00%	55.05%	0.2721
<i>STIPA COMATA</i>	Needle-and-thread grass	95.00%	19.66%	0.1075
<i>CALAMOVILFA LONGIFOLIA</i>	Sand-reed	40.00%	16.81%	0.0402
<i>PSORALIDIUM LANCEOLATUM</i>	Pea, Bean	60.00%	8.58%	0.0381
<i>BOUTELOUA GRACILIS</i>	Blue grama-grass	95.00%	2.82%	0.0356
<i>VULPIA OCTOFLORA</i>	Six-weeks fescue	75.00%	2.00%	0.0254
<i>OPUNTIA POLYACANTHA</i>	Plains prickly pear	80.00%	1.12%	0.0239
<i>YUCCA GLAUCA</i>	Soap plant	55.00%	3.82%	0.0231
<i>SCHIZACHYRIUM SCOPARIUM</i>	Little bluestem	35.00%	7.79%	0.0209
<i>ALLIUM TEXTILE</i>	Onion	65.00%	0.50%	0.0176
<i>VIOLA NUTTALLII</i>	Yellow prairie violet	65.00%	0.50%	0.0176
<i>POA PRATENSIS</i>	Kentucky bluegrass	20.00%	13.38%	0.0170
<i>LYGODESMIA JUNCEA</i>	Skeleton-weed	60.00%	0.50%	0.0163
<i>GUTIERREZIA SAROTHRAE</i>	Matchbrush	35.00%	4.36%	0.0156
<i>LESQUERELLA LUDOVICIANA</i>	Mustard	55.00%	0.50%	0.0149
<i>GAURA COCCINEA</i>	Scarlet gaura	50.00%	0.75%	0.0141
<i>LIATRIS PUNCTATA</i>	Blazing star, gay feather	45.00%	0.78%	0.0128
<i>CHENOPODIUM PRATERICOLA</i>	Narrow-leaf goosefoot	40.00%	0.50%	0.0108
<i>CONYZA CANADENSIS</i>	Horseweed	40.00%	0.50%	0.0108
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	40.00%	0.50%	0.0108
<i>LEPIDIUM DENSIFLORUM</i>	Prairie-pepperweed	40.00%	0.50%	0.0108
<i>RHUS TRILOBATA</i>	Squaw-bush	15.00%	10.17%	0.0106
<i>CYMOPTERUS ACAULIS</i>	Wild parsley	35.00%	0.50%	0.0095
<i>LATHYRUS POLYMORPHUS</i>	Vetchling, wild pea	30.00%	0.92%	0.0087
<i>SPHAERALCEA COCCINEA</i>	Scarlet mallow	25.00%	2.00%	0.0085
<i>ARISTIDA PURPUREA</i>	Purple threeawn	30.00%	0.50%	0.0081
<i>DESCURAINIA PINNATA</i>	Tansy-mustard	30.00%	0.50%	0.0081
<i>MIRABILIS HIRSUTA</i>	Hairy umbrella-wort	30.00%	0.50%	0.0081
<i>PENSTEMON ANGUSTIFOLIUS</i>	Beard-tongue	30.00%	0.50%	0.0081
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	30.00%	0.50%	0.0081
<i>ARTEMISIA FRIGIDA</i>	Prairie-sagewort	25.00%	1.00%	0.0073
<i>ASTRAGALUS GRACILIS</i>	Milk-vetch	25.00%	1.00%	0.0073
<i>SENECIO RIDDELLII</i>	Groundsel, ragwort	25.00%	0.50%	0.0068
<i>ARENARIA HOOKERI</i>	Sandwort	20.00%	1.12%	0.0060
<i>KOELERIA MACRANTHA</i>	Junegrass	10.00%	7.75%	0.0060
<i>MUSINEON TENUIFOLIUM</i>	Parsley	10.00%	7.75%	0.0060
<i>ARABIS HOLBOELLII</i>	Rock-cress	20.00%	0.50%	0.0054
<i>HELIANTHUS PETIOLARIS</i>	Plains sunflower	20.00%	0.50%	0.0054
<i>LITHOSPERMUM INCISUM</i>	Narrow-leaved puccoon	20.00%	0.50%	0.0054
<i>OPUNTIA FRAGILIS</i>	Little prickly pear	20.00%	0.50%	0.0054

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>PHLOX ANDICOLA</i>	Phlox, Sweet William	20.00%	0.50%	0.0054
<i>TETRANEURIS ACAULIS</i>	Bitterweed	20.00%	0.50%	0.0054
<i>ELYMUS LANCEOLATUS</i> ssp. <i>LANCEOLATUS</i>	Wild rye	15.00%	1.33%	0.0046
<i>PHLOX HOODII</i>	Phlox, Sweet William	15.00%	1.33%	0.0046
<i>ERIOGONUM ANNUUM</i>	Annual eriogonum	15.00%	0.50%	0.0041
<i>ERYSIMUM ASPERUM</i>	Western wallflower	15.00%	0.50%	0.0041
<i>PLANTAGO PATAGONICA</i>	Wooly plantain	15.00%	0.50%	0.0041
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	15.00%	0.50%	0.0041
<i>CRYPTANTHA CANA</i>	Borage	10.00%	3.00%	0.0038
<i>COMANDRA UMBELLATA</i>	Bastard toad-flax	10.00%	1.75%	0.0033
<i>MUHLENBERGIA PUNGENS</i>	Muhly	10.00%	1.75%	0.0033
<i>PSORALIDIUM TENUIFLORUM</i>	Gray scurf-pea	10.00%	1.75%	0.0033
<i>ASTRAGALUS CERAMICUS</i>	painted milkvetch	10.00%	0.50%	0.0027
<i>ASTRAGALUS SPATULATUS</i>	Milk-vetch	10.00%	0.50%	0.0027
<i>CIRSIUM CANESCENS</i>	Thistle	10.00%	0.50%	0.0027
<i>DALEA CANDIDA</i>	White prairie clover	10.00%	0.50%	0.0027
<i>DALEA PURPUREA</i>	Purple prairie clover	10.00%	0.50%	0.0027
<i>LACTUCA TATARICA</i> var. <i>PULCHELLA</i>	Blue lettuce	10.00%	0.50%	0.0027
<i>LESQUERELLA ARENOSA</i>	Great Plains Bladderpod	10.00%	0.50%	0.0027
<i>LUPINUS PLATTENSIS</i>	Lupine	10.00%	0.50%	0.0027
<i>MACHAERANTHERA PINNATIFIDA</i> ssp. <i>PINNATIFIDA</i> var. <i>PINNATIFIDA</i>	Aster	10.00%	0.50%	0.0027
<i>OPUNTIA MACRORHIZA</i>	Plains prickly pear	10.00%	0.50%	0.0027
<i>PARONYCHIA DEPRESSA</i>	Whitlow-wort	10.00%	0.50%	0.0027
<i>TRADESCANTIA OCCIDENTALIS</i>	Prairie spiderwort	10.00%	0.50%	0.0027
<i>RUMEX VENOSUS</i>	Veiny dock	5.00%	3.00%	0.0019
<i>ANDROPOGON HALLII</i>	Sand bluestem	5.00%	0.50%	0.0014
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	5.00%	0.50%	0.0014
<i>CALYLOPHUS SERRULATUS</i>	Evening-primrose	5.00%	0.50%	0.0014
<i>CORYPHANTHA VIVIPARA</i>	Pincushion cactus	5.00%	0.50%	0.0014
<i>EUPHORBIA ROBUSTA</i>	Spurge	5.00%	0.50%	0.0014
<i>HETEROTHECA VILLOSA</i>	Golden aster	5.00%	0.50%	0.0014
<i>MELILOTUS SPP</i>	M. albus, M. officinalis	5.00%	0.50%	0.0014
<i>OENOTHERA ALBICAULIS</i>	Evening-primrose	5.00%	0.50%	0.0014
<i>OENOTHERA NUTTALLII</i>	White-stemmed evening-primrose	5.00%	0.50%	0.0014
<i>ORYZOPSIS HYMENOIDES</i>	Indian ricegrass	5.00%	0.50%	0.0014
<i>OXYTROPIS SERICEA</i>	White locoweed	5.00%	0.50%	0.0014
<i>PASCOPYRUM SMITHII</i>	Western wheatgrass	5.00%	0.50%	0.0014
<i>POLYGONUM RAMOSISSIMUM</i>	Smartweed	5.00%	0.50%	0.0014
<i>SALSOLA SPP</i>	Russian thistle (S. kali or S. collina)	5.00%	0.50%	0.0014
<i>SENECIO CANUS</i>	Gray groundsel	5.00%	0.50%	0.0014

Table 4. Community Composition Summary: Exotic Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>POA PRATENSIS</i>	Kentucky bluegrass	20.00%	13.38%	0.0170
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	40.00%	0.50%	0.0108
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	30.00%	0.50%	0.0081
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	15.00%	0.50%	0.0041
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	5.00%	0.50%	0.0014
<i>MELILOTUS SPP</i>	M. albus , M. officinalis	5.00%	0.50%	0.0014
<i>SALSOLA SPP</i>	Russian thistle (S. kali or S. collina)	5.00%	0.50%	0.0014

1999 Vegetation Summary: Prairie Sandreed – Sand Bluestem Prairie, Agate Fossil Beds, NM

Table 1a. Community Summary: Richness and Shannon Diversity.

<u>Richness (S)</u>	<u>Diversity (H')</u>	<u>Evenness (E)</u>
79 (400 m ²)	2.57	0.589

Table 1b. Community Summary: Relative Frequency and Cover of Exotic Species.

Number of Exotic Species: 8

Number of Native Species: 71

Exotic Ratio (R): 0.101

<u>Origin</u>	<u>Relative Frequency</u>	<u>Relative Cover</u>
Native	91.68%	93.84%
Exotic	8.32%	6.16%

Table 2a. Community Structure Summary: Ground Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Bare Rock	0.27%
Bare Soil	28.71%
Grass Litter	47.56%
Unvegetated Surface	48.69%
Woody Debris	0.02%

Table 2b. Community Structure Summary: Shrub and Herbaceous Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Shrubs	3.04%
Herbs	90.56%

Table 3. Community Composition Summary: Herbaceous and Shrub Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>STIPA COMATA</i>	Needle-and-thread grass	100.00%	27.34%	0.1709
<i>CALAMOVILFA LONGIFOLIA</i>	Sand-reed	100.00%	14.09%	0.1001
<i>ANDROPOGON HALLII</i>	Sand bluestem	57.50%	20.87%	0.0784
<i>BOUTELOUA GRACILIS</i>	Blue grama-grass	82.50%	10.85%	0.0683
<i>CONYZA CANADENSIS</i>	Horseweed	72.50%	5.21%	0.0382
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	70.00%	5.18%	0.0368
<i>VULPIA OCTOFLORA</i>	Six-weeks fescue	92.50%	2.28%	0.0343
<i>CHENOPODIUM PRATERICOLA</i>	Narrow-leaf goosefoot	95.00%	0.50%	0.0261
<i>TRADESCANTIA OCCIDENTALIS</i>	Prairie spiderwort	87.50%	0.57%	0.0244
<i>YUCCA GLAUCA</i>	Soap plant	37.50%	7.17%	0.0237
<i>ERIOGONUM ANNUUM</i>	Annual eriogonum	82.50%	0.58%	0.0230
<i>LEPIDIUM DENSIFLORUM</i>	Prairie-pepperweed	57.50%	2.50%	0.0220
<i>HELIANTHUS PETIOLARIS</i>	Plains sunflower	50.00%	3.53%	0.0218
<i>LYGODESMIA JUNCEA</i>	Skeleton-weed	75.00%	0.50%	0.0206
<i>LITHOSPERMUM INCISUM</i>	Narrow-leaved puccoon	67.50%	0.69%	0.0192
<i>MIRABILIS HIRSUTA</i>	Hairy umbrella-wort	62.50%	0.50%	0.0172
<i>ELYMUS LANCEOLATUS</i> ssp. <i>LANCEOLATUS</i>	Wild rye	42.50%	2.79%	0.0169
<i>LATHYRUS POLYMORPHUS</i>	Vetchling, wild pea	27.50%	6.05%	0.0157
<i>LESQUERELLA LUDOVICIANA</i>	Mustard	52.50%	0.50%	0.0144
<i>CAREX FILIFOLIA</i>	Sedge	17.50%	9.64%	0.0134
<i>POA PRATENSIS</i>	Kentucky bluegrass	15.00%	11.50%	0.0129
<i>KOELERIA MACRANTHA</i>	Junegrass	27.50%	2.95%	0.0112
<i>ALLIUM TEXTILE</i>	Onion	40.00%	0.50%	0.0110
<i>LUPINUS PLATTENSIS</i>	Lupine	22.50%	4.28%	0.0107
<i>RUMEX VENOSUS</i>	Veiny dock	37.50%	0.67%	0.0107
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	37.50%	0.50%	0.0103
<i>DESCURAINIA PINNATA</i>	Tansy-mustard	32.50%	0.88%	0.0096
<i>ARTEMISIA FRIGIDA</i>	Prairie-sagewort	22.50%	2.67%	0.0088
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	30.00%	0.50%	0.0083
<i>GAURA COCCINEA</i>	Scarlet gaura	25.00%	0.75%	0.0072
<i>OENOTHERA NUTTALLII</i>	White-stemmed evening-primrose	22.50%	0.50%	0.0062
<i>SILENE DRUMMONDII</i>	Drummond's campion	22.50%	0.50%	0.0062
<i>OPUNTIA FRAGILIS</i>	Little prickly pear	20.00%	0.81%	0.0058
<i>OPUNTIA MACRORHIZA</i>	Plains prickly pear	20.00%	0.81%	0.0058
<i>ARABIS HOLBOELLII</i>	Rock-cress	20.00%	0.50%	0.0055
<i>OENOTHERA ALBICAULIS</i>	Evening-primrose	20.00%	0.50%	0.0055
<i>ASTRAGALUS MISSOURIENSIS</i>	Nuttall milk-vetch	17.50%	0.86%	0.0051
<i>ARENARIA HOOKERI</i>	Sandwort	17.50%	0.50%	0.0048
<i>VIOLA NUTTALLII</i>	Yellow prairie violet	17.50%	0.50%	0.0048
<i>ERIGERON BELLIDIASTRUM</i>	Fleabane	10.00%	4.13%	0.0047

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>GUTIERREZIA SAROTHRAE</i>	Matchbrush	15.00%	0.92%	0.0045
<i>LIATRIS PUNCTATA</i>	Blazing star, gay feather	15.00%	0.50%	0.0041
<i>PENSTEMON ANGUSTIFOLIUS</i>	Beard-tongue	15.00%	0.50%	0.0041
<i>PSORALIDIUM LANCEOLATUM</i>	Pea, Bean	7.50%	5.33%	0.0040
<i>LUPINUS PUSILLUS</i>	Lupine	12.50%	0.50%	0.0034
<i>POLYGONUM RAMOSISSIMUM</i>	Smartweed	12.50%	0.50%	0.0034
<i>LAPPULA OCCIDENTALIS</i> var. <i>OCCIDENTALIS</i>	Western stickseed	10.00%	1.12%	0.0031
<i>ORYZOPSIS HYMENOIDES</i>	Indian ricegrass	7.50%	1.33%	0.0024
<i>PLANTAGO PATAGONICA</i>	Wooly plantain	7.50%	0.50%	0.0021
<i>SALSOLA</i> SPP	Russian thistle (S. kali or S. collina)	7.50%	0.50%	0.0021
<i>SENECIO RIDDELLII</i>	Groundsel, ragwort	7.50%	0.50%	0.0021
<i>CIRSIIUM CANESCENS</i>	Thistle	5.00%	0.50%	0.0014
<i>CORYPHANTHA VIVIPARA</i>	Pincushion cactus	5.00%	0.50%	0.0014
<i>CYMOPTERUS ACAULIS</i>	Wild parsley	5.00%	0.50%	0.0014
<i>HEDEOMA HISPIDUM</i>	Mint	5.00%	0.50%	0.0014
<i>PHLOX ANDICOLA</i>	Phlox, Sweet William	5.00%	0.50%	0.0014
<i>PHYSALIS HISPIDA</i>	Plains-sandhill ground cherry	5.00%	0.50%	0.0014
<i>PSORALIDIUM TENUIFLORUM</i>	Gray scurf-pea	5.00%	0.50%	0.0014
<i>ANNUAL BROMUS</i> SPP	B. tectorum, B. japonicus	2.50%	0.50%	0.0007
<i>ARTEMISIA CAMPESTRIS</i>	Wormwood, sage, mugwort	2.50%	0.50%	0.0007
<i>ASCLEPIAS PUMILA</i>	Milkweed	2.50%	0.50%	0.0007
<i>ASTRAGALUS GRACILIS</i>	Milk-vetch	2.50%	0.50%	0.0007
<i>ASTRAGALUS LAXMANNII</i>	Standing milkvetch	2.50%	0.50%	0.0007
<i>ASTRAGALUS</i> SPP		2.50%	0.50%	0.0007
<i>BOUTELOUA CURTIPENDULA</i>	Side-oats grama-grass	2.50%	0.50%	0.0007
<i>CAMELINA MICROCARPA</i>	Small-seed false flax	2.50%	0.50%	0.0007
<i>CHENOPODIUM BERLANDIERI</i>	Pitseed goosefoot	2.50%	0.50%	0.0007
<i>DALEA PURPUREA</i>	Purple prairie clover	2.50%	0.50%	0.0007
<i>ELYMUS CANADENSIS</i>	Canada wild rye	2.50%	0.50%	0.0007
<i>ERYSIMUM ASPERUM</i>	Western wallflower	2.50%	0.50%	0.0007
<i>EUPHORBIA MISSURICA</i>	Prairie spurge	2.50%	0.50%	0.0007
<i>KOCHIA SCOPARIA</i>	Summer-cypress	2.50%	0.50%	0.0007
<i>MACHAERANTHERA PINNATIFIDA</i> ssp. <i>PINNATIFIDA</i> var. <i>PINNATIFIDA</i>	Aster	2.50%	0.50%	0.0007
<i>PASCOPYRUM SMITHII</i>	Western wheatgrass	2.50%	0.50%	0.0007
<i>POA SECUNDA</i>	Bluegrass	2.50%	0.50%	0.0007
<i>PSORALEA ESCULENTA</i>	Breadroot scurf-pea	2.50%	0.50%	0.0007
<i>SCHIZACHYRIUM SCOPARIUM</i>	Little bluestem	2.50%	0.50%	0.0007
<i>SPOROBOLUS CRYPTANDRUS</i>	Sand dropseed	2.50%	0.50%	0.0007
<i>TETRANEURIS ACAULIS</i>	Bitterweed	2.50%	0.50%	0.0007

Table 4. Community Composition Summary: Exotic Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	70.00%	5.18%	0.0368
<i>POA PRATENSIS</i>	Kentucky bluegrass	15.00%	11.50%	0.0129
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	37.50%	0.50%	0.0103
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	30.00%	0.50%	0.0083
<i>SALSOLA SPP</i>	Russian thistle (S. kali or S. collina)	7.50%	0.50%	0.0021
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	2.50%	0.50%	0.0007
<i>CAMELINA MICROCARPA</i>	Small-seed false flax	2.50%	0.50%	0.0007
<i>KOCHIA SCOPARIA</i>	Summer-cypress	2.50%	0.50%	0.0007

1999 Vegetation Summary: Prairie Sandreed – Sand Bluestem Prairie – Upland Disturbance, Agate Fossil Beds, NM

Table 1a. Community Summary: Richness and Shannon Diversity.

<u>Richness (S)</u>	<u>Diversity (H')</u>	<u>Evenness (E)</u>
60 (200 m ²)	2.36	0.577

Table 1b. Community Summary: Relative Frequency and Cover of Exotic Species.

Number of Exotic Species: 8

Number of Native Species: 52

Exotic Ratio (R): 0.133

<u>Origin</u>	<u>Relative Frequency</u>	<u>Relative Cover</u>
Native	83.95%	78.97%
Exotic	16.05%	21.03%

Table 2a. Community Structure Summary: Ground Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Bare Rock	0.20%
Bare Soil	37.18%
Grass Litter	47.75%
Unvegetated Surface	53.75%

Table 2b. Community Structure Summary: Shrub and Herbaceous Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Shrubs	0.15%
Herbs	123.35%

Table 3. Community Composition Summary: Herbaceous and Shrub Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>STIPA COMATA</i>	Needle-and-thread grass	100.00%	32.78%	0.1559
<i>CALAMOVILFA LONGIFOLIA</i>	Sand-reed	100.00%	26.78%	0.1317
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	50.00%	47.75%	0.1083
<i>BOUTELOUA GRACILIS</i>	Blue grama-grass	100.00%	6.83%	0.0509
<i>HELIANTHUS PETIOLARIS</i>	Plains sunflower	95.00%	5.55%	0.0434
<i>PASCOPYRUM SMITHII</i>	Western wheatgrass	85.00%	3.68%	0.0324
<i>ELYMUS LANCEOLATUS ssp. LANCEOLATUS</i>	Wild rye	55.00%	6.23%	0.0267
<i>TRADESCANTIA OCCIDENTALIS</i>	Prairie spiderwort	90.00%	1.06%	0.0248
<i>CHENOPODIUM PRATERICOLA</i>	Narrow-leaf goosefoot	90.00%	0.92%	0.0243
<i>LYGODESMIA JUNCEA</i>	Skeleton-weed	90.00%	0.50%	0.0228
<i>ARTEMISIA FRIGIDA</i>	Prairie-sagewort	50.00%	5.35%	0.0225
<i>VULPIA OCTOFLORA</i>	Six-weeks fescue	70.00%	2.07%	0.0221
<i>ASTER ERICOIDES</i>	Squarrose white wild aster	60.00%	2.54%	0.0201
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	75.00%	0.83%	0.0200
<i>MELILOTUS SPP</i>	M. albus , M. officinalis	75.00%	0.83%	0.0200
<i>LEPIDIUM DENSIFLORUM</i>	Prairie-pepperweed	70.00%	1.21%	0.0197
<i>SPHAERALCEA COCCINEA</i>	Scarlet mallow	70.00%	0.50%	0.0177
<i>CONYZA CANADENSIS</i>	Horseweed	60.00%	0.92%	0.0162
<i>LUPINUS PLATTENSIS</i>	Lupine	25.00%	9.70%	0.0156
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	60.00%	0.50%	0.0152
<i>LATHYRUS POLYMORPHUS</i>	Vetchling, wild pea	45.00%	2.17%	0.0144
<i>DESCURAINIA PINNATA</i>	Tansy-mustard	50.00%	0.50%	0.0126
<i>ERIOGONUM ANNUUM</i>	Annual eriogonum	45.00%	0.78%	0.0119
<i>GAURA COCCINEA</i>	Scarlet gaura	45.00%	0.78%	0.0119
<i>ORYZOPSIS HYMENOIDES</i>	Indian ricegrass	40.00%	0.81%	0.0106
<i>OENOTHERA ALBICAULIS</i>	Evening-primrose	40.00%	0.50%	0.0101
<i>SALSOLA SPP</i>	Russian thistle (S. kali or S. collina)	40.00%	0.50%	0.0101
<i>MIRABILIS HIRSUTA</i>	Hairy umbrella-wort	35.00%	0.50%	0.0088
<i>LACTUCA TATARICA var. PULCHELLA</i>	Blue lettuce	20.00%	4.13%	0.0080
<i>LAPPULA OCCIDENTALIS var. OCCIDENTALIS</i>	Western stickseed	30.00%	0.50%	0.0076
<i>LITHOSPERMUM INCISUM</i>	Narrow-leaved puccoon	25.00%	1.00%	0.0068
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	25.00%	0.50%	0.0063
<i>PHYSALIS HISPIDA</i>	Plains-sandhill ground cherry	10.00%	9.00%	0.0060
<i>MACHAERANTHERA PINNATIFIDA ssp. PINNATIFIDA</i>	Aster	20.00%	1.12%	0.0056
<i>RUMEX VENOSUS</i>	Veiny dock	20.00%	1.12%	0.0056
<i>POA PRATENSIS</i>	Kentucky bluegrass	15.00%	1.33%	0.0043
<i>PSORALIDIUM LANCEOLATUM</i>	Pea, Bean	5.00%	15.00%	0.0042

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>ALLIUM TEXTILE</i>	Onion	15.00%	0.50%	0.0038
<i>EUPHORBIA MISSURICA</i>	Prairie spurge	15.00%	0.50%	0.0038
<i>LESQUERELLA LUDOVICIANA</i>	Mustard	15.00%	0.50%	0.0038
<i>PENSTEMON ANGUSTIFOLIUS</i>	Beard-tongue	15.00%	0.50%	0.0038
<i>POLYGONUM RAMOSISSIMUM</i>	Smartweed	15.00%	0.50%	0.0038
<i>ASTRAGALUS GRACILIS</i>	Milk-vetch	10.00%	1.75%	0.0030
<i>AMBROSIA PSILOSTACHYA</i>	Western ragweed	5.00%	3.00%	0.0018
<i>ELYMUS CANADENSIS</i>	Canada wild rye	5.00%	3.00%	0.0018
<i>OPUNTIA FRAGILIS</i>	Little prickly pear	5.00%	3.00%	0.0018
<i>ARABIS HOLBOELLII</i>	Rock-cress	5.00%	0.50%	0.0013
<i>ARTEMISIA DRACUNCULUS</i>	Wormwood, sage, mugwort	5.00%	0.50%	0.0013
<i>ASTRAGALUS CRASSICARPUS</i>	Ground-plum, prairie plum	5.00%	0.50%	0.0013
<i>ASTRAGALUS SPP</i>		5.00%	0.50%	0.0013
<i>CAMELINA MICROCARPA</i>	Small-seed false flax	5.00%	0.50%	0.0013
<i>CLEOME SERRULATA</i>	Stinking clover	5.00%	0.50%	0.0013
<i>ELLISIA NYCTELEA</i>	Water-pod	5.00%	0.50%	0.0013
<i>HETEROTHECA VILLOSA</i>	Golden aster	5.00%	0.50%	0.0013
<i>LUPINUS PUSILLUS</i>	Lupine	5.00%	0.50%	0.0013
<i>MIRABILIS LINEARIS</i>	Narrow-leaved umbrella-wort	5.00%	0.50%	0.0013
<i>OENOTHERA NUTTALLII</i>	White-stemmed evening-primrose	5.00%	0.50%	0.0013
<i>PHLOX ANDICOLA</i>	Phlox, Sweet William	5.00%	0.50%	0.0013
<i>PSORALIDIUM TENUIFLORUM</i>	Gray scurf-pea	5.00%	0.50%	0.0013
<i>VIOLA NUTTALLII</i>	Yellow prairie violet	5.00%	0.50%	0.0013

Table 4. Community Composition Summary: Exotic Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	50.00%	47.75%	0.1083
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	75.00%	0.83%	0.0200
<i>MELILOTUS SPP</i>	M. albus, M. officinalis	75.00%	0.83%	0.0200
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	60.00%	0.50%	0.0152
<i>SALSOLA SPP</i>	Russian thistle (S. kali or S. collina)	40.00%	0.50%	0.0101
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	25.00%	0.50%	0.0063
<i>POA PRATENSIS</i>	Kentucky bluegrass	15.00%	1.33%	0.0043
<i>CAMELINA MICROCARPA</i>	Small-seed false flax	5.00%	0.50%	0.0013

1999 Vegetation Summary: Western Wheatgrass Mixedgrass Prairie, Agate Fossil Beds, NM

Table 1a. Community Summary: Richness and Shannon Diversity.

<u>Richness (S)</u>	<u>Diversity (H')</u>	<u>Evenness (E)</u>
26 (100 m ²)	1.36	0.417

Table 1b. Community Summary: Relative Frequency and Cover of Exotic Species.

Number of Exotic Species: 10
 Number of Native Species: 16
 Exotic Ratio (R): 0.385

<u>Origin</u>	<u>Relative Frequency</u>	<u>Relative Cover</u>
Native	56.86%	45.00%
Exotic	43.14%	55.00%

Table 2a. Community Structure Summary: Ground Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Bare Rock	0.10%
Bare Soil	17.60%
Grass Litter	67.00%
Unvegetated Surface	31.00%

Table 2b. Community Structure Summary: Shrub and Herbaceous Cover.

<u>Structural Component</u>	<u>Mean Percent Cover</u>
Shrubs	
Herbs	117.10%

Table 3. Community Composition Summary: Herbaceous and Shrub Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>POA PRATENSIS</i>	Kentucky bluegrass	100.00%	60.00%	0.3052
<i>PASCOPYRUM SMITHII</i>	Western wheatgrass	100.00%	33.00%	0.1899
<i>EQUISETUM LAEVIGATUM</i>	Smooth scouring rushes	100.00%	14.60%	0.1114
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	80.00%	0.81%	0.0420
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	70.00%	0.86%	0.0369
<i>MELILOTUS SPP</i>	M. albus , M. officinalis	70.00%	0.50%	0.0358
<i>HELLANTHUS ANNUUS</i>	Common sunflower	50.00%	4.90%	0.0350
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	50.00%	4.40%	0.0339
<i>LACTUCA TATARICA</i> var. <i>PULCHELLA</i>	Blue lettuce	60.00%	0.92%	0.0318
<i>CHENOPODIUM BERLANDIERI</i>	Pitseed goosefoot	60.00%	0.50%	0.0307
<i>CHENOPODIUM PRATERICOLA</i>	Narrow-leaf goosefoot	50.00%	0.50%	0.0256
<i>AMBROSIA TRIFIDA</i>	Giant ragweed	30.00%	0.50%	0.0153
<i>GAURA COCCINEA</i>	Scarlet gaura	20.00%	1.75%	0.0113
<i>ASTER ERICOIDES</i>	Squarrose white wild aster	20.00%	0.50%	0.0102
<i>CONYZA CANADENSIS</i>	Horseweed	20.00%	0.50%	0.0102
<i>DESCURAINIA SOPHIA</i>	Herb-sophia, tansy-mustard	20.00%	0.50%	0.0102
<i>MIRABILIS HIRSUTA</i>	Hairy umbrella-wort	20.00%	0.50%	0.0102
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	20.00%	0.50%	0.0102
<i>CAMELINA MICROCARPA</i>	Small-seed false flax	10.00%	3.00%	0.0062
<i>DESCURAINIA PINNATA</i>	Tansy-mustard	10.00%	3.00%	0.0062
<i>HELLANTHUS PETIOLARIS</i>	Plains sunflower	10.00%	3.00%	0.0062
<i>ASCLEPIAS SPECIOSA</i>	Showy milkweed	10.00%	0.50%	0.0051
<i>GAURA PARVIFLORA</i>	Gaura	10.00%	0.50%	0.0051
<i>KOCHIA SCOPARIA</i>	Summer-cypress	10.00%	0.50%	0.0051
<i>SALSOLA SPP</i>	Russian thistle (S. kali or S. collina)	10.00%	0.50%	0.0051
<i>VIOLA NUTTALLII</i>	Yellow prairie violet	10.00%	0.50%	0.0051

Table 4. Community Composition Summary: Exotic Species.

Species	Common Name	Frequency	Mean Cover	Importance Value
<i>POA PRATENSIS</i>	Kentucky bluegrass	100.00%	60.00%	0.3052
<i>LACTUCA SERRIOLA</i>	Prickly lettuce	80.00%	0.81%	0.0420
<i>SISYMBRIUM ALTISSIMUM</i>	Tumbling-mustard	70.00%	0.86%	0.0369
<i>MELILOTUS SPP</i>	M. albus , M. officinalis	70.00%	0.50%	0.0358
<i>ANNUAL BROMUS SPP</i>	B. tectorum, B. japonicus	50.00%	4.40%	0.0339
<i>DESCURAINIA SOPHIA</i>	Herb-sophia, tansy-mustard	20.00%	0.50%	0.0102
<i>TRAGOPOGON DUBIUS</i>	Fistulous goat's beard	20.00%	0.50%	0.0102
<i>CAMELINA MICROCARPA</i>	Small-seed false flax	10.00%	3.00%	0.0062
<i>KOCHIA SCOPARIA</i>	Summer-cypress	10.00%	0.50%	0.0051
<i>SALSOLA SPP</i>	Russian thistle (S. kali or S. collina)	10.00%	0.50%	0.0051