

**VASCULAR PLANTS**  
**OF**  
**LAKE MEREDITH NATIONAL RECREATION AREA**  
**AND**  
**ALIBATES FLINT QUARRIES NATIONAL MONUMENT**  
**POTTER, MOORE, AND HUTCHINSON COUNTIES, TEXAS**

RESULTS OF A 2002 FLORISTIC INVENTORY  
AND RELATED RESEARCH AND REVIEWS

FINAL REPORT  
JANUARY 2005

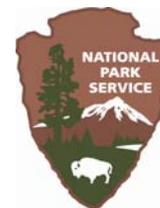
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**Vascular Plants of Lake Meredith National Recreation Area and  
Alibates Flint Quarries National Monument  
Potter, Moore, and Hutchinson Counties, Texas**

**EXECUTIVE SUMMARY**

The primary objective of the current project was to provide an account of all vascular plant species occurring in Lake Meredith National Recreation Area (LAMR) and Alibates Flint Quarries National Monument (ALFL), based on a vouchered record for each species. The two parks are ecologically similar and geographically contiguous and are represented by a single floristic account. Also among our goals was an account of species potentially occurring in the parkland, an analysis of the flora for disjunct species, range extensions, invasive non-native species, rare taxa, and refinement of concepts of major plant communities in the parkland.

A floristic inventory of the parkland records 459 naturally occurring species of vascular plants in 272 genera and 77 families. The largest families are Asteraceae (89 species) and Poaceae (83), followed by Fabaceae (41), Euphorbiaceae (18), Chenopodiaceae (17), Cyperaceae (14), and Onagraceae (13). All occurrence records are vouchered by herbarium specimens collected either by Nesom and O'Kennon in surveys done on 30 days, April through October of 2002, or by NPS personnel in 1970-73. Another set of 146 species is listed as probably and/or potentially occurring within the parkland, based on their known occurrence within Hutchinson, Moore, Potter, and/or Carson Counties or based on their known occurrence in the panhandle and the observation by Phillips (1997) of their presence in the parkland.

A previously constructed checklist (Phillips 1997) for the LAMR/ALFL parkland includes 516 species but is undocumented by vouchers. Our own account does not include 132 of the species on the Phillips (1997) list (see Appendix 1); we estimate that about half of these 132 are unlikely to occur in the parkland and note that many of the names were adopted from earlier, relatively generalized 'panhandle' lists. Most of the others on the Phillips (1997) list are included on our list of species potentially occurring on the parkland (Appendix 2), with acknowledgment that many of Phillips' (1997) observations may prove to be validated by future observations and collections.

Forty-seven of the documented parkland species (ca. 10% of the flora) are native to regions outside of North America. The non-natives are divided into three categories, based on their degree of invasiveness and potential for environmental damage.

We recommend that 1) off-road-vehicle use be discontinued because of physical and biological environmental damage in the Rosita Creek and Blue Creek areas; 2) controlled burn areas be monitored to determine the reaction of species to fire and the success of their recovery; 3) efforts be made to eradicate two non-native invasive species -- *Elaeagnus angustifolia* (Russian olive) and *Ulmus pumila* (Siberian elm); and 4) native species be used in horticultural plantings to preserve the native character of the park and to prevent possible introduction of invasive species.

Our definitions of the major plant associations are based strongly on physiographic and geologic boundaries, as these generally are correlated with the sharpest discontinuities between vegetation types. We outline 12 major types: (1) sandhills and sand flats, (2) sandy valley bottoms, (3) gravelly slopes, (4) dolomite caprock, (5) red slopes, (6) gypsum outcrops, (7) river and creek sides (subdivided into riparian areas of larger tributaries; sedge meadows and corridors; cottonwood gallery forest; and hackberry-soapberry dry woodland), (8) lakeshore, (9) marsh, (10) borrow area, (11) lawns and mowed roadsides, and (12) old homesites.

## INTRODUCTION

This project was undertaken in cooperation with the Texas Conservation Data Center (TxCDC) as part of a larger project with the National Park Service to perform inventories of vascular plants and vertebrate animals. The TxCDC performed vertebrate inventories. The primary objective of the current project was to provide an account of all vascular plant species occurring in LAMR and ALFL, based on a vouchered record for each species. Also among our goals were an account of species potentially occurring in the parkland; an analysis of the flora for disjunct taxa, range extensions, invasive non-native plants, and rare taxa; and refinement of concepts of major plant communities in the parkland. Several previous accounts exist of the flora of the parkland area, but because few of the reported records are vouchered, the primary approach of our study was to conduct intensive on-the-ground surveys accompanied by collection of vouchers.

## METHODS

### Trips to LAMR/ALFL

Six trips (see Table 1) were made to the LAMR/ALFL area (April, May, June, August, September, October) and a total of 30 days were spent in the field and in local herbaria, collecting vouchers, making observations toward a classification of plant communities, and critically studying the plants. The last three trips (August, September, and October) were primarily return visits to areas surveyed earlier in the season. On the 1st and 5th trips, we also checked identifications and recorded specimens housed in the herbarium of the LAMR Ranger Station; on the 3rd trip, we visited the WTAMU herbarium, checking identifications and arranging for a loan to BRIT of materials related to the LAMR/ALFL project.

**Table 1. Dates and listing of activities at LAMR/ALFL**

<b>Dates</b>	<b>Activities</b>
April 22–28, 2002	6 days of field and herbarium work
May 26–31, 2002	5 days of field work
June 23–28, 2002	6 days of field and herbarium work
August 4–9, 2002	5 days of field work
September 18–23, 2002	5 days of field and herbarium work
October 16–18, 2002	3 days of field work

### Sampling methods and collecting sites

We sampled by searching for diversity of habitat, traveling and walking through as much of the parkland as possible, using topographic and geologic maps as a guide and seeking advice from park personnel regarding interesting areas. Our work days generally were about 12 hours long. The initial characterization by TNC of vegetation/sampling zones within the parks was helpful, as was the definition of LAMR plant communities by Wright & Meador (1981), but we believe that our own delimitation of communities (Appendix 3) provides a still more accurate and useful picture of how vascular plant diversity is spatially arranged. Steep cliffs were given close attention, following the TxCDC contractual guideline in order to not under sample those areas.

Where possible and justified by the species abundance at the site, we collected at least one duplicate for each specimen number. Additionally, a number of species are represented by more than one collection, especially in cases where additional collections were made to document variation or where we were uncertain of identities in the field.

Collections and observations were made in most of the major areas of the parkland, as summarized in Table 2 below. Prominent area landscape features are displayed in Map 1, including natural features, developed recreational facilities, areas sampled (see also Table 2), and other areas named in discussions below. We searched and collected in ALFL as well as the much larger LAMR. Aquatic habitats are not found in ALFL – apart from that, differences in species composition are not apparent.

**Table 2. Areas surveyed at LAMR and ALFL.**

Alibates area, between Contact Station and quarries sites, and along roads and trails in ALFL
Bates Canyon and Dolomite Point Road area, including road along east side of lake
Big Blue Creek area, including permanent tributary entering from south
Blue West area
“borrow” area, west of Sanford Dam
Bugbee area – creek, canyon, and peninsula
Cedar Canyon area
Chicken Creek area
Fritch Fortress area
Harbor Bay area
McBride Canyon area
Mullinaw Canyon area
Plum Creek area – including dolomite caprock, gypsum outcrops, and old home site
Ranger Station (near Sanford-Yake) area
Rosita Creek area
Sanford-Yake Marina and picnic area
Spring Canyon and vicinity – including area immediately below Sanford Dam
sandy upland N of Spring Canyon; also west of Hwy 1319
sandhills just E of South Canyon and Alamosa Canyon

A complete account of the collecting itinerary, chronologically arranged by trip and locality, with individual collections and field notes, is provided in Appendix 4.

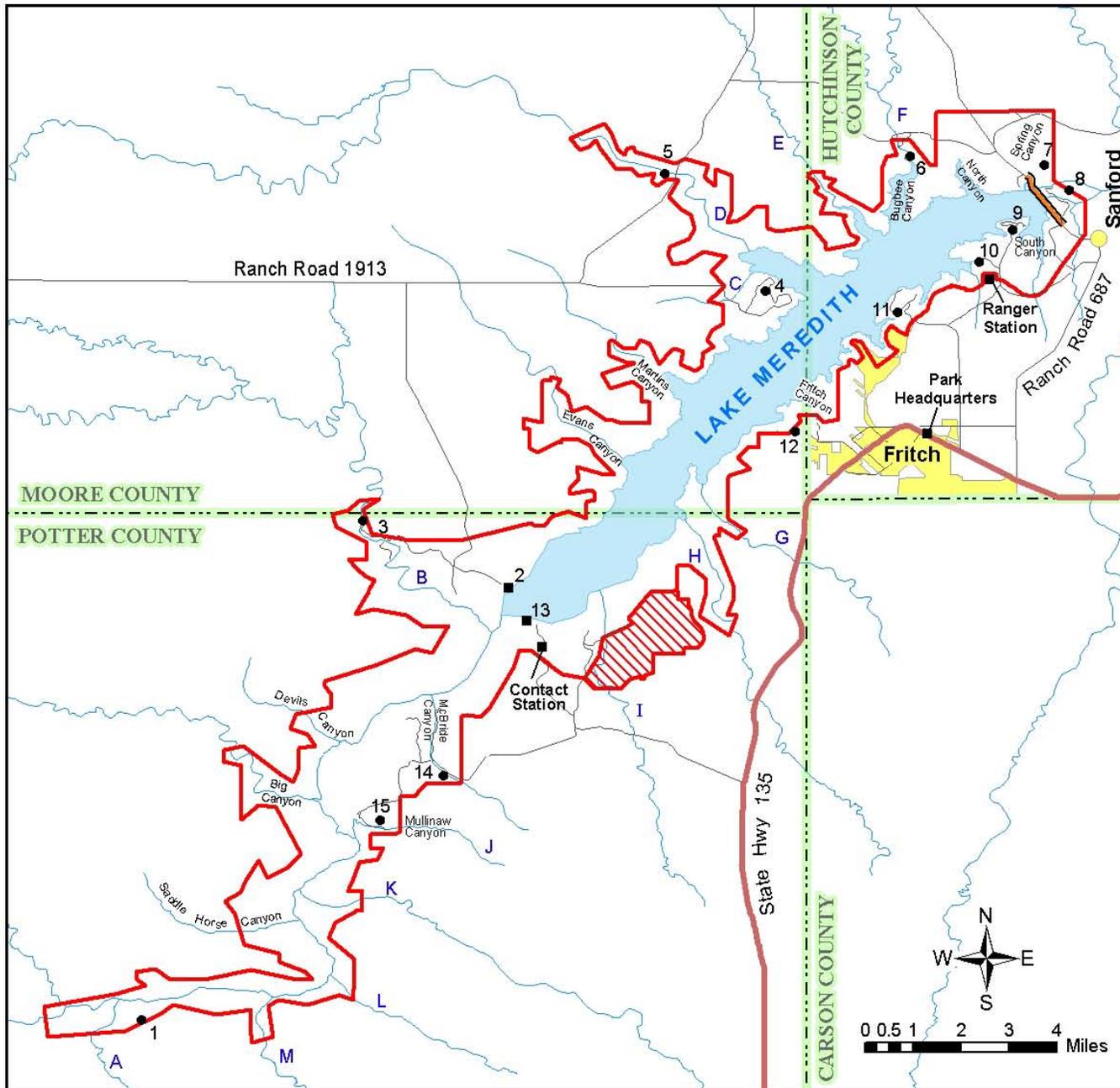
### **Major plant communities**

We have attempted to define the major plant associations based strongly on physiographic and geologic boundaries, as these generally are correlated with the sharpest discontinuities between vegetation types, with recognition that overlap in species composition occurs among these communities and that some species are common in more than one community type. Repeated visits to various areas within the parkland allowed modification and refinement, but objective tests of our subjective assessments are desirable. Our descriptions are drawn from observations made from April 2002 through October 2002.

Major plant communities in LAMR and ALFL have been characterized earlier by Wright and Meador (1981), Bell et al. (2000), and the National Park Service (2001) – our survey provides comparisons and other commentary relating to these studies. The NPS discussion is generalized and applicable with difficulty to the parkland under consideration. Geological concepts and terminology are drawn from a recent discussion by the National Park Service (2001: “Geologic Resources,” adapted from Davis and Northcutt 1991).

# Map 1: Lake Meredith NRA and Alibates Flint Quarries NM, Texas

## Features



### Legend

- Lake Meredith NRA
- Alibates Flint Quarries NM
- Sanford Dam
- Highway
- Secondary Road

1. Rosita Campground, Off-Road Vehicle area, Rosita Meadows, & Bultaco Hill
2. Plum Creek Boat Ramp
3. Plum Creek Campground
4. Blue West
5. Blue Creek Bridge
6. Bugbee
7. Spring Canyon
8. Sanford Marsh
9. Sanford-Yake Marina
10. Cedar Canyon
11. Fritch Fortress
12. Harbor Bay
13. Bates Canyon Boat Ramp
14. McBride Canyon
15. Mullinaw Creek

- A. Rosita Creek
- B. Plum Creek
- C. Chimney Hollow
- D. Big Blue Creek
- E. North Turkey Creek
- F. Bugbee Creek
- G. Short Creek
- H. South Turkey Creek
- I. Alibates Creek
- J. Mullinaw Creek
- K. Coetas Creek
- L. Chicken Creek
- M. Bonita Creek

Map created by the GIS Department,  
NPS\_LAMR-ALFL\_Features.mxd (6/7/04)

## Activities at BRIT

Activities at BRIT in Fort Worth pertinent to the project have been the following: (1) drying, sorting, refining collection data, identification, and label preparation for Nesom & O'Kennon collections; (2) sorting, identification, and label preparation for the Wright & Meador (1981) collections; (3) construction of the 'community classification;' (4) analysis of related data, especially 'potential' occurrences; and (5) preparation of the final report, including full checklist with documentation for each name included.

Loans of collected material were sent to Dr. Richard Spellenberg (New Mexico State University; all collections of *Mirabilis*) and Dr. Stephan Hatch (Texas A&M University; various species of Poaceae) for their expert opinion on identifications.

## Checklist development

The list of species definitely occurring in the parkland is drawn primarily from our own observations, vouchered by herbarium collections. Additionally, vouchers studied from the Wright & Meador (1981) collections and from the LAMR herbarium (Appendix 5) have added species to the checklist.

Four earlier sources provide extended lists of species vouchered by collections or else purported to have been observed in the parkland area: Wright and Meador (1981), Phillips (1997), Bell et al. (2000), and various short 'trip' or 'site' lists prepared by Barbara Lund, the LAMR-ALFL park naturalist in the early 1970's (these lists are in LAMR archives). The Wright and Meador (1981) list is partially vouchered (see separate documentation account). The 516 names on the Phillips (1997) list apparently are drawn from the personal observations of that author, the "Species List" in the report by Wright and Meador (1981), identifications of specimens in the LAMR herbarium, the various unpublished lists constructed by Barbara Lund, names from Correll and Johnston (1970) based on their likely occurrence in the area, and other sources (perhaps Caudle 1983, and Phillips 1983). The Phillips (1997) list does not provide reference to vouchers or other documentation. The Bell et al. (2000) list also is unvouchered. Lists provided to Nesom & O'Kennon by TxCDC include species that potentially occur (with broadly varying degrees of probability) in the parkland area. A list in the NPS files is of uncertain derivation and documentation, but it apparently is based, at least in part, on the Phillips (1997) list. Collections made by NPS personnel and associates and housed in the LAMR herbarium provide documentation for several species not otherwise accounted for by other lists.

The only checklist providing a list for the entire park area is that of Phillips (1997), which includes 516 species. Our own account does not include 143 of the names/species on the Phillips (1997) list (see Appendix 1). Fifty-nine of these are noted in Appendix 1 as 'unlikely' to occur within the parkland, based on their documented distribution (apparently out-of-range for the LAMR area), as estimated from the *Atlas of the Flora of Texas* (Turner 2003), while 67 are included in Appendix 2 as species that potentially occur within the parkland. Thirteen of the names on the Phillips (1997) list are synonyms of names on the Nesom & O'Kennon list; 23 are noted as certain or probable misidentifications of names on the Nesom & O'Kennon list; 11 are noted as possible misidentifications. We acknowledge that this evaluation of species on the Phillips (1997) list is subjective, and various reports on that list may prove to be valid. A substantial number of the names regarded here as "unlikely," however, were adopted from the Wright and Meador (1981) report (see below).

Wright & Meador (1981) provided a "Species List" of 405 names, based on collections made by them during their study but also including a large number of names that they noted were taken from Rowell (no date, but pre-1967) -- 219 of the names were indicated to be substantiated by their own collection of vouchers; 186 were based on citations by Rowell (n.d.). Many of the undocumented species named by

Rowell (n.d.) were adopted by Phillips (1997) for inclusion on his checklist. It is not clear that Rowell (n.d.) specifically attributed these species to the LAMR area; his later summary of the panhandle flora (Rowell 1967) was not cited by Wright and Meador (1981), or by Phillips (1997); it included a reference to the counties of occurrence for each species but nothing more specific.

We have obtained the set of vouchers collected by Wright and Meador (1981), which were in storage at West Texas A&M University, with various accompanying field notes and have volunteered to provide labels and distribute the specimens. Our evaluation of the collections is not yet complete, but Appendix 6 lists 27 species (as tentatively identified) represented by vouchers that are potential additions to the documented flora of the parkland. We will complete this work as time allows.

Bell et al. (2000) recorded a total of 148 species (our count from their report; see Appendix 7) on their four study sites within ALFL – these data were derived from study of 8 transects but also include species added from off-transect observations. We also studied and collected at these four sites. Of the species reported by Bell et al. (2000), 22 are not accounted for in the Nesom and O’Kennon study (see Appendix 7) – of these, our assessment is that 20 are definite, almost certain, or probable misidentifications; 2 are reasonable identifications and are included on the larger list of species potentially and/or probably occurring in the parkland (Appendix 2).

### **Species definitely, probably, and potentially present in the parkland**

Species are divided into three categories, based on their “park status” – reflecting the relative certainty of their occurrence within the parkland.

Present (Appendix 8, Appendix 9). Known to occur within the parkland and represented by a herbarium voucher. The relative abundance of each species, considered over the whole area of the parkland, on the Appendix 8 list is estimated from among the four categories in Table 3 below. These definitions are supplied by NPS.

Probably present (Appendix 2a). For the most part, these 14 species are known to occur immediately outside the park but have not been seen or vouchered within the parkland. They have been observed by Nesom & O’Kennon within a mile of the parkland boundary, mostly along roadsides, but have not been seen or vouchered from within the parkland itself. The last 3 were specifically noted (as quoted) by Phillips (1997) to occur within the parkland.

Potentially present (Appendix 2b). These 101 species (those listed in 2a are not included) are mapped by Turner’s *Atlas of the Flora of Texas* (2003) as occurring in Moore, Potter, Hutchinson, and/or Carson Counties but are not documented by voucher from within the parkland. LAMR and ALFL are located within the first three counties -- the northwest corner of Carson County nearly touches the parkland boundary. Turner’s (2003) atlas is constructed primarily from specimens in the well-identified herbarium collection at the University of Texas at Austin, supplemented in some cases by records published in the *Atlas of the Flora of the Great Plains* (Great Plains Flora Association 1976).

Potentially present (Appendix 2c). These 34 species are from the Phillips (1997) checklist -- marked with a single asterisk in Appendix 1 as potentially occurring in the parkland. They are known from the Texas panhandle but are not specifically reported in the *Atlas of the Flora of Texas* (Turner, 2003) from the 4 counties noted above. Another 24 species from the Phillips (1997) list are included in Appendix 2b.

The species listed in Appendix 2 can be regarded as the most significant set of species potentially present within the parkland; many of those in 2b and 2c, however, are known from only one or a few collections

in a single county and may be uncommon or rare in the region (and also rare in the parkland, if they occur there at all).

We have not included all names of potentially occurring species from checklists supplied by NPS and TxCDC (derived in part from National Park Service documents) – these lists are largely undocumented and include many species apparently appended on subjective bases. Similarly, although it provides useful information, we have not used a recent checklist of Texas panhandle species (Allison et al. 1997), as it appears to include a significant number of names accepted without critical study of their substantiating vouchers.

**Table 3. Abundance categories for species occurring in the parkland.**

<b>Abundant</b>	Large number of individuals with wide ecological amplitude or occurring in habitats covering a large portion of the park.
<b>Common</b>	Large numbers of individuals predictably occurring in commonly encountered habitats but not those covering a large portion of the park. A wide range of abundance is covered by this category.
<b>Uncommon</b>	Few to moderate numbers of individuals; occurring either sporadically in commonly encountered habitats or in uncommon habitats.
<b>Rare</b>	Few individuals, usually restricted to small areas of rare habitat.

## RESULTS

### Taxonomic summary

Collections by Nesom & O’Kennon from the LAMR/ALFL parkland now document **455 species**. An additional **31 species** are documented by collections by Wright and Meador (1981, 27 species) or by collections housed at LAMR (4 species), bringing the total number of species represented by vouchers to **486**.

The array of species in evidence in LAMR/ALFL changes by season — we observe that there are roughly 3 pulses in the appearance of species in identifiable form (in flower or fruit): early spring, summer, and fall. The only objective way to determine the relative completeness of the survey would be to return for another season, in a minimum of three trips (early spring, summer, and fall), and search for additional records. Also, as noted below, several areas of the parkland need to be surveyed for the first time. In any case, because of the intensity of our own survey (we have collected 95% of the species currently substantiated by voucher to occur there – other vouchers have been collected by NPS personnel and Wright and Meador, 1981), we feel confident that the goal of 90% representation of the parkland flora has been closely approached if not met. A 10% increase in the known flora would bring the total to 535 species (486 + 49). Addition of the 14 species of Appendix 2a (“probably occurring”) would represent an increase of only about 3%. A summary of diversity of families, genera, and species is presented in Table 4 below.

About 65 species, more or less, were added to the park species checklist through the efforts of this survey. However, the varying level of rigor applied to the assembly of a checklist prior to this survey resulted in a number of species being removed from the checklist, due to a variety of problems. This number of 65 is only an estimate and can not be further substantiated. The complexity of assembling several of the appendices to this report is evidence of this.

**Table 4. Diversity summary for vouchered species occurrence within the parkland. Vouchers are from Nesom & O’Kennon collections and LAMR specimens.**

Family	No. of genera	No. of species
Asteraceae	56	89
Poaceae	46	83
Fabaceae	20	41
Euphorbiaceae	7	18
Chenopodiaceae	9	17
Cyperaceae	6	14
Onagraceae	5	13
9 families with 6-10 species	38	72
61 families with 1-5 species	86	112
<b>Total:</b>		
77 families	272	459

#### Rare and unusual taxa and range extensions

We find that at least 4 of the documented species have not previously been reported to occur in Texas. Additionally, some of the species discovered within the LAMR-ALFL boundaries represent long-distance range extensions within Texas.

#### New records for the state of Texas

**Cymopterus acaulis** (var. **acaulis**) (plains springparsley) — Bates Canyon area. This taxon is included in the checklist (without documentation) by Allison et al. (1997) but has not been otherwise recognized as a member of the Texas flora. *Cymopteris acaulis* var. *fendleri* (Gray) Goodrich (= *Cymopteris fendleri* Gray) occurs only in the trans-Pecos region of Texas.

**Epilobium leptophyllum** (slickseed fuzzybean) — Chicken Creek. Widespread in the northern two-thirds of North America and previously known to occur in Kansas, Colorado, and New Mexico (Kartesz 1999). This locality probably is the southernmost known for the species.

**Puccinellia fasciculata** (salt marsh goosegrass) — Marsh immediately below Sanford Dam (Spring Lake area). This species appears to have a bipolar distribution, widely disjunct between populations in Arizona, Utah, and Nevada and populations in a number of states in the northeastern United States and Canada. It is not known to occur in any of the states around the Texas border.

**Atriplex patula** — Marsh immediately below Sanford Dam (Spring Lake area). Widespread in North America except for the Gulf Coast states and immediately adjacent ones. Previously reported for Texas only in the Hatch et al. checklist (1990), but as far as we can tell, the present report provides the first documentation of its presence in Texas.

### **Species of unexpected occurrence**

**Agalinis tenuifolia** (Torrey's rush) — Chicken Creek, within margins of creek channel. Previously reported from only Hemphill Co. in the panhandle.

**Pycnanthemum leptophyllum** — Chicken Creek, within margins of creek channel. Previously known in Texas and Oklahoma only from the eastern part of the states.

**Symphotrichum expansum** (southwestern annual saltmarsh aster) — Marsh immediately below Sanford Dam. Previously known in Texas only from the trans-Pecos area.

**Carex emoryi** (Emory's sedge) — Blue Creek area, along margins of "waterfall" tributary. Rare in west Texas, more common in Edwards Plateau; previously known in panhandle only from Randall County.

**Cyperus niger** (redtop panicgrass) — Chicken Creek, within margins of creek channel. Rare in Texas, scattered counties; previously known in panhandle only from Randall County.

**Ludwigia palustris** (seaside brookweed) — Chicken Creek, within margins of creek channel. Previously known in Texas and Oklahoma only from the eastern part of the states and from the trans-Pecos area.

### **MAJOR PLANT COMMUNITIES**

We view the plant communities of the LAMR/ALFL parkland as divisible into 12 major types, referred to here by their physiographic/geological setting: (1) sandhills and sand flats, (2) sandy valley bottoms, (3) gravelly slopes, (4) dolomite caprock, (5) red slopes, (6) gypsum outcrops, (7) river and creek sides (subdivided into riparian zones of larger tributaries; sedge meadows and corridors; cottonwood gallery forest; and hackberry-soapberry dry woodland), (8) lakeshore, (9) marsh, (10) borrow area, (11) lawns and mowed roadsides, and (12) old home sites. Detailed physical and botanical descriptions of these community types are provided in Appendix 3.

### **REMAINING PROBLEMS AND SIGNIFICANT WORK**

#### **Significant areas remaining to survey**

Because of limited time and relative difficulty of access through private property, we did not survey in significant areas on the southwestern side of the lake, most significantly in the Devil's Canyon and Big Canyon areas, nor in Evans Canyon and Martins Canyon and a few parts of the Plum Creek area. We did not survey in the Bonita Creek area (on the east side of the lake) where Wright and Meador (1981) collected data and accompanying vouchers for their community classification. Wright and Meador (1981) also collected vouchers in Saddle Horse Canyon.

In the Plum Creek area, the extensive gypsum outcrops deserve more detailed study, as it seems possible that additional substrate-restricted species might be found there. This survey examined large areas of these outcrops at Plum Creek, and found relatively few gypsophilic species. In a year of better growing conditions a few more species might yet be found. There is no summary known to the author that details gypsophilic species in that region, so it would be very difficult to predict what further species might be found, if any. But if additional species were found, they would likely be few and rare.

## **Literature to be studied**

Although perhaps not critical to the present study, we have not seen reports by Caudle (1983) or Phillips (1983), which discuss vegetation and floristic aspects of the Rosita Creek area and the Lake Meredith shoreline.

## **Wright and Meador collections**

We have the full set of vouchers for the vegetation study by Wright and Meador (1981) but have not completed their processing. We estimate that of the ca. 350 total collections, 27 represent species not collected by Nesom & O'Kennon (see Appendix 6). This work was not part of our contractual agreement but, as an addendum to the final report, we will provide identifications for all of these specimens.

## **ECOLOGICAL RECOMMENDATIONS**

### **Off-road-vehicle use**

Use of off-road-vehicles (ORVs) in the Blue Creek and Rosita Creek areas is inflicting severe damage on the topography and plant communities. In October, we made 55 digital photos of environmental damage by ORVs at these areas -- these photos have been given (via CD) to LAMR personnel.

Damage in the Blue Creek area is primarily confined to the small tributary creek leading to a waterfall at the park boundary, but in addition to its natural beauty, this creek harbors unusual and uncommon species. Broad ORV tracks, cutting through the vegetation, parallel the creek and cross it several times. The waterfall area itself is badly damaged. In addition to extensive trampling by feet and ORV wheels, we found that large plants (*Oenothera jamesii* – trumpet evening primrose) had been dug out and removed from immediately around the waterfall, perhaps by individuals who might attempt to grow them in cultivation.

Damage in the Rosita Creek area is extensive, both in areal extent and its effect on the natural communities of the area. It also is highly conspicuous. Reference to the digital photos provides the best description of what has happened here. Even if ORVs are excluded, the damage to the canyon walls and hills apparently is irreparable.

### **Controlled burn areas**

Baseline information should include plant species composition of areas to be burned, especially on slopes where root systems are shallow, the vegetation sparse, and where the fires must be 'pushed' to continue. These areas should be monitored after burns to determine the reaction of species to fire and the success of their recovery. Controlled burns should be conducted with no greater frequency than the natural fire interval, which presumably is objectively determined by park personnel.

### **Invasive species**

Non-native species in the LAMR and ALFL parkland are listed in Appendix 10. A few of these are waifs and probably are non-invasive; others are invasive to varying degrees, as noted. Of these, most are nearly impossible to eradicate, including some of the most noxious species, especially *Tamarix ramosissima* (saltcedar) and *Tamarix chinensis* (fivestamen tamarisk). Several of the potentially most damaging woody species, however, apparently are still incipient in their invasion of the park and could be controlled now with relatively little effort. If individuals could not be destroyed immediately, locations of individual trees could be recorded by park personnel for future removal. Both such species noted here (*Elaeagnus* and

*Ulmus*), however, are widely planted and strongly naturalized around the park (especially on the east side of the lake) and probably will become more abundant. Surveillance within the parkland will need to continue indefinitely to exclude these and other potential invaders.

*Elaeagnus angustifolia* (Russian olive) -- Large trees of this species appear to be scattered within the parkland and relatively uncommon, but numerous saplings can be found in the vicinity of larger trees.

*Ulmus pumila* (Siberian elm) – This is widely used as an ornamental and conspicuously invasive around the LAMR area. It apparently was planted in the 1920s at homesites in the Plum Creek and Chicken Creek areas and is beginning to spread in those areas. It is already invasive in other parts of the park (for example, Cedar Canyon).

### **Recommended horticultural plantings**

Various non-native woody and herbaceous species are planted within LAMR. We recommend that native species be used, not only to preserve the native character of the park but also to prevent possible introduction of invasive species. The species suggested below are included especially because of their adaption to local climate and soil and their potential ease of transplanting and/or establishment from local seed sources.

Trees: *Celtis reticulata* (hackberry), *Juniperus monosperma* (juniper), *Populus deltoides* (cottonwood), *Sapindus saponaria* (soapberry).

Shrubs: *Forestiera pubescens* (stretchberry), *Ptelea trifoliata* (hoptree), *Rhus aromatica* (fragrant sumac).

Perennial herbs with abundant bright flowers and long flowering periods: *Berlandiera lyrata* (lyre-leaf greeneyes), *Calylophus serrulatus* (yellow sundrops), *Melampodium leucanthemum* (plains blackfoot daisy), *Sphaeralcea coccinea* (copper globe-mallow), *Tetranneuris scaposa* (four-nerved daisy), *Zinnia grandiflora* (golden zinnia).

### **ACKNOWLEDGMENTS**

This study was funded by a subcontract to the Botanical Research Institute of Texas with The Nature Conservancy's Texas Conservation Data Center (Contract No. TX021402-01), under the TxCDC's cooperative agreement with the National Park Service (Cooperative Agreement No. CA7350010004). Research was facilitated by TxCDC staff, especially Mark Gallyoun, and staff of Lake Meredith National Recreation Area, especially Jim Rancier.

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**APPENDIX 1:** Names on the Phillips (1997) list not appearing on the Nesom & O’Kennon list, arranged by species.

Names marked by asterisk(s) are considered potential occurrences on the parkland. “Double asterisks” indicate those species that appear in Appendix 2a and 2b. “Single asterisk” indicates listing in 2c, and are less probable in potential occurrence than the ‘doubles.’ Quotations are of Phillips (1997).

<b>Taxon</b>	<b>Status on LAMR/ALFL</b>	<b>Comments</b>
<b>Acer saccharum</b>	Unlikely	“Probably escaped from cultivation in our area.”
<b>Achillea millefolium **</b>	Potential	Appendix 2.
<b>Adiantum capillus-veneris **</b>	Potential	Appendix 2a. “falls in McBride Canyon”
<b>Agrimonia parviflora</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Agropyron cristatum</b>	Unlikely	not known from Texas.
<b>Agropyron trachycaulum</b>	Unlikely	out of range.
<b>Agrostis semiverticillata = Polypogon viridis</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Agrostis stolonifera *</b>	Potential	not reported from Appendix 2 region.
<b>Amaranthus albus **</b>	Potential	Appendix 2.
<b>Aphanostephus skirrhobasis *</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region.
<b>Apocynum sibiricum</b>	Unlikely	not in panhandle. Almost certain misID for variant of <i>Apocynum cannabinum</i>
<b>Argemone albiflora</b>	Unlikely	far out of range. Probable misID for <i>Argemone polyanthemus</i> or <i>A. squarrosa</i> .
<b>Aristida longiseta</b>		Synonym of <i>Aristida purpurea</i> .
<b>Aristida wrightii</b>		Synonym of <i>Aristida glauca</i> .
<b>Baptisia australis *</b>	Potential	not reported from Appendix 2 region.
<b>Berlandiera crypta</b>		Invalid name; reference unknown.
<b>Bothriochloa saccharoides</b>		Synonym of <i>Bothriochloa laguroides</i> .
<b>Bouteloua rigidiseta</b>	Unlikely	out of range.
<b>Brassica rapa *</b>	Potential	not reported from Appendix 2 region.
<b>Bromus frondosus</b>	Unlikely	not known from Texas.
<b>Bromus secalinus *</b>	Potential	rare in panhandle (not reported from Appendix 2 region).
<b>Bromus unioloides</b>		Synonym of <i>Bromus catharticus</i> .
<b>Bumelia lanuginosa</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Carex lanuginosa</b>	Unlikely	rare in panhandle (not reported from Appendix 2 region). “found in river bottoms.”
<b>Carex vulpinoidea</b>	Unlikely	rare in panhandle (not reported from Appendix 2 region). “uncommon plant in our area.”
<b>Cassia fasciculata** = Chamaecrista fasciculata</b>	Potential	Appendix 2.
<b>Cenchrus incertus</b>		MisID of <i>Cenchrus longispinus</i> (from LAMR voucher).
<b>Ceratophyllum demersum *</b>	Potential	not reported from Appendix 2 region.

Taxon	Status on LAMR/ALFL	Comments
<b>Chenopodium gigantospermum*</b> = <i>Chenopodium simplex</i>	Potential	not reported from Appendix 2 region.
<b>Chenopodium incisum</b>	Unlikely	far out of range.
<b>Cichorium intybus *</b>	Potential	collected by N&O'K just outside of Fritch. "This plant has not been found at Lake Meredith, but it is often seen on roadsides nearby."
<b>Cirsium horridulum</b>	Unlikely	far out of range.
<b>Cleome serrulata *</b>	Potential	not reported from Appendix 2 region.
<b>Cleomella angustifolia *</b>	Potential	not reported from Appendix 2 region.
<b>Coreopsis tinctoria **</b>	Potential	Appendix 2.
<b>Corydalis alba</b>	Probable	misID (or typo) for <i>Corydalis aurea</i> .
<b>Croptilon divaricatum</b>	Unlikely	far out of range. Possible misID for <i>Croptilon hookerianum</i> , which is known to occur in eastern panhandle counties.
<b>Cryptantha crassisepala</b>	Unlikely	far out of range.
<b>Cyperus aristatus</b> = <i>Cyperus squarrosus</i>	Unlikely	rare in panhandle (not reported from Appendix 2 region).
<b>Cyperus fendlerianus</b> = <i>Cyperus sphaerolepis</i>	Unlikely	far out of range.
<b>Cyperus filiculmis</b> = <i>Cyperus lupulinus</i>	Unlikely	rare in panhandle (not reported from Appendix 2 region).
<b>Datura stramonium *</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region.
<b>Delphinium virescens</b>		Synonym of <i>Delphinium carolinianum</i> ssp. <i>virescens</i> .
<b>Diospyros virginiana</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region. Persisting from cultivation?
<b>Draba reptans **</b>	Probable	Seen as tiny fragment; see Appendix 2a.
<b>Elymus virginicus</b>		Probable misID of <i>Elymus canadensis</i> .
<b>Ephedra antisphyllitica</b>		MisID for <i>Ephedra torreyana</i> (from LAMR voucher).
<b>Eragrostis oxylepis **</b>	Potential	Appendix 2.
<b>Eupatorium perfoliatum</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Euphorbia</b> [Chamaesyce] <b>maculata *</b>	Potential	not reported from Appendix 2 region.
<b>Euphorbia acuta</b>	Unlikely	far out of range. Probable misID for <i>Chamaesyce lata</i>
<b>Euthamia camporum*</b> = <i>Euthamia gymnospermoides</i>	Potential	not reported from Appendix 2 region.
<b>Froelichia floridana *</b>	Potential	not reported from Appendix 2 region.
<b>Froelichia gracilis **</b>	Potential/probable	found nearby but not in park; Appendix 2a.
<b>Galium aparine *</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region.
<b>Gaura suffulta *</b>	Potential	not reported from Appendix 2 region.

<b>Taxon</b>	<b>Status on LAMR/ALFL</b>	<b>Comments</b>
<b>Grindelia lanceolata</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Grindelia squarrosa</b>	Unlikely	far out of range. Possible misID for <i>Rayjacksonia annua</i>
<b>Hedyotis humifusa *</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region.
<b>Hedysarum boreale **</b>	Potential	Appendix 2a. "common along the trail to Alibates Flint Quarries" but not seen in present study.
<b>Hibiscus lasiocarpus</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Hibiscus militaris</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Hibiscus trionum *</b>	Potential	not reported from Appendix 2 region.
<b>Hordeum jubatum</b>		Possible misID of <i>Elymus elymoides</i> .
<b>Indigofera miniata *</b>	Potential	not reported from Appendix 2 region.
<b>Ipomoea purpurea</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Iva annua **</b>	Potential	Appendix 2.
<b>Iva xanthifolia **</b>	Potential	Appendix 2.
<b>Juglans nigra</b>	Unlikely	far out-of-range, unless persisting from cultivation.
<b>Juncus dudleyi</b>	Unlikely	rare in panhandle (not reported from Appendix 2 region).
<b>Juncus interior **</b>	Potential	Appendix 2.
<b>Kuhnia eupatorioides</b>		Synonym of <i>Brickellia eupatorioides</i>
<b>Lappula texana</b>		Synonym of <i>Lappula redowskii</i> .
<b>Lemna minor</b>	Unlikely	rare in panhandle. Probable misID for <i>Lemna valdiviana</i> .
<b>Lespedeza capitata</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Lespedeza stuevei</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Lesquerella gracilis</b>	Unlikely	far out of range.
<b>Linaria texana* = Nuttallanthus texanus</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region.
<b>Linum aristatum</b>		MisID for <i>Linum rigidum</i> (from LAMR voucher).
<b>Lithospermum carolinense *</b>	Potential	rare in panhandle, not reported from Appendix 2 region.
<b>Lycopus asper</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region. Probable misID for <i>Lycopus americanus</i> , which is relatively common in the park. "... found in moist situations around the lake."
<b>Malva neglecta **</b>	Potential	Appendix 2.
<b>Manisuris cylindrica</b>		"near the Park Headquarters building in Fritch" Probably cultivated.
<b>Melica porteri</b>	Unlikely	far out of range.
<b>Mentha arvensis *</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region.

Taxon	Status on LAMR/ALFL	Comments
<b>Mentzelia strictissima</b>		Almost certain misID for <i>Mentzelia nuda</i> , which is abundant in the parkland, but not included on the Phillips (1997) list; <i>Mentzelia strictissima</i> is rare in the panhandle.
<b>Mimosa biuncifera</b>		MisID for <i>Mimosa borealis</i> (from LAMR voucher).
<b>Monarda clinopodioides</b>	Unlikely	out of range
<b>Najas guadalupensis **</b>	Potential	Appendix 2.
<b>Oenothera brachycarpa</b>	Unlikely	far out of range.
<b>Oenothera laciniata *</b>	Potential	not reported from Appendix 2 region.
<b>Oenothera missouriensis</b>		Probable misID for <i>Oenothera macrocarpa</i> var. <i>incana</i>
<b>Oenothera speciosa *</b>	Potential	rare in panhandle, not reported from Appendix 2 region.
<b>Panicum lindheimeri</b> = <i>Dichantherium acuminatum</i> var. <i>lindheimeri</i>	Unlikely	probable misID for <i>D. acuminatum</i> var. <i>acuminatum</i> , which is relatively common in the parkland.
<b>Paspalum dilatatum</b>	Unlikely	out of range.
<b>Persicaria</b> [Polygonum] <b>hydropiperoides</b>	Unlikely	rare in panhandle (not reported from Appendix 2 region).
<b>Persicaria</b> [Polygonum] <b>lapathifolia **</b>	Potential	Appendix 2.
<b>Phyla lanceolata **</b>	Potential	Appendix 2. But possible misID for <i>Phyla cuneata</i> , which is relatively common around the park
<b>Physalis angulata</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region. Possible misID for <i>Physalis longifolia</i>
<b>Physalis lobata</b>		Synonym of <i>Quincula lobata</i>
<b>Physalis virginiana</b>	Unlikely	far out of range.
<b>Phytolacca americana</b>	Unlikely	rare in panhandle (not reported from Appendix 2 region).
<b>Plantago insularis</b> = <i>Plantago ovata</i>	Unlikely	far out of range.
<b>Poa arachnifera *</b>	Potential	rare in panhandle, not reported from Appendix 2 region.
<b>Polanisia jamesii **</b>	Potential	Appendix 2.
<b>Populus deltoides</b> [var. deltoides]	Unlikely	out of range; all at LAMR are var. <i>monilifera</i> .
<b>Proboscidea altheafolia</b>	Unlikely	far out of range. Almost certain misID for variant of <i>Proboscidea louisianica</i> .
<b>Pyrrhopappus multicaulis</b>		Synonym of <i>Pyrrhopappus pauciflorus</i>
<b>Quercus havardii *</b>	Potential	in panhandle, but not reported from Appendix 2 region.
<b>Ranunculus longirostris</b>		Synonym of <i>Ranunculus aquatilis</i> .
<b>Rhus glabra *</b>	Potential	collected by N&O'K in Hutchinson Co. but not in the NPS parkland.
<b>Ribes odoratum</b>		Synonym of <i>Ribes aureum</i> var. <i>villosum</i>
<b>Rorippa islandica</b>	Unlikely	Possible misID of <i>Rorippa palustris</i> , which is rare in the panhandle. Possible misID of <i>Rorippa sinuata</i> , which is Potential (Appendix 2b).

<b>Taxon</b>	<b>Status on LAMR/ALFL</b>	<b>Comments</b>
<b>Rumex hymenosepalus**</b>	Potential	Appendix 2.
<b>Salvia azurea *</b>	Potential	not reported from Appendix 2 region.
<b>Samolus cuneatus *</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region. Possible misID for <i>Samolus valerandi</i> subsp. <i>parviflorus</i>
<b>Scleropogon brevifolius</b>		MisID of <i>Bouteloua eriopoda</i> (from LAMR voucher).
<b>Scutellaria drummondii **</b>	Potential	Appendix 2.
<b>Scutellaria galericulata</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Scutellaria lateriflora *</b>	Potential	uncommon in panhandle, not reported from Appendix 2 region.
<b>Setaria macrostachya</b>		MisID of <i>Setaria leucopila</i> (from LAMR voucher).
<b>Setaria viridis</b>		MisID of <i>Setaria glauca</i> (from LAMR voucher).
<b>Silene antirrhina</b>	Unlikely	not known from panhandle.
<b>Sisymbrium altissimum **</b>	Potential	Appendix 2.
<b>Sisyrinchium ensigerum = <i>Sisyrinchium chilense</i></b>		Probable misID for <i>S. scabrum</i> , <i>S. montanum</i> , or <i>S. angustifolium</i> , the only species known from the panhandle.
<b>Sitanion longifolium</b>		Synonym of <i>Elymus elymoides</i> .
<b>Solanum triflorum</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Solidago missouriensis</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region. Possible misID for <i>Solidago petiolaris</i>
<b>Sorghastrum avenaceum</b>		Synonym of <i>Sorghastrum nutans</i> .
<b>Spartina pectinata *</b>	Potential	Appendix 2. “in our area it is scattered to rare.”
<b>Spermolepis echinata</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region.
<b>Spiranthes vernalis</b>	Unlikely	rare in panhandle. Possible misID for <i>Spiranthes magnicamporum</i> .
<b>Spirodela polyrrhiza *</b>	Potential	eastern panhandle (not reported from Appendix 2 region).
<b>Sporobolus contractus</b>		MisID of <i>Sporobolus cryptandrus</i> (from LAMR voucher); and potential (Appendix 2).
<b>Stipa [Heterostipa] <i>neomexicana *</i></b>	Potential	not reported from Appendix 2 region.
<b>Tamarix gallica **</b>	Potential	Appendix 2. But probable misID for <i>Tamarix ramosissima</i> , which is extremely abundant in the parkland.
<b>Tephrosia virginiana</b>	Unlikely	uncommon in eastern panhandle.
<b>Triodanis holzingeri *</b>	Potential	rare in panhandle, not reported from Appendix 2 region.
<b>Tripterocalyx micrantha</b>	Unlikely	not reported for Texas. Possible misID for <i>Abronia fragrans</i>
<b>Typha latifolia</b>	Unlikely	rare in panhandle, not reported from Appendix 2 region. Probable misID for <i>Typha domingensis</i> .
<b>Viola pratincola **</b>	Potential	Probable misID for <i>Viola sororia</i> . Appendix 2a. “Grows near the stream in Bugbee Canyon.”

Taxon	Status on LAMR/ALFL	Comments
<b>Xanthium spinosum</b>	Unlikely	far out of range.
<b>Xanthocephalum</b> [Gutierrezia] <b>microcephalum</b>	Unlikely	out of range. Possible misID for <i>Gutierrezia sarothrae</i> .
<b>Xanthocephalum</b> [Gutierrezia] <b>texanum</b>	Unlikely	out of range. Possible misID for <i>Gutierrezia sphaerocephala</i> .

**APPENDIX 2: Species Probably and Potentially Occurring in the LAMR/ALFL Parkland.**

**2a. Probably present: 14 spp.**

For the most part, these 14 species are known to occur immediately outside the park but have not been seen or vouchered within the parkland. They have been observed by Nesom & O’Kennon within a mile of the parkland boundary, mostly along roadsides, but have not been seen or vouchered from within the parkland itself. Three were specifically noted (as quoted) by Phillips (1997) to occur within the parkland.

<b>Taxon</b>	<b>Comments</b>
<i>Adiantum capillus-veneris</i> L.	Noted by Phillips (1997): “falls in McBride Canyon.”
<i>Ceanothus herbaceus</i> Raf.	
<i>Dalea villosa</i> (Nutt.) Spreng.	
<i>Draba reptans</i> (Lam.) Fern.	Seen in LAMR as tiny fragment; no voucher obtained.
<i>Eragrostis curtipedicellata</i> Buckl.	
<i>Froelichia gracilis</i> (Hook.) Moq.	
<i>Hedysarum boreale</i> Nutt.	Noted by Phillips (1997): “common along the trail to Alibates Flint Quarries.”
<i>Helianthus ciliaris</i> DC.	
<i>Lygodesmia texana</i> (Torr. & Gray) Greene	
<i>Phyla cuneifolia</i> (Torr.) Greene	
<i>Picradeniopsis woodhousei</i> (Gray) Rydb.	
<i>Ratibida tagetes</i> (James) Barnh.	
<i>Spiranthes magnicamporum</i> Sheviak	
<i>Viola sororia</i> Willd.	Noted by Phillips (1997): “grows near the stream in Bugbee Canyon.”

**2b. Potentially present (Turner 2003): 101 spp.**

These 101 species (those listed in 2a are not included) are mapped by Turner’s *Atlas of the Flora of Texas* (2003) as occurring in Moore, Potter, Hutchinson, and/or Carson Counties but are not documented by voucher from within the parkland. LAMR and ALFL are located within the first three counties -- the northwest corner of Carson County nearly touches the parkland boundary. Turner’s (2003) atlas is constructed primarily from specimens in the well-identified herbarium collection at the University of Texas at Austin, supplemented in some cases by records published in the *Atlas of the Flora of the Great Plains* (Great Plains Flora Association 1976).

- |   |   |
|---|---|
| <i>Achillea millefolium</i> var. <i>occidentalis</i> DC.            | <i>Callitriche heterophylla</i> Pursh   |
| <i>Amaranthus albus</i> L.  | <i>Calystegia silvatica</i> ssp. <i>fraterniflora</i> (Mackenzie & Bush) Brummitt |
| <i>Amaranthus rudis</i> Sauer                                       | <i>Camelina microcarpa</i> DC.  |
| <i>Argemone squarrosa</i> ssp. <i>glabrata</i> G.B. Ownbey          | <i>Chamaecrista fasciculata</i> (Michx.) Greene                                   |
| <i>Asclepias tuberosa</i> ssp. <i>interior</i> Woods.               | <i>Chamaesaracha coniodes</i> (Moric. ex Dunal) Britt.                            |
| <i>Astragalus crassicaarpus</i> Nutt.                               | <i>Chamaesyce albomarginata</i> (Torr. & Gray) Small                              |
| <i>Astragalus lentiginosus</i> var. <i>higginsii</i> Welsh & Thorne | <i>Chenopodium fremontii</i> S. Wats.   |
| <i>Astragalus plattensis</i> Nutt.                                  | <i>Chenopodium pallescens</i> Standl.   |
| <i>Bahia pedata</i> Gray  |   |
| <i>Bergia texana</i> (Hook.) Seub. ex Walp.                         |   |

Coreopsis tinctoria Nutt.  
 Cyperus esculentus L.  
 Cyperus rotundus L.  
 Cyperus setigerus Torr. & Hook.  
 Delphinium wootonii Rydb.  
 Desmodium sessilifolium (Torr.) Torr. & Gray  
 Dichantherium acuminatum var. lindheimeri  
 (Nash) Gould & C.A. Clark  
 Echinocereus viridiflorus Engelm.  
 Echinochloa crus-gavonis var. macera (Wieg.)  
 Gould  
 Echinodorus berteroi (Spreng.) Fassett  
 Eleocharis erythropoda Steud.  
 Eleocharis palustris (L.) Roemer & J.A. Schultes  
 Eleocharis parvula (Roemer & J.A. Schultes)  
 Link ex Bluff, Nees, & Schauer  
 Equisetum hyemale var. affine (Engelm.) A.A.  
 Eat.  
 Eragrostis oxylepis (Torr.) Torr.  
 Eragrostis pectinacea (Michx.) Nees ex Steud.  
 Erigeron flagellaris Gray  
 Eriogonum alatum Torr.  
 Eriogonum lachnogynum Torr. ex Benth.  
 Erysimum repandum L.  
 Gaillardia suavis (Gray & Engelm.) Britt. &  
 Rusby  
 Hedysarum boreale Nutt.  
 Heteranthera limosa (Sw.) Willd.  
 Heteranthera mexicana S. Wats.  
 Hymenoxys odorata DC.  
 Iva annua L.  
 Iva xanthifolia Nutt.  
 Lathyrus polymorphus Nutt.  
 Lepidium densiflorum Schrad.  
 Lycurus phleoides Kunth  
 Lythrum californicum Torr. & Gray  
 Malva neglecta Wallr.  
 Malvella leprosa (Ortega) Krapov.  
 Marrubium vulgare L.  
 Marsilea vestita Hook. & Grev.  
 Medicago lupulina L.  
 Melilotus indicus (L.) All.  
 Mentzelia multiflora (Nutt.) Gray  
 Mimosa nuttallii (DC.) B.L. Turner  
 Monarda citriodora Cerv. ex Lag.  
 Monolepis nuttalliana (J.A. Schultes) Greene  
 Najas guadalupensis (Spreng.) Magnus  
 Oenothera albicaulis Pursh  
 Oenothera canescens Torr. & Frem.  
 Oenothera pallida ssp. runcinata (Engelm.)  
 Munz & W. Klein  
 Opuntia tunicata var. davisii (Engelm. &  
 Bigelow) L. Benson  
 Orobanche ludoviciana Nutt.  
 Paronychia sessiliflora Nutt.  
 Pediomelum digitatum (Nutt. ex Torr. & Gray)  
 Isely  
 Penstemon buckleyi Pennell  
 Phyla lanceolata (Michx.) Greene  
 Physalis cinerascens (Dunal) A.S. Hitchc. var.  
 cinerascens  
 Physalis hispida (Waterfall) Cronq.  
 Pleuraphis mutica Buckl.  
 Poa pratensis L.  
 Polanisia jamesii (Torr. & Gray) Iltis  
 Polygonum convolvulus L.  
 Polygonum densiflorum Meisn.  
 Polygonum lapathifolium L.  
 Polygonum pensylvanicum L.  
 Potamogeton foliosus Raf.  
 Ranunculus cymbalaria Pursh  
 Reverchonina arenaria Gray  
 Rorippa sinuata (Nutt.) A.S. Hitchc.  
 Rumex hymenosepalus Torr.  
 Rumex stenophyllus Ledeb.  
 Rumex venosus Pursh  
 Sagittaria cuneata Sheldon  
 Sagittaria longiloba Engelm. ex J.G. Sm.  
 Sagittaria montevidensis ssp. calycina (Engelm.)  
 Bogin  
 Sambucus nigra ssp. canadensis (L.) R. Bolli  
 Scirpus pallidus (Britt.) Fern.  
 Scutellaria drummondii var. edwardsiana B.L.  
 Turner  
 Setaria viridis (L.) Beauv.  
 Sisymbrium altissimum L.  
 Solidago altiplanities C. & J. Taylor  
 Spartina pectinata Bosc ex Link  
 Sporobolus contractus A.S. Hitchc.  
 Symphyotrichum ericoides (L.) Nesom  
 Tamarix gallica L.  
 Trifolium repens L.  
 Verbena halei Small  
 Vicia americana Muhl. ex Willd.

**2c. Potentially present (Phillips 1997): 34 spp.**

These 34 species are from the Phillips (1997) checklist -- marked with a single asterisk in Appendix 1 as potentially occurring in the parkland. They are known from the Texas panhandle but are not specifically reported in the *Atlas of the Flora of Texas* (Turner, 2003) from Moore, Potter, Hutchinson, and/or Carson Counties.

Agrostis stolonifera L.  
Aphanostephus skirrhobasis (DC.) Trel.  
Baptisia australis (L.) R. Br. ex Ait. f.  
Brassica rapa L.  
Bromus secalinus L.  
Ceratophyllum demersum L.  
Chamaesyce maculata (L.) Small (as Euphorbia  
maculata)  
Chenopodium simplex (Torr.) Raf. (as  
Chenopodium gigantospermum)  
Cichorium intybus L.  
Cleome serrulata Pursh  
Cleomella angustifolia Torr.  
Datura stramonium L.  
Euthamia gymnospermoides Greene (as  
Euthamia camporum)  
Froelichia floridana (Nutt.) Moq.  
Galium aparine L.  
Gaura suffulta Engelm. ex Gray  
Hedyotis humifusa Gray  
Hesperostipa neomexicana (Thurb. ex Coult.)  
Barkworth (as Stipa neomexicana)  
Hibiscus trionum L.  
Indigofera miniata Ortega  
Nuttallanthus texanus (Scheele) D.A. Sutton (as  
Linaria texana)  
Lithospermum carolinense (Walt. ex J.F. Gmel.)  
MacM.  
Mentha arvensis L.  
Oenothera laciniata Hill  
Oenothera speciosa Nutt.  
Poa arachnifera Torr.  
Quercus havardii Rydb.  
Rhus glabra L.  
Salvia azurea Michx. ex Lam.  
Samolus cuneatus Small  
Scutellaria lateriflora L.  
Spartina pectinata Bosc ex Link  
Spirodela polyrhiza (L.) Schleid.  
Triodanis holzingeri McVaugh

### **APPENDIX 3: Major plant communities of LAMR and ALFL.**

Major plant communities in LAMR and ALFL have been characterized by Wright and Meador (1981), Bell et al. (2000), and the National Park Service (2001). The NPS discussion is generalized and applicable with difficulty to the parkland under consideration. After an initial reconnaissance, Wright and Meador (1981) identified five major community types in LAMR and ALFL (bottomland, steep slope, gravelly slope, mesatop, and sandhill), selected sampling sites to characterize each community type, and constructed descriptions and a vegetation map from data taken by a 'step point' sampling method. Bell et al. (2000) identified four major community types in ALFL (clay loam, gravelly hills, rough breaks, and sandy and loamy bottomland), selected two transects to characterize each community type, and constructed descriptions from data obtained by the sampling procedures. In a study of 'breaks' vegetation in the vicinity of Ranch Creek in Potter County, Sikes and Smith (1975) recognized three relatively inclusive associations: mesquite-grassland, juniper-hairy grama, and salt cedar-dropseed.

Conclusions of the present assessment are similar in many respects to those of the previous studies, but our more subjective approach perhaps allows a more detailed regional characterization. We have attempted to define the major plant associations based primarily on physiographic and geologic boundaries, as these generally are correlated with the sharpest discontinuities between vegetation types, with recognition that overlap in species composition occurs among many of these communities and that many species are common in more than one community type. Repeated visits to various areas within the parkland allowed modification and refinement, but objective tests of our subjective assessments are desirable.

Geological concepts and terminology are drawn from a recent discussion by the National Park Service (2001: "Geologic Resources," adapted from Davis and Northcutt 1991). Our descriptions are drawn from observations made from April 2002 through October 2002.

Comments are included below concerning relative condition of each community type, its rarity within the context of the study area, and its significance with regard to management concerns of NPS. In general, comments can be made about the parks as a whole. The vegetation in the area is mostly in good condition, especially when compared to similar vegetation types beyond the park boundary. Practically all of these habitats are rare outside the park land. These statements thus lead to the conclusion that LAMR and ALFL are a small, museum-like island in a vast area of what is otherwise destroyed habitat and vegetation.

#### **SANDHILLS and SAND FLATS**

Rolling hills and flats of relatively deep, loose sand (Ogallala Group: Clarendon Formation – Pliocene) are dominated by *Artemisia filifolia*, *Eriogonum annuum*, *Yucca glauca*, various grasses, and scattered *Prosopis glandulosa*. *Eriogonum annuum*, *Centaurea americana*, *Erigeron bellidiastrum*, and *Penstemon ambiguus* are relatively common and restricted to the deep sands and may be considered as indicators of sandy habitat. Other common species are *Aphanostephus ramosissimus*, *Cirsium undulatum*, *Gaillardia pulchella*, *Gutierrezia sarothrae*, *Hymenopappus flavescens*, *Machaeranthera pinnatifida*, *Ipomoea leptophylla*, *Mentzelia nuda*, *Monarda punctata*, *Monarda pectinata*, *Calylophus serrulatus*, *Gaura villosa*, *Krameria lanceolata*, *Chamaesyce fendleri*, *Croton texensis*, *Stillingia sylvatica*, *Cryptantha cinerea* var. *jamesii*, *Eriogonum longifolium*, *Tradescantia occidentalis*, *Commelina erecta*, *Chamaesyce missurica*, and *Corispermum americanum*. Common grasses are *Buchloe dactyloides*, *Vulpia octoflora*, *Schizachyrium scoparium*, *Sporobolus cryptandrus*, *Andropogon hallii*, *Bouteloua curtipendula*, *Bouteloua hirsuta*, *Bouteloua pectinata*, *Bouteloua eriopoda*, *Aristida purpurea*, *Eragrostis curvula*, and *Muhlenbergia capillaris*. *Baccharis wrightii* is local in occurrence on sand flats of the Bugbee peninsula.

*Chrysothamnus pulchellus* is local but abundant along a long, shallow draw in the deep sand above Spring Creek.

This community is equivalent to the “sandhills” community of Wright and Meador (1981), and probably also includes their “mesatop” category, at least in part. The most extensive sandhill area is along the margin of the northernmost portion of LAMR (south of Hwy 687); others are east of the Ranger Station in the Sanford-Yake area, the high part of the Fritch Fortress peninsula, and on the Blue West and Bugbee peninsulas. More recently deposited “valley fill” sands occur widely and support communities somewhat similar in floristic composition (see below, Sandy Valley Bottoms).

Ogallala sand caps the Fritch Fortress peninsula, but species diversity there is low, perhaps reflecting relatively recent grazing or other human modification. The area was controlled-burned in spring of 2002. We record the following as common species (post-burn): *Salsola tragus*, *Psilostrophe villosa*, *Solanum elaeagnifolium*, *Yucca glauca*, *Setaria leucopila*, *Kallstroemia parviflora*, *Bouteloua eriopoda*, *Sporobolus cryptandrus*, *Munroa squarrosa*, *Bassia scoparia*, *Chamaesyce glyptosperma*, *Bouteloua gracilis*, *Sphaeralcea coccinea*, *Ipomoea leptophylla*, *Helianthus annuus*, *Machaeranthera pinnatifida* var. *pinnatifida*, *Croton texensis*, and *Bothriochloa barbinodis*.

An area of deep sand west of Hwy 1319 (along the northern park boundary) is highly reduced in plant diversity, probably reflecting recent overgrazing (before the property was acquired by the NPS). *Prosopis glandulosa*, *Eriogonum annuum*, *Mentzelia nuda*, *Yucca glauca*, *Prunus angustifolia*, *Artemisia filifolia*, and *Aristida purpurea* are the dominant species – few others occur. Cattle apparently do not eat the *Prosopis*, *Eriogonum*, and *Mentzelia*, or at least those species are low in grazing preference, because we have observed them in abundance in otherwise grazed sandy habitats outside the parkland.

Areas of deep, loose sand, alluvial and recent in origin, also occur in the bottom and along the margins of the Canadian River and larger streams, such as Big Blue Creek and Chicken Creek. Dunal deposits are evident along the Canadian River in the Rosita area and an area slightly north of Bates Canyon. Conspicuous in these areas are *Prunus angustifolia*, *Artemisia filifolia*, *Mentzelia nuda*, *Eriogonum annuum*, *Dalea lanata*, *Cenchrus longispinus*, *Cycloloma atriplicifolium*, *Chamaesyce missurica*, *Euphorbia hexagona*, *Palafoxia sphacelata*, *Helianthus petiolaris*, *Heliotropium convolvulaceum*, *Polanisia dodecandra*, *Amaranthus arenicola*, *Chenopodium leptophyllum*, and *Sporobolus cryptandrus*, *Andropogon hallii*, *Triplasis purpurea*, *Panicum capillare*, and other grasses.

Drainages or other erosional features that are cut through the sandhills into the dolomite strata usually support a flora similar to that of the slopes – common woody species are *Artemisia ludoviciana*, *Mimosa borealis*, *Rhus aromatica*, and *Vitis acerifolia*.

RELATIVE CONDITION: Dunes in the Rosita area are being destroyed by off-road vehicle use which is presently permitted in that area by NPS.

RARITY: These areas are not particularly rare, but are somewhat uncommon because they are mostly associated with water.

SIGNIFICANCE: A unique group of species inhabits these deep sands. The upland Spring Creek area is particularly interesting.

### **SANDY VALLEY BOTTOMS**

Gently sloping valleys and broad flats characteristically are filled with sand recently derived from immediately surrounding, easily eroding Permian ‘redbed’ slopes. Such ‘valley fill’ areas are conspicuous in the Bates Canyon-Alibates area and the Plum Creek area. They commonly are dominated by grasses,

especially *Panicum obtusum* and *Pascopyrum smithii*, with *Sporobolus cryptandrus*, *Setaria leucopila*, and *Bouteloua curtipendula* in lesser abundance. Other common species are *Grindelia ciliata*, *Centaurea americana*, *Euphorbia davidii*, *Croton texensis*, *Eriogonum annuum*, *Cucurbita foetidissima*, *Solanum elaeagnifolium*, *Gaillardia pulchellus*, *Symphyotrichum ericoides*, *Tidestromia lanuginosa*, *Bassia scoparia*, *Ipomoea leptophylla*, *Asclepias latifolia*, *Proboscidea louisianica*, *Kallstroemia parviflora*, *Argythamnia humilis*, *Hoffmannseggia glauca*, *Amaranthus blitoides*, *Amaranthus retroflexus*, *Chenopodium berlandieri*, *Bouteloua hirsuta*, *Bouteloua pectinata*, *Eragrostis cilianensis*, and *Muhlenbergia* sp.

RELATIVE CONDITION: Areas covered by this vegetation are typically in good condition.

RARITY: This community type is relatively common in the area.

SIGNIFICANCE: Species associated with this community are relatively common to very common.

### **GRAVELLY SLOPES**

This is the “gravelly slope” category of Wright and Meador (1981) – “ridges, knolls, and undulating areas of the uplands with gentle to moderately steep slopes.” These slopes, like the sandhills, lie above the dolomite caprock and are part of the Ogallala Group (Ogallala Group: Clarendon Formation – Pliocene), but the soil is a calcareous, gravelly loam “formed in stratified outwash beds of quartz gravel and sand” (Wright & Meador 1981, p. 20). Our observations are from the Sanford-Yake area. The “gravelly slopes” flora is similar to that of the steep slopes but species diversity is lower and the woody component is less evident. The dominant species are *Gutierrezia sarothrae*, *Yucca glauca*, *Mimosa borealis*, *Dalea formosa*, *Tetaneuris scaposa*, *Bouteloua curtipendula*, and *Bouteloua gracilis*. Other common species are *Ambrosia psilostachya*, *Berlandiera lyrata*, *Chaetopappa ericoides*, *Gaillardia pulchella*, *Machaeranthera pinnatifida*, *Machaeranthera tanacetifolia*, *Plantago patagonica*, *Croton texensis*, *Chamaesyce lata*, *Sphaeralcea coccinea*, *Lesquerella ovalifolia*, *Salsola tragus*, *Aristida purpurea*, *Bouteloua eriopoda*, *Bouteloua hirsuta*, *Buchloe dactyloides*, and *Muhlenbergia asperifolia*.

RELATIVE CONDITION: Examples of this community were often observed as having some degradation due to erosion and road-building.

RARITY: This community is uncommon in the area of the parks.

SIGNIFICANCE: Associated species are not particularly uncommon nor are any apparently restricted to this habitat.

### **DOLOMITE CAPROCK**

Surface exposures of white dolomite caprock (Quartermaster Group: Alibates Dolomite Formation – Permian), often flat or gently sloping, support characteristic communities similar to the red slope communities. In general, fewer species occur in the shallow soil accumulations and crevices of these limited areas, and several species occur here that are uncommon on the slopes. The most common and characteristic species of the dolomite caprock community are *Dalea formosa*, *Mimosa borealis*, *Yucca glauca*, *Minuartia michauxii* var. *texana*, *Paronychia jamesii*, *Eriogonum longifolium*, *Tetaneuris scaposa*, *Gutierrezia sarothrae*, *Calylophus hartwegii* var. *pubescens*, *Tragia ramosa*, *Krameria lanceolata*, and *Aristida fendleri*. *Cercocarpus montanus* and *Tetaneuris acaulis* occur only on the caprock (and gypsum, in the LAMR area) and are very local in occurrence. *Calylophus hartwegii* var. *pubescens* and *Minuartia michauxii* var. *texana* also apparently are more or less restricted to the surface exposures of caprock. Other species commonly found in the caprock community are these: *Erioneuron pilosum*, *Panicum hallii*, *Chaetopappa ericoides*, *Machaeranthera pinnatifida* var. *pinnatifida*, *Melampodium leucanthemum*, *Thelesperma filifolium* var. *intermedium*, *Zinnia grandiflora*, *Comandra*

*umbellata*, *Chamaesyce fendleri*, *Chamaesyce lata*, *Echinocereus reichenbachii*, *Opuntia polyacantha*, *Oenothera macrocarpa* subsp. *incana*, *Polygala alba*, *Rhus aromatica*, and *Yucca glauca*. *Opuntia leptocaulis*, *Opuntia phaeacantha*, and *Krascheninnikovia lanata* are conspicuous species also recorded from caprock communities but they are local in occurrence and occur in other communities as well.

RELATIVE CONDITION: Most examples of this community in the LAMR/ALFL area are in good condition, but in some cases degraded conditions were observed.

RARITY: In the area, this community is uncommon in its most typical form.

SIGNIFICANCE: This is a fairly unique community with some associated species limited to this geology.

## **RED SLOPES**

Slopes of soft red sandstone and shale (Quartermaster Group: Whitehorse Sandstone – Permian) strewn with white dolomite boulders and fragments from decomposition of the upper caprock are a prominent feature over much of the park. The most abundant and conspicuous woody species of the red slopes, depending on slope aspect, are *Dalea formosa*, *Artemisia ludoviciana*, *Rhus aromatica*, *Ptelea trifoliata*, *Mimosa borealis*, *Forestiera pubescens*, *Vitis acerifolia* (in moist areas), *Juniperus monosperma* (locally common in the southeastern part of the park), and *Prosopis glandulosa* (scattered). Characteristic herbaceous species are *Gutierrezia sarothrae*, *Chaetopappa ericoides*, *Cirsium undulatum*, *Erigeron modestus*, *Hymenopappus tenuifolius*, *Liatris punctata*, *Solidago petiolaris*, *Tetranneuris scaposa*, *Hedeoma drummondii*, *Penstemon fendleri*, *Penstemon albidus*, *Evolvulus nuttallianus*, *Eriogonum longifolium*, *Calylophus serrulatus*, *Oenothera macrocarpa* subsp. *incana*, *Polygala alba*, *Comandra umbellata*, *Chamaesyce fendleri*, *Chamaesyce lata*, *Tragia ramosa*, *Gilia rigidula*, *Lesquerella gordonii*, *Lesquerella ovalifolia*, *Mentzelia oligosperma*, *Krameria lanceolata*, *Astragalus lotiflorus*, *Astragalus missouriensis*, *Astragalus mollissimus*, *Oxytropis lambertii*, *Pediomelum linearifolium*, *Astragalus gracilis*, *Pascopyrum smithii*, *Bouteloua curtipendula*, *Bouteloua gracilis*, *Bouteloua hirsuta*, *Bouteloua pectinata*, and *Schizachyrium scoparium*. *Echinocereus reichenbachii* and *Opuntia polyacantha* are common cacti.

The ALFL “gravelly hills site” of Bell et al. (2000) is included in our “red slopes” community. The basic substrate is the same as the steeper slopes – the red sandy-clay directly derived from the Whitehorse Formation – but the dolomite rocks are absent on low hills (“gravelly slopes”) much below the caprock level. Plant associations on these low hills are essentially similar to those of the steeper slopes but lack a set of species that apparently are calciphilic (e.g., *Gilia rigidula*, *Astragalus gracilis*, *Tragia ramosa*, others etc.), perhaps reflecting the lack of influence of the disintegrating dolomite. The ‘steep slope’ community of Wright and Meador (1981), as well as part of their ‘gravelly slope’ association, is included within the ‘red slopes’ community. On the steepest slopes, which form the margins of the Canadian River ‘breaks,’ recurring landslides and erosion apparently prevent all but a few species from holding to life.

RELATIVE CONDITION: Observed examples of this community were in good condition.

RARITY: This vegetation type is relatively common in the parks.

SIGNIFICANCE: Due to the abundance and good condition of this particular habitat, there is little to comment on its significance at LAMR/ALFL.

## **GYPSUM OUTCROPS**

Large exposures of gypsum (Quartermaster Group: Cloud Chief Gypsum Formation – Permian) occur in the Plum Creek area. The very sparse vegetation on these outcrops apparently is primarily due to the nature of the substrate, but ORV use across some of the Plum Creek outcrops apparently has eliminated portions of the flora. Other smaller accessible areas of gypsum or gypseous outcrops have been studied in

Cedar Canyon, McBride Canyon, Spring Canyon picnic area, and the Rosita area. Transitions are generally sharp between the gypsum communities and adjacent habitats and communities (on steep red slopes and sand). The common gypsum-occurring species (in the park and immediately outside of it) are *Aristida purpurea*, *Calylophus hartwegii* var. *fendleri*, *Calylophus serrulatus*, *Lithospermum incisum*, *Hymenopappus filifolius*, *Phacelia integrifolia*, *Sporobolus cryptandrus*, and *Schizachyrium scoparium*. Other species include *Chamaesyce fendleri*, *Chamaesyce lata*, *Coryphantha vivipara*, *Echinocereus reichenbachii*, *Opuntia phaeacantha*, *Oenothera macrocarpa* subsp. *incana*, *Oenothera macrocarpa* subsp. *oklahomensis*, *Mentzelia nuda*, *Mirabilis linearis* var. *subhispida*, *Allionia incarnata*, *Asclepias engelmanniana*, *Dalea arenicola*, *Dalea candida*, *Dalea tenuiloba*, *Polygala alba*, *Hedyotis nigricans* var. *papillacea*, *Echinacea angustifolia*, *Gaillardia pinnatifida*, *Haploesthes greggii*, *Hymenopappus tenuifolius*, *Liatris punctata*, *Machaeranthera tanacetifolia*, *Melampodium leucanthemum*, *Psilostrophe villosa*, *Tetraneuris acaulis*, *Tetraneuris scaposa*, *Thelesperma megapotamicum*, *Bouteloua curtipendula*, and *Aristida fendleri*. Species that may be considered “gypsum indicators” (observed only on gypsum outcrops) are *Phacelia integrifolia*, *Allionia incarnata*, *Oenothera macrocarpa* subsp. *oklahomensis*, *Calylophus hartwegii* var. *fendleri*, *Haploesthes greggii*, and *Hymenopappus filifolius*.

*Mentzelia decapetala* and *Eriogonum jamesii* are uncommon in LAMR – they apparently are restricted to sites with eroding red slopes and little competition from other plant species. Narrow veins of gypsum at these sites or the close proximity of larger gypsum deposits suggest that these species of *Mentzelia* and *Eriogonum* are gypsophiles, although they have not been observed growing directly on the gypsum outcrops.

RELATIVE CONDITION: The condition of observed examples of this community type varied widely from good condition to some badly damaged areas.

RARITY: This community is uncommon in the parks.

SIGNIFICANCE: The vegetation in these areas consisted of uncommon species restricted to this uncommon habitat.

## **RIVER AND CREEK SIDES**

Riparian habitats vary in width and in species diversity. Some have broad, sandy terraces such as McBride Creek, Chicken Creek, and Big Blue Creek. Others are narrow bands along relatively small tributaries with permanent flow, such as Spring Creek (Spring Canyon) and an unnamed creek tributary to Big Blue Creek.

### **Riparian areas of larger tributaries**

Along the larger drainages, in the wettest habitats are *Schoenoplectus pungens*, *Juncus torreyi*, *Phragmites australis*, and *Typha domingensis*. On the lowest terraces, usually in moist sand, are *Equisetum laevigatum* and *Apocynum cannabinum*. Slightly higher are *Populus deltoides* var. *monilifera*, *Salix nigra*, *Sapindus drummondii*, *Prunus angustifolia*, *Celtis reticulata*, *Rosa woodsii*, *Rosa arkansana*, *Vitis acerifolia*, *Toxicodendron rydbergii*, *Rhus aromatica*, *Salix interior*, *Salix exigua*, *Salix amygdaloides*, *Glycyrrhiza lepidota*, and *Amorpha fruticosa*. Several species of grass are common: *Tridens flavus*, *Panicum virgatum*, *Sorghastrum nutans*, *Leersia oryzoides*, *Dichanthelium acuminatum*, *Echinochloa crus-galli*, *Elymus canadensis*, and *Schizachyrium scoparium* (upper terraces). More or less typical sand communities (see above, “Sandhills and Sand Flats”) may develop on upper terraces.

RELATIVE CONDITION: Due to the proximity to water, these areas tend to be impacted somewhat by human use, but generally they are in good condition.

RARITY: These communities are uncommon due to the limited amount of area within the parks where flowing water occurs.

SIGNIFICANCE: Due to their restricted local distribution, these communities are not thought of as particularly significant in the context of this study.

### **Sedge meadows and corridors**

Along relatively narrow channels of permanent or seasonal flow, sedge meadows (dominated by Cyperaceae) are characteristic, with *Eleocharis montevidensis*, *Eleocharis rostellata*, *Schoenoplectus pungens*, *Fuirena simplex*, *Dichanthelium acuminatum*, *Polypogon monspeliensis*, *Polypogon viridis*, *Sphenopholis obtusata*, and other grasses, *Equisetum laevigatum*, *Ranunculus sceleratus*, *Cicuta maculata*, *Berula erecta*, *Lycopus americanus*, *Verbena hastata*, *Lobelia cardinalis*, *Strophostyles leiosperma*, *Apocynum cannabinum*, *Oenothera jamesii*, *Pluchea odorata*, *Pyrrhopappus pauciflorus*, *Bidens frondosa*, *Vernonia baldwinii*, and *Solidago gigantea*. This plant association grades into that of the wider, sandy channels or may be abruptly distinct. Accessible examples of narrow channels with sedge meadows (or margins) are upper Mullinaw Creek, parts of upper Spring Creek, Chicken Creek, and Bugbee Creek.

RELATIVE CONDITION: Observations are that these areas tend to be trampled by cows and people.

RARITY: Generally rare in the parks.

SIGNIFICANCE: Some of the most uncommon species of the parks occur here. The Chicken Creek area has the highest species diversity in the park and badly needs protection.

### **Cottonwood gallery forest**

A stand of mature, closely spaced cottonwoods (*Populus deltoides* var. *monilifera*), averaging about 80 feet tall, covering an area of about five acres, occurs along the east terrace of the Canadian River, just north of the mouth of Chicken Creek. Numerous individuals of *Celtis reticulata* form an understory less than half the height of the cottonwoods. *Rhus aromatica* forms a distinct shrub layer, with scattered *Ribes aurea*, *Forestiera neomexicana*, *Vitis acerifolia*, *Prunus angustifolia*, *Prunus virginiana*, *Cephalanthus occidentalis*, and *Opuntia* aff. *macrorhiza*. *Parthenocissus vitacea* is a common vine. Common herbaceous species are *Panicum virgatum*, *Vernonia baldwinii*, *Tripsacum dactyloides*, and *Commelina erecta*. As far as known (fide J.W. Phillips, NPS ret.), this is the only large “gallery” stand of such large cottonwoods inside the park. Large (areal) cottonwood stands occur elsewhere in the Canadian River bottomland, and a distinctive, extensive stand of small, relatively widely spaced cottonwood trees occurs over clay soil in the Rosita Creek bottomland.

RELATIVE CONDITION: Examples of this community type are presently in good condition.

RARITY: This community is presently uncommon on the parks,

SIGNIFICANCE: With management against invasive species encroachment these areas may persist or even increase in abundance and area. Additional areas have some potential to develop into galleries as cottonwoods become larger in the park over an extended period of NPS management.

### **Hackberry-soapberry dry woodland**

On slightly higher creek and river terraces, a woodland similar in composition to the cottonwood gallery sometimes occurs, but the tall cottonwoods are absent. Cottonwoods are scattered on lower terraces. The canopy of these dry woodlands is dominated by *Celtis reticulata* (along the north side of lower Chicken Creek) or *Sapindus drummondii* (in lower McBride Canyon, Plum Creek, Big Blue Creek). *Rhus aromatica* forms a distinct subcanopy/shrub layer, with scattered *Ptelea trifoliata*, *Forestiera pubescens*,

*Ribes aurea*, and *Juniperus monosperma*. Abundant *Artemisia filifolia* forms a lower shrub layer. *Opuntia macrorhiza*, *Cirsium ochrocentrum*, and various grasses are common.

RELATIVE CONDITION: These areas tend to be heavily used by people.

RARITY: This community is not rare but uncommon, being restricted to riparian zones.

SIGNIFICANCE: The community is of no notable significance in the context of the present survey.

## **LAKESHORE**

On the exposed banks (sandy clay) of the immediate lake shore, various species appear as first colonizers. Where fluctuation of the water level is greatest (newly exposed substrate), the most common among these species are *Bassia scoparia*, *Salsola tragus*, *Salsola collina*, *Heliotropium curassavicum*, *Chenopodium glaucum*, *Chenopodium berlandieri*, *Chenopodium pratericola*, *Cycloloma atriplicifolia*, *Tamarix ramosissima*, *Schoenoplectus pungens*, *Schoenoplectus maritimus*, *Polygonum amphibium*, *Polygonum arenastrum*, *Polygonum ramosissimum*, *Panicum capillare*, *Echinochloa crus-galli*, *Leptochloa fascicularis*, *Cyperus odoratus*, *Sporobolus texanus*, *Symphotrichum divaricatum*, *Pluchea odorata*, *Eclipta prostrata*, and *Sonchus asper*. Slightly higher on the reddish lakeshore alluvium are *Cynodon dactylon*, *Distichlis spicata* var. *stricta*, *Baccharis salicina*, *Grindelia ciliata*, *Populus deltoides* var. *monilifera*, *Salix interior*, and *Salix amygdaloides*.

Where the slope of the shore is less steep, sandy terraces may be present and species segregate ecologically in dense stands. In the lowest and wettest areas, where the lake shores grade into marsh, *Typha domingensis* occurs in extensive stands, exclusive of all other species; colonies of *Phragmites australis* may be intermixed. *Baccharis salicina*, *Populus deltoides* var. *monilifera*, *Tamarix ramosissima*, *Panicum virgatum*, *Distichlis spicata* var. *stricta*, *Chenopodium berlandieri*, *Conyza canadensis*, and *Ambrosia psilostachya* occur slightly further upslope on sandy terraces. *Prunus angustifolia* may occur in moist microsites.

Floating aquatics apparently are uncommon in the lake, but a population of *Ranunculus trichophyllus* occurs in a shallow inlet at Cedar Canyon and *Myriophyllum spicatum* occurs in abundance at various sites: along the N-facing shore below the Sanford-Yake picnic area and other coves around the lake, including Harbor Bay, Bugbee Canyon, and Cedar Canyon.

The overlapping “lakeshore,” “marsh,” and “riparian” communities as described here are all treated within the “bottomland association” of Wright and Meador (1981), who noted that this association represents a “mosaic of microcommunities corresponding to a mosaic pattern of habitats.” The discrete divisions represented in our analysis can be seen in many places, but intergradation is common and the mosaic pattern is the predominant feature at other sites. A relatively easily accessible place to observe an extreme mosaic is in the Canadian River bottom in the area of the McBride Creek entrance.

The “sandy and loamy bottomland sites” category of Bell et al. (2000) appears to combine our ‘riparian’ and “sandhills and sand flats” categories.

RELATIVE CONDITION: These areas are heavily littered with debris deposited by fluctuating lake levels.

RARITY: This is an uncommon vegetation type, because of the paucity of gently sloping approaches to the water.

SIGNIFICANCE: This is a man-made habitat, probably continually in ecological flux, unless the lake is permanently at a lower level.

## MARSH

Marsh habitat is common on the south end of the lake, where water levels are shallow and the lake is commonly not even filled. Extensive areas of *Typha domingensis*, exclusive of all other species, occur in various areas of the Canadian River bottom, and *Typha* populations of various sizes fill or line stream channels in many places (e.g. Mullinaw Canyon, Chicken Creek). A large *Typha* marsh is easily accessible to the northeast of the Bates Canyon boat ramp. An extensive marsh also begins relatively abruptly immediately below Sanford Dam – dominated by *Typha domingensis* and *Schoenoplectus pungens* in areas of deeper water, with *Phragmites australis* and *Chloracantha spinosa* around the edges.

In shallow but wet areas, *Schoenoplectus pungens*, *Schoenoplectus maritimus*, *Eleocharis montevidensis*, *Eleocharis rostellata*, *Polypogon monspeliensis*, *Phragmites communis*, *Distichlis spicata* var. *stricta*, *Puccinellia fasciculata*, *Sporobolus texanus*, *Sphenopholis obtusata*, *Pluchea odorata*, *Rayjacksonia annua*, *Suaeda calceoliformis*, *Flaveria campestris*, *Symphyotrichum expansum*, and *Atriplex patula* grow intermixed. Narrow channels with floating *Lemna valdiviana* and lined with *Typha domingensis* and *Schoenoplectus pungens* interlace through the shallower areas. *Zannichellia palustris* and *Potamogeton pectinatus* occur in deeper channels and pools. *Baccharis salicina*, *Tamarix ramosissima*, and *Distichlis spicata* var. *stricta* are characteristic of slightly higher ground of hummocks or periodically dry margins of the marsh. Shrubby *Salix interior* and *Salix exigua* also may form dense colonies in slightly raised, sandy sites within an otherwise marshy area.

In areas where shallow water has evaporated (by mid June) to leave a salty crust, *Distichlis spicata* var. *stricta*, *Suaeda calceoliformis*, *Rayjacksonia annua*, and several others constitute the few species growing there. Small salt flats such as these are evident on the northeast side of Spring Lake (below Sanford Dam).

RELATIVE CONDITION: These areas are continually disturbed, but perhaps not greatly.

RARITY: This community is rare at LAMR.

SIGNIFICANCE: Some uncommon species are associated with the marsh edge. *Puccinellia fasciculata* (new for Texas), *Symphyotrichum expansum*, and *Atriplex patula* (new for Texas) are known in the park only from this small area. The larger *Typha* marsh, which runs extensively downstream from the dam, is low in diversity.

## BORROW AREA

On the northwest side of Sanford Dam, between North Canyon and Hwy 1319, large amounts of rock and soil were removed ca. 1962-1968 for construction of the dam. This area is now relatively flat, consistently scraped down to a level of reddish sandstone and sandy clay within the Whitehorse Formation and naturally revegetated over the last 40 years. *Prosopis glandulosa* is the dominant shrub/small tree of the borrow area; *Tamarix angustissima* is scattered through the habitat. Common subshrubby and herbaceous species are *Gutierrezia sarothrae*, *Symphyotrichum ericoides*, and the grasses *Bothriochloa ischaemum*, *Bouteloua curtipendula*, and *Sporobolus cryptandrus*. Others are *Grindelia ciliata*, *Dalea enneandra*, *Heterotheca stenophylla*, *Solanum elaeagnifolium*, *Desmanthus illinoensis*, *Opuntia macrorhiza*, *Bothriochloa laguroides*, *Aristida fendleri*, and *Buchloe dactyloides*. In some areas along the east side of the borrow (almost certainly with gypseous substrate), *Isocoma pluriflora* is a dominant subshrub and the most conspicuous floristic element.

RELATIVE CONDITION: This area is disturbed, of course.

RARITY: This type is isolated to the one area of excavation, but it is a completely unnatural setting of little note regarding rarity.

SIGNIFICANCE: Although this is an area heavily disturbed by past human activities, it is interesting to observe the natural revegetation process here. The process of succession at this site is perhaps not typical of many other Panhandle areas, because native seed sources are in relatively close proximity—more than they may be in most other cases.

### **LAWNS and MOWED ROADSIDES**

Lawns and periodically closely mowed roadsides occur in the sandy soils in the vicinity of Ranger Station and the Water Control Authority headquarters. Common species of these sites and others are *Bromus catharticus*, *Bromus japonicus*, *Buchloe dactyloides*, *Cenchrus longispinus*, *Cynodon dactylon*, *Hordeum pusillum*, *Chamaesaracha sordida*, *Descurainia pinnata*, *Descurainia sophia*, *Erodium cicutarium*, *Salsola tragus*, *Bassia scoparia*, *Evax prolifera*, *Evolvulus arvensis*, *Portulaca pilosa*, *Sphaeralcea coccinea*, *Plantago patagonica*, and *Verbena bracteata*. Other relatively common species are *Cryptantha minima*, *Eragrostis cilianensis*, *Elymus elymoides*, *Aphanostephus ramosissimus*, *Taraxacum officinale*, *Lactuca serriola*, *Tragopogon dubius*, and *Verbena pumila*.

Several species of trees are planted and healthy along the fenceline on the north side of the LAMR Ranger Station: *Fraxinus pennsylvanica*, *Morus alba*, and *Maclura pomifera*. *Thuja occidentalis* is planted at the ‘check station’ at the Cedar Canyon/Sanford-Yake road junction.

RELATIVE CONDITION: These areas are completely influenced by intensive human manipulation.

RARITY: Common wherever human activities are focused.

SIGNIFICANCE: The Cedar Canyon/Sanford-Yake ‘check station’ lawn area has species, including natives, uncommon elsewhere in the park. These habitats are otherwise worthy of little mention in terms of significance.

### **OLD HOMESITES**

Near the west end of NPS property in Plum Creek Canyon, in the immediate vicinity of Plum Creek campground, concrete slabs and planted lines of cottonwood (*Populus deltoides* var. *monilifera*) and American elm (*Ulmus americana*) mark the site of an old ranch house. Individuals of *Ulmus americana*, *Ulmus pumila*, *Morus alba*, *Maclura pomifera*, and *Gleditsia triacanthos* apparently were planted in the close vicinity of the house, probably ca. 1920-1930. We did not observe successful reproduction by any of these non-native tree species, but all except the *Gleditsia* appear to be vigorous and healthy. All individuals are on or slightly above the upper terrace of the creek. Also in the close vicinity of the homesite (in a narrow draw, mixed with *Sapindus*) is the only known LAMR-ALFL occurrence for *Juglans microcarpa*, but this species (represented by two individuals) apparently is naturally-occurring here.

Another residence, about the same age as the one at Plum Creek, was located near the mouth of Chicken Creek. A large, healthy tree of *Ulmus pumila* persists at this site, on a low, sandy bluff on the north side of the creek; we located two smaller individuals of the same species, ca. 5 meters and 8 meters tall, within the cottonwood gallery forest about 100 meters from the cultivated tree – these smaller ones almost certainly arose spontaneously from seeds of the persistent parental individual. In areas close to the town of Fritch, *U. pumila* is extremely abundant as a naturalized colonizer.

RELATIVE CONDITION: These areas are heavily disturbed and altered by human activities.

RARITY: These areas are uncommon in number but of little note concerning their rarity.

SIGNIFICANCE: These areas are of particular interest because of introduced woody species found there, some of which might be potentially invasive.

**APPENDIX 4:** Field list and collections account (trip/locality/collection data).

Collections by Guy Nesom and Robert O'Kennon from **Lake Meredith National Recreation Area** (LAMR) and **Alibates Flint Quarries National Monument** (ALFL) and immediately adjacent off-park localities. Species names are those assigned at the time of collection or shortly thereafter. See Appendix 8, Appendix 9, or the ANCS+ vouchers database for final determinations. Comments on abundance here are relative to the immediate vicinity of the observation, and are not applicable to the park as a whole.

**TRIP 1: 22–27/28 April 2002**

**Loc 1: 22 April 2002**

Hutchinson County. LAMR, Harbor Bay area, directly W of Fritch on Harbor Bay Road; N35° 38 58, W101° 37 46. Roadsides and steep red-sandy slopes with dolomite boulders from caprock; 3190 ft elev., ca. 4 feet above lake level.

1. *Gaillardia pinnatifida* Common.
2. *Chamaesyce fendleri* Common.
3. *Rhus aromatica* Common.
4. *Comandra pallida* Scattered but common, slopes.
5. *Gilia rigidula* var. *acerosa* Common.
6. *Chaetopappa ericoides* Common.
7. *Tetranneuris scaposa* var. *scaposa* Common.
8. *Hoffmannseggia glauca* Locally common.
9. *Dalea formosa* Common.
10. *Kraschenennikovia lanata* Locally common.
11. *Tamarix ramosissima* Common near lake edge.
12. *Tamarix ramosissima* Common near lake edge.
13. *Euphorbia strictior* Uncommon, just into flower.
14. *Lesquerella ovalifolia* Common.
15. *Lesquerella gordonii* Common.
16. *Scorzonera laciniata* Few plants seen.
17. *Lappula redowskii* var. *cupulata* Common.
18. *Astragalus mollissimus* Common.

**Loc 2: 22 April 2002**

Hutchinson County. LAMR, Fritch Fortress Road between park boundary and Fritch Fortress amphitheater, SE of Fritch Fortress boat launch area, steep slopes beside park road and sides of deep canyon on E side of road. Red-sandy soil with dolomite boulders from caprock.

19. *Lesquerella ovalifolia* Scattered but common.
20. *Lesquerella gordonii* Common.
21. *Vitis acerifolia* Locally common, mostly in drainage areas.
22. *Comandra pallida* Scattered but common.
23. *Gilia rigidula* var. *acerosa* Common.
24. *Ptelea trifoliata* Common shrubs.
25. *Chamaesyce lata* Common.
26. *Penstemon fendleri* Scattered but common.
27. *Tragia ramosa* Common.

**Loc 3: 22 April 2002**

Hutchinson County. LAMR, boat launching area at Fritch Fortress; N35° 48 45, W105° 35 31. Roadsides and steep red-sandy slopes with dolomite boulders from caprock.

28. *Castilleja sessiliflora* Uncommon.
29. *Comandra pallida* Scattered but common.

**Loc 4: 22 April 2002**

Hutchinson County. LAMR, roadside along the Sanford-Yake Road, vicinity of junction of spur to Ranger Station area and road to Cedar Canyon. Gravelly sand.

30. *Bromus catharticus* Common.
31. *Buchloe dactyloides* Common.

**Loc 5: 22 April 2002**

Hutchinson County. LAMR, area of Sanford-Yake Marina, slopes on W side of the marina inlet and along road approaching boat launch area. Red sandy-clay slopes with dolomite boulders from caprock; sandy soil between parking lot and marina.

32. *Erigeron modestus* Common, scattered.
33. *Calylophus lavandulifolius* Common.
34. *Lesquerella gordonii* Common.
35. *Lesquerella ovalifolia* Common.
36. *Melampodium leucanthum* Common, just into flower.
37. *Allium drummondii* Locally common at this site.
38. *Astragalus missouriensis* Common.

**Loc 6: 23 April 2002**

Hutchinson County. LAMR, vicinity of NPS gate at top of steeply descending park road to Spring Creek picnic and fishing area immediately below Sanford Dam, at jct with FM 1319 on SE side of Sanford Dam. Slight slopes, sandy soil, with *Yucca glauca*, *Mimosa borealis*, *Mentzelia nuda*, *Gutierrezia* sp., *Tetrandeum scaposum*, *Chaetopappa ericoides*, and *Bouteloua* spp.

39. *Thelesperma filifolium* var. *intermedium* Common.
40. *Berlandiera lyrata* Common, just into flower.
41. *Tetrandeum scaposum* var. *scaposum* Common.
42. *Aristida purpurea* Common.
43. *Opuntia* sp.
44. *Opuntia phaeacantha*
45. *Opuntia* [white spine ]

**Loc 7: 23 April 2002**

Hutchinson County. LAMR, FM 687, roadsides just SW of jct with Spur 687. Deep sandy soil; area of much mesquite, common *Eriogonum annuum*.

46. *Lithospermum incisum* Common.
47. *Vulpia octoflora* Common.
48. *Mimosa* (*Schrankia*) *nuttallii* Common; not yet in flower.
49. *Erysimum asperum* Common at this site; abundant in local population but not seen elsewhere.
50. *Linum pratense* Common at this site; flowers blue.
51. *Hymenopappus flavescens* Common.
52. *Erigeron colomexicanus* Uncommon, few plants seen, just into flower.
53. *Cryptantha minima* Common.
54. *Astragalus lotiflorus* Common; flowers yellow.
55. *Astragalus missouriensis* Common; flowers purple.
56. *Paronychia jamesii* Uncommon; last year's reproductive parts remaining.

**Loc 8: 23 April 2002**

Hutchinson County. LAMR, boundary road in extreme NE corner of park, between FM 687 and Spring Canyon area. Area of deep sand, gentle slopes, W-facing, with *Yucca glauca*, *Eriogonum annuum*, *Gutierrezia sarothrae*, *Mentzelia nuda*, *Stillingia sylvatica*, *Krameria lanceolata*.

- 57. *Erigeron colomexicanus* Top of boulder cluster, uncommon.
- 58. *Erigeron modestus* Common along sides of wash.
- 59. *Chamaesyce fendleri* Common.
- 60. *Echinocereus reichenbachii* Nearly in flower, common.

**Loc 8.5: 23 April 2002**

Hutchinson County. LAMR, Roadside near surface outcrop of dolomite caprock (S side of road), FM 687 ca. 0.1 mi NE of jct with FM 1319, NE side of Sanford Dam. Roadside and swales of sand-clay soil.

- 61. *Bromus japonicus* Common.
- 62. *Calylophus lavandulifolius* Common.

**Loc 9: 23 April 2002**

Potter County. LAMR, Bates Canyon area at end of Bates Canyon Road on SW side of lake, slightly upslope from Bates Canyon boat ramp, N of Alibates Contact Station; N35° 35' 15", W101° 42' 30". Area of red sandy-clay slopes with dolomite boulders; grassy flats around parking and road; ca. 2910 ft elev.

- 63. *Packera plattensis* Few plants at edge of road and parking area.
- 64. *Celtis reticulata* Large tree at edge of road and parking area, common species in vicinity.

**Loc 10: 23 April 2002**

Potter County. LAMR, Bates Canyon area, Dolomite Point Road, N of Contact Station (off Bates Canyon Road, 0.2 mi from first view of filled chimney). Low hills without dolomite rocks, red sandy-gravelly soil; area of much *Yucca glauca*, *Mimosa borealis*.

- 65. *Tetraneuris scaposa* var. *scaposa* Common.
- 66. *Chamaesyce lata* Common.
- 67. *Pediomelum hypogaeum* var. *hypogaeum* Uncommon, few plants.
- 68. *Cymopterus acaulis* Scattered but relatively common.
- 69. *Cymopterus montanus* Scattered but relatively common.
- 70. *Solanum elaeagnifolium* Scattered; not yet in flower.

**Loc 11: 23 April 2002**

Potter County. LAMR, Bates Canyon area N of Contact Station, near end of Dolomite Point Road (off Bates Canyon Road), directly across from filled chimney. Low hills without dolomite rocks, red sandy-gravelly soil; area of much *Yucca glauca*, *Mimosa borealis*.

\**Atriplex canescens* (no voucher) Scattered shrubs, not yet in flower.

**Loc 12: 23 April 2002**

Potter County. LAMR, road to ALFL, just within park boundary S of Bates Canyon area, overlooking Contact Station. Area of red sandy-clay slopes and dolomite caprock; with abundant *Rhus*, *Ptelea*, *Yucca*, *Kraschenennikovia*.

\**Juniperus monosperma* (no voucher) 3 trees scattered on N slope, non-reproductive.

**Loc 13: 24 April 2002**

Hutchinson County. LAMR, lawn and roadsides of small park building ("Check Station") at junction of park roads to Cedar Canyon and Sanford-Yake Marina, just N of LAMR Ranger Station.

- 71. *Chamaesaracha sordida* Relatively few plants.
- 72. *Setaria leucopila* Few plants, shade of building.
- 73. *Glandularia pumila* Common.

- 74. *Lepidium oblongum* Common.
- 75. *Descurainia pinnata* var. *ochroleuca* Common.
- 76. *Linum rigidum* Common.
- 77. *Lappula redowskii* var. *cupulata* Common.
- 79. *Medicago minima* Common.
- 80. *Evax prolifera* Common, not yet in mature flower.
- 81. *Glandularia bipinnatifida* Few plants.
- 82. *Elymus elymoides* Common.
- 83. *Bromus japonicus* Common.
- 84. *Bromus catharticus* Common.
- 85. *Astragalus nuttallianus* Common.
- 86. *Astragalus nuttallianus* Common.

**Loc 14: 24 April 2002**

Hutchinson County. LAMR, Bugbee Creek, vicinity of creek crossing of park road in canyon, ca. 0.5 mi S of jct with FM 3395, W side of town of Bugbee; N35° 43 38, W101° 35 39. Scattered *Populus* and *Tamarix* along creek; 2985 ft elev.

- 87. *Salix exigua* Shrubs ca. 1–1.5 m tall; large clonal colony in creek drainage, below N side of road.

**Loc 15: 24 April 2002**

Hutchinson County. LAMR, Bugbee Canyon camping and fishing area, on NE shore of lake at end of park road from FM 3395. Open flats in area of water level fluctuation; dense *Tamarix* and *Baccharis* along the base of slopes.

- 88. *Tamarix chinensis* Uncommon, compared to the dominant *T. ramosissima* at this site.
- 89. *Tamarix ramosissima* Common.
- 90. *Tamarix ramosissima* Common.

**Loc 16: 24 April 2002**

Hutchinson County. LAMR, Bugbee ‘plateau’ – sandy flats on peninsula between Bugbee Canyon and North Canyon, reached by entrance road through small town of Bugbee; N35° 43 05, W101° 35 22. *Gutierrezia sarothrae*, *Baccharis wrightii*, *Mimosa borealis*, *Dalea formosa*, *Yucca glauca*; 3035 ft elev.

- 91. *Baccharis wrightii* Plants widely scattered but not uncommon; not yet in flower.

**Loc 17a: 25 April 2002**

Potter County. LAMR, McBride Canyon area, vicinity of McBride House and campground. Sandy alluvium in canyon, with *Populus sargentii*, *Celtis reticulata*, *Sapindus drummondii*, *Prunus angustifolia*, *Prunus virginiana*.

- 92. *Prunus angustifolia* Common, thickets.
- 93. *Rhus aromatica* Common.
- 94. *Prunus virginiana* Relatively few small trees in one area.
- 95. *Ribes odoratum* Few plants.
- 96. *Rosa woodsii* Large colony.
- 97. *Taraxacum officinale*. Common in small area, near campground.

**Loc 17b: 25 April 2002**

Potter County. LAMR, McBride Canyon area, vicinity of McBride House on NW side (SW-facing) and high walls on SW side of canyon (NE-facing). Red sandy-clay slopes with dolomite boulders from caprock; abundant *Rhus aromatica*, *Ptelea trifoliata*.

- 98. *Evolvulus nuttallianus* Common, base of SW-facing slope.
- 99. *Chamaesyce fendleri* Common, base of SW-facing slope.
- 100. *Erioneuron pilosum* Common, base of SW-facing slope.

- 101. *Atriplex canescens* Scattered shrubs on SW-facing slope.
- 102. *Juniperus monosperma* Scattered small trees on NE-facing slope.
- 103. *Pellaea atropurpurea* Uncommon, base of boulders on NE-facing slope.
- 104. *Lesquerella ovalifolia* Common at top of slope on NW side of canyon.

**Loc 18: 25 April 2002**

Hutchinson County. LAMR, lawn and roadsides of NPS Ranger Station, just W of Sanford-Yake road on short spur, near jct of High Plains Road.

- 105. *Erodium cicutarium* Common.
- 106. *Tridens albescens* Few plants.
- 107. *Tragopogon dubium* Common.
- 108. *Descurainia sophia* Common.
- 109. *Descurainia pinnata* var. *ochroleuca* Common.
- 110. *Scorzonera laciniata* One large plant.
- 111. *Lappula redowskii* var. *occidentalis* Common.

**Loc 19: 26 April 2002**

Moore County. LAMR, Blue West area, near boat launching area, west side of Lake Meredith. Red, gravelly-sandy-clay, with *Salix*, *Baccharis*, *Populus*, *Ptelea*, *Tamarix*.

- 112. *Salix amygdaloides* Common, small shrubs/trees.
- 113. *Populus sargentii* Common.
- 114. *Ptelea trifoliata* Common.
- 115. *Cymopterus acaulis* Common in local area, nearly bare soil.
- 116. *Hybanthus verticillatus* Scattered plants on steep banks of wash, red sandy-clay soil of uplands near W boundary of park along Blue West Road.

**Loc 20: 27 April 2002**

Hutchinson County. LAMR, Bugbee Creek, vicinity of creek crossing of park road in canyon, ca. 0.5 mi S of jct with FM 3395 on west side of town of Bugbee; N35° 43 38, W101° 35 39. Scattered *Populus* and *Tamarix* along creek; 2985 ft elev.

- 117. *Cicuta maculata* Immature
- 118. *Eleocharis rostellata* Common.
- 119. *Eleocharis montevidensis* Common.
- 120. *Zannichellia palustris* Common, completely submerged.
- 121. *Ranunculus sceleratus* One large plant in pool near culvert; rooted in deep water.
- 122. *Elaeagnus angustifolia* One large tree seen in this area.
- 123. *Salix exigua* Colony of shrubs, near top of Bugbee Canyon beside stream.
- 124. *Packera plattensis* Few plants around picnic area; just into flower.
- 125. *Psilostrophe villosa* Common; first plants in flower.
- 126. *Salix amygdaloides* Sprouts and shrubs from dead tree.

**Loc 21a: 27 April 2002**

Potter County. LAMR, Plum Creek Road just S of park boundary, high elevation vista of Plum Creek area; N35° 36 37, W101° 43 28. Surface outcrop of dolomite; 3025 ft elev.

- 127. *Minuartia michauxii* var. *texana* Scattered but common on outcrop.
- 128a. *Aphanostephus ramosissimus* var. *ramosissimus* Few plants seen, along roadside.
- 128b. *Asclepias asperula* Common along roadside.
- 129. *Astragalus missouriensis* Uncommon on outcrop.

**Loc 21b: 27 April 2002**

Potter County. LAMR, Plum Creek area, large gypsum outcrop, crossed by secondary road ca. 0.4 mi W of jct with Plum Creek road (paved); N35° 35' 51", W101° 43' 40". Sparse vegetation.

130. *Lithospermum incisum* Common on bare outcrop.

**Loc 21c: 27 April 2002**

Potter County. LAMR, Plum Creek area, near boat launching area at end of Plum Creek road (paved).

131. *Cymopterus montanus* Few plants found, on bare soil.

132. *Glandularia pumila* Scattered but common in small area.

**Loc 21d: 27 April 2002**

Potter County. LAMR, Plum Creek area on west side of Lake Meredith, ca 0.5 mi S of jct with Plum Creek road (paved). Valley alluvium of red sandy-clay, mesquite and grasses.

133. *Quincula (Physalis) lobata* Common for 100 yards along shallow roadbank. Seen only at this site.

**Loc 22: 27 April 2002**

Moore County. LAMR, Plum Creek area on west side of Lake Meredith, Devil's Canyon area at beginning of Devil's Canyon horse and hiking trail. Vicinity of large, open-mowed campground area, large willows and bottomland woodland and thickets.

134. *Salix exigua* Common; small trees along margin of open area.

135. *Salix amygdaloides* Common; woodland thicket.

136. *Salix nigra*. Scattered large trees in open area of campground.

137. *Sophora nuttalliana* Two plants seen, among tall grasses in open area; upland area just out of campground along horse and hiking trail.

138. *Rhus aromatica* Common, upland area.

**TRIP 2: 26–30/31 May 2002**

**Loc 1: 26 May 2002.**

Hutchinson County. LAMR, Sandy roadsides along Hwy 687 in vicinity of junction with (Hwy) Spur 319/ 687. Deep sandy soil; area of much *Prosopis*, *Artemisia filifolia*, *Yucca glauca*, common *Eriogonum annuum* and *Ipomoea leptophylla*.

139. *Aristida glauca* Common.

140. *Calylophus serrulatus* Common.

141. *Thelesperma megapotamicum* Common.

142. *Erysimum asperum* Common at this site.

143. *Cirsium undulatum* Common.

144. *Plantago patagonica* Common.

145. *Coelorachis cylindrica* Common at this site.

146. *Penstemon ambiguus* Common, scattered.

147. *Erigeron bellidiastrum* var. *robustum*. Common, scattered.

148. *Asclepias asperula* Common.

149. *Commelina erecta* Common, scattered.

150. *Machaeranthera tanacetifolia* Common at this site.

151. *Lithospermum incisum* Common at this site.

152. *Machaeranthera pinnatifida* var. *pinnatifida*

153. *Paronychia jamesii* Scattered but common.

154. *Elymus elymoides* Common.

**Loc 2: 26 May 2002.**

Hutchinson County. LAMR, boundary road in extreme NE corner of park, between FM 687 and Spring Canyon area, from near FM 687 junction ca. 50 yds toward the south. Area of deep sand, gentle W-facing slopes, with *Yucca glauca*, *Artemisia filifolia*, *Prosopis*, *Eriogonum annuum*, *Gutierrezia* sp., *Mentzelia nuda*, *Stillingia sylvatica*, *Krameria lanceolata*.

155. *Gaura coccinea* Common.
156. *Evolvulus nuttallianus* Uncommon at this site.
157. *Helianthus petiolaris* Common; evidence of introgression from *H. annuus* in some plants?
158. *Scutellaria resinosa* Common, scattered.
159. *Tradescantia occidentalis* Uncommon.
160. *Monarda punctata* var. *occidentalis* Common.
161. *Monarda pectinata* Common.
162. *Dimorphocarpa candicans* Uncommon; few plants apparent now (more later in season).
163. *Gaillardia pulchella* Common.
164. *Machaeranthera pinnatifida* var. *glaberrima* Common. Var. *pinnatifida* also common, no intermediates.
165. *Machaeranthera pinnatifida* var. *pinnatifida* Scattered at this site. Var. *glaberrima* also common, no intermediates.
166. *Prosopis glandulosa* Common.
167. *Gaura villosa* Common.
168. *Erigeron bellidiastrum* var. *robustum* Scattered but common.
169. *Chamaesyce fendleri* Common.
170. *Stillingia silvatica* Common, scattered.
171. *Croton texensis* Common.
172. *Krameria lanceolata* Common, scattered.

**Loc 3: 26 May 2002.**

Hutchinson County. LAMR, boundary road in extreme NE corner of park, between FM 687 and Spring Canyon area, at end of road near Spring Canyon overlook. Area of deep sand, gentle W-facing slopes, with *Yucca glauca*, *Eriogonum annuum*, *Gutierrezia sarothrae*, *Mentzelia nuda*, *Stillingia sylvatica*, *Krameria lanceolata*, *Opuntia polyacantha*, *Chaetopappa ericoides*, *Cryptantha cinerea* var. *jamesii*, *Hymenopappus tenuifolius*, *Gaura villosa*, *Liatris punctata*.

173. *Dalea purpurea* var. *arenicola* Common.
174. *Dalea nana* Uncommon.
175. *Hymenopappus tenuifolius* Common.
176. *Cryptantha cinerea* var. *jamesii* Locally common.

**Loc 4: 26 May 2002.**

Hutchinson County. LAMR, Roadside near surface outcrop of dolomite caprock (S side of road), FM 687 ca. 0.1 mi NE of jct with FM 1319, NE side of Sanford Dam. Roadside and swales of sand-clay soil.

177. *Bothriochloa laguroides* Abundant weed along roadside.
178. *Melilotus officinalis* Abundant weed along roadside.
179. *Chamaesyce lata* Common in this habitat.
180. *Polygala alba* Common in this habitat.
- 181a. *Festuca arundinacea* [*Lolium arundinacea*]
- 181b. *Hybanthus verticillatus* Uncommon or very inconspicuous.

**Loc 5: 26 May 2002. OUT OF PARK**

Hutchinson County. Fritch Fortress Road, NE of Fritch, ca 1 mi N of jct with Hwy 136; N35° 39' 00", W101° 34' 36". Grassland with *Yucca glauca* and scattered mesquite, hardpacked sandy soil of close roadside; with *Asclepias latifolia*, *Ratibida tagetes* (not yet in flower), *Berlandiera lyrata*, *Convolvulus*

*arvensis*, *Phyla cuneifolia*, *Sphaeralcea coccinea*, *Hordeum pusillum*, *Coelorachis cylindrica*; 3190 ft elev.

182. *Picradeniopsis woodhousei* Abundant in large colony; in full flower.

183. *Phyla cuneifolia* Common at this site.

**Loc 6: 26 May 2002.**

Hutchinson County. LAMR, boat launching site at Fritch Fortress area; N35° 48 45, W105° 35 31.

Roadsides and steep gypseous red-sandy slopes with dolomite boulders from caprock.

184. *Astragalus gracilis* Scattered at base of slopes.

185. *Oxytropis lambertii* Few plants on red, gypseous slope.

186. *Tamarix ramosissimus* Colonizer, lake shores.

187. *Melilotus albus* Weedy.

188. *Bothriochloa ischaemum* var. *songarica* Weedy along roadsides and around parking.

**Loc 7: 27 May 2002. OUT OF PARK**

Hutchinson County. Fritch Fortress Road, ca. 0.1 mi W of jct with High Plains Road, just SE of boundary of Lake Meredith Natl. Recreation Area; N35° 40 36, W101° 35 11. Grassland with *Yucca glauca* and scattered mesquite, gravelly soil of immediate roadside; *Tetraeneuris scaposa*, *Chaetopappa ericoides*, *Gaillardia suavis*, *Machaeranthera pinnatifida*, *Sphaeralcea coccinea*, *Coelorachis cylindrica*, *Aristida* sp. 3150 ft elev.

189. *Picradeniopsis woodhousei* Locally common in a small area on N side of road; just into flower.

**Loc 8: 27 May 2002.**

Hutchinson County. LAMR, boat launching area at Fritch Fortress; N35° 48 45, W105° 35 31. Roadside and steep red-sandy gypseous soil with dolomite boulders from caprock.

190. *Astragalus missouriensis* Uncommon.

191. *Pediomelum linearifolia* Common.

192. *Pediomelum cuspidata* Scattered.

193. *Penstemon albidus* Common on slopes.

194. *Atriplex canescens* Few shrubs.

195. *Oenothera macrocarpa* var. *incana* Scattered, only on gyp.

196. *Lappula redowskii* var. *occidentalis* Common.

197. *Euphorbia spathulata* Uncommon.

**Loc 8.5: 27 May 2002.**

Hutchinson County. LAMR, Fritch Fortress Road between park boundary and Fritch Fortress amphitheater, SE of Fritch Fortress boat launch area, steep slopes beside park road and sides of deep canyon on E side of road. Red-sandy soil with dolomite boulders from caprock.

198. *Zinnia grandiflora* Common, along roadside and in open flats.

199. *Pilostyles thurberi* Uncommon, on *Dalea formosa*.

200. *Psilostrophe villosa* Common.

201. *Eriogonum longifolium* Scattered on slope.

202. *Lappula redowskii* var. *occidentalis* Common.

**Loc 9: 27 May 2002. OUT OF PARK**

Moore County (very close to corner with Hutchinson, Carson, and Potters cos.). Along Hwy 136, 1.3 mi S of jct with S. Hoyne Street in town of Fritch, N35° 37 33, W101° 37 15. Heavily grazed grassland with mesquite and scattered *Yucca glauca*; roadside weeds including *Gaura parviflora*, *Bromus japonicus*, *Cryptantha minima*. 3195 ft elevation.

203. *Onopordum acanthium* L. Ca. 120 large reproductive plants in a small area along W side of highway. This population said to have been established in ca. 1976 (fide J.W. Phillips, NPS ret.), apparently with minimal spread since that time.

**Loc 9.5: 27 May 2002.**

Hutchinson County. LAMR, sandy lawn and roadsides of NPS Ranger Station, just W of Sanford-Yake road on short spur, near jct of High Plains Road.

- 204. *Gaura coccinea* Common.
- 205. *Cenchrus incertus* Common.
- 206. *Schedonnardus paniculatus* Few plants seen.
- 207. *Stephanomeria pauciflora* Common in one area.
- 208. *Evax prolifera* Common on barest soil.
- 209. *Cryptantha minima* Common.

**Loc 10: 27 May 2002.**

Hutchinson County. LAMR, Cedar Canyon area (parking, boat launch, picnic) on east side of Lake Meredith; N35° 41 37, W101° 34 23. Roadsides and steep red-sandy soil with dolomite boulders from caprock; 2930 ft elev.

- 210. *Chamaesyce glyptosperma* Common in concrete cracks
- 211. *Sporobolus coromandelianus* Common.
- 212. *Setaria leucopila* Weedy.
- 213. *Pascopyrum smithii* Common.
- 214. *Distichlis spicata* Common around lakeshore.
- 215. *Oenothera macrocarpa* var. *oklahomensis* On gyp outcrop.
- 216. *Croton texensis* Common.
- 217. *Chamaesaracha sordida* Common in depression along parking area.
- 218. *Ptelea trifoliata* Common on slopes.
- 219. *Forestiera pubescens* Common at base of slopes.
- 220. *Sphaeralcea coccinea* Weedy.
- 221. *Sphaeralcea angustifolia* Few large plants around parking area.
- 222. *Gaillardia pinnatifida* Scattered.
- 223. *Solanum elaeagnifolium* Common.
- 224. *Pomaria jamesii* Common.
- 225. *Tamarix ramosissima* Common.
- 226. *Tamarix chinensis* Uncommon.
- 227. *Tamarix chinensis* Uncommon.
- Pseudognaphalium canescens* [sterile] ???
- Sophora nuttalliana* ????

**Loc 11: 27 May 2002.**

Hutchinson County. LAMR, Harbor Bay area, directly W of Fritch on Harbor Bay Road; N35° 38 58, W101° 37 46. Roadsides and steep red-sandy slopes with dolomite boulders from caprock; 3190 ft elev., ca. 4 feet above lake level.

- 228. *Coronilla varia* Few plants seen in shaded ravine beside road.
- 229. *Stenosiphon linifolius* Common along roadside.
- 230. *Apocynum cannabinum* Common.
- 231. *Hordeum pusillum* Common.
- 232. *Cynodon dactylon* Covering large areas.
- 234. *Aristida purpurea* Common.
- 235. *Chenopodium glaucum* Scattered but common; early colonizer of lakeshore; prostrate.
- 236. *Heliotropium curassavicum* var. *curassavicum* Common.

237. *Lolium temulentum* Few plants seen.  
238. *Distichlis spicata* Very common on upper lake shores.  
239. *Schoenopectus pungens* Common.

**Loc 11.5: 27 May 2002. OUT OF PARK**

Hutchinson County. Harbor Bay Road, S side of Fritch Elementary School, ca. 0.2 mi W of jct with Hwy 136 in Fritch; N35° 38 21, W101° 36 31. With roadside weeds – *Ratibida tagetes* (not yet in flower), *Melilotus officinalis*, *Cynodon dactylon*, *Hordeum pusillum*, *Tridens albescens*; 3190 ft elev.  
240. *Picradeniopsis woodhousei* Common in local population on both sides of road; in mid-flower.

**Loc 12: 27 May 2002. OUT OF PARK**

Hutchinson County. Hwy 1551, ca. 0.2 mi W of jct with Hwy 207, S of Borger, W side of RR crossing; N35° 38 20, W101° 24 40. With *Convolvulus arvensis* and common roadside weeds.  
241. *Picradeniopsis woodhousei* Abundant along roadside and up the embankment, S side of highway. in full flower. Rays with longer, more conspicuous corollas than seen in other populations from this area.

**Loc 13: 28 May 2002. OUT OF PARK**

Hutchinson County. W side of Borger along Hwy 136, in grassy areas bordering Wal-Mart parking lot.  
242. *Helianthus ciliaris*  
243. *Scorzonera laciniata*  
244. *Gaura coccinea*

**Loc 14: 28 May 2002.**

Hutchinson County. LAMR, Spring Creek picnic and fishing area around small lake, NE side (immediately downstream) of Sanford Dam, NE side of lake along park boundary; N35° 43 06, W101° 32 54.  
245. *Distichlis spicata* Common colonizer, periodically wet areas.  
246. *Schoenoplectus pungens* Common in marsh.  
247. *Schoenoplectus acutus* Common in marsh.  
248. *Polypogon monspeliensis* Common in marsh.  
249. *Eleocharis montevidensis* Common in marsh.  
250. *Eleocharis rostellata* Common in marsh.  
251. *Juncus interior* Common in marsh.  
252. *Robinia pseudoacacia* Common around edges of lake.  
253. no voucher ?  
254. no voucher?  
255. no voucher?  
256. no voucher?

**Loc 15: 28 May 2002.**

Hutchinson County. LAMR, NE side (downstream) of Sanford Dam, edge of marsh along NE side of road between Spring Creek picnic and fishing area and gate on SE side of dam; N35° 42 55, W101° 32 53.  
257. *Scirpus tabernaemontana* Common, at edge of marsh.

**Loc 16: 28 May 2002.**

Hutchinson County. LAMR, NE side (downstream) of Sanford Dam, near small pond on SW side of road between Spring Creek picnic and fishing area and gate on SE side of dam; N35° 42 55, W101° 32 53.  
258. *Apocynum cannabinum* Common, along drainage into pond.

**Loc 17: 28 May 2002.**

Hutchinson County. LAMR, area of large canyon west of Shooting Range, immediately W of Spring Canyon (proper), off larger canyon along steep, rocky drainage; N35° 43 28, W101° 33 17.

259. *Cheilanthes feei* Uncommon at base of boulders.

260. *Hedeoma drummondii* Uncommon, scattered among large boulders.

**Loc 18: 28 May 2002.** with Wes Phillips

Hutchinson County. LAMR, sandhills just E of Alamosa Canyon (tributary to South Canyon), on dirt road midway between NPS Ranger Station and Water Authority Headquarters (near Sanford Dam); N35° 41 21, W101° 33 01.

261. *Rhus microphylla* Three large, widely separated trees, scattered in this area.

262. *Coryphantha vivipara*

263. *Hymenopappus tenuifolius* Common.

264. *Echinacea angustifolia* Common at this site, uncommon elsewhere.

265. *Argythamnia mercurialina* var. *mercurialina* Scattered plants.

266. *Bothriochloa laguroides* subsp. *torreyana* Common.

267. *Chamaesyce fendleri* Common.

268. *Echinocereus reichenbachii*

**Loc 19: 28 May 2002.** with Wes Phillips

Hutchinson County. LAMR, Spring Creek Canyon along Spring Creek, ca. 20-50 yards downstream from first main spring of permanent water flow, near park boundary just S of Hwy 687 (but not in sight of road). Riparian vegetation.

269. *Mirabilis* aff. *glabra* One plant, side of deeply cut wash; 'greater' Spring Canyon below tributary.

270. *Berula erecta* Common in wet soil beside stream.

271. *Dichanthelium acuminatum* Common along stream.

272. *Salix interior* Common, tall shrubs.

273. *Populus deltoides* subsp. *monilifera* Common.

274. *Sphenopholis obtusata* Common.

275. *Polypogon viridis* Common at this site, wet soil.

**Loc 20: 28 May 2002.**

Hutchinson County. LAMR, area of Sanford-Yake Marina, slopes on W side of the marina inlet and along road approaching boat launch area. Red sandy-clay soil with dolomite boulders from caprock; sandy soil between parking lot and marina.

276. *Senecio flaccidus* var. *flaccidus* Few large plants on slopes.

277. *Penstemon albus* Common on slopes.

278. *Mimosa nuttallianus* Scattered on slope.

279. *Gilia rigidula* var. *acerosa* Common on slopes.

280. *Delphinium carolinianum* var. *virescens* Scattered plants.

281. *Mentzelia reverchonii* Common, at edge of sandy flat.

282. *Ephedra coryi* Large colony on sandy flat on E side of parking lot.

**Loc 21a: 29 May 2002.**

Potter County. ALFL, quarries area near end of marked hiking trail, high rocky ridge with low shrubs and sparse vegetation.

283. *Dalea aurea* Uncommon; not quite in flower.

284. *Dalea jamesii* Uncommon; top of ridge in quarries area.

285. *Hymenopappus tenuifolius* Scattered plants.

286. *Machaeranthera pinnatifida* var. *glaberrima* <> *pinnatifida* Common; intermediate?

287. *Medicago sativa* Few plants along trail, all in vicinity of recent repair work on trail.

**Loc 21b: 29 May 2002.**

Potter County. LAMR, Alibates Contact Station near junction of Bates Canyon Road and Dolomite Point Road, E of Alibates Flint Quarries Natl. Monument; N35° 34 19, W101° 42 18. Roadsides and mowed area around station and parking lot; 2980 ft elev.

288. *Celtis reticulata* Common; trees just behind building.

289. *Callirhoe involucrata* Common; along roadside in front of Contact Station.

**Loc 22: 29 May 2002.**

Potter County. LAMR, Bates Canyon boat launching area, end of Bates Canyon road from Alibates Contact Station; N35° 35 14, W101° 42 18. Sandy terrace between road and edge of extensive marsh, with *Populus deltoides* subsp. *monilifera*, *Tamarix ramosissima*, *Baccharis salicina*, and stands of *Typha domingensis* and *Phragmites australis*; 2930 ft elev.

290. *Heterotheca stenophylla* Uncommon; one colony seen.

291. *Chamaesyce glyptosperma* Common in open sands.

292. *Pomaria jamesii* Common, scattered.

293. *Panicum obtusum* Common in area of boat ramp.

294. *Cucurbita foetidissima* Common; top of slope alongside parking area.

295. *Lappula redowskii* var. *occidentalis* Common.

296. *Ammoselinum popei* Common, scattered.

297. *Plantago patagonica* Common.

298. *Typha domingensis* Common, only this one in flower.

299. *Tamarix ramosissima* Common.

300. *Tamarix ramosissima* Common.

301. *Tamarix ramosissima* Common.

**Loc 23: 29 May 2002.**

Potter County. LAMR periphery near ALFL, Cas Johnson – Alibates road immediately before descent into main area of LAMR; N35° 34 27, W101° 42 04. Large area of dolomite caprock community on N side of road, bounded on north side by high bluff with vista overlook into Alibates area to north, dominated by *Dalea formosa*, *Mimosa borealis*, and *Cercocarpus montanus*; 3090 ft elev.

302. *Calylophus hartwegii* var. *fendleri* Common.

303. *Aristida fendleri* Common.

304. *Bouteloua curtipendula* Common.

305. *Mimosa borealis* Common.

306. *Cercocarpus montanus* var. *argenteus* Common.

307. *Pilostyles thurberi* Scattered on *Dalea formosa*.

308. *Sorghum halepense* Few plants along roadside.

**Loc 24: 29 May 2002.**

Potter County. LAMR, McBride Falls area, at ‘upper’ end of McBride Canyon along M.Canyon road, SE side of road, just before road begins steep descent into McBride Canyon; ca. N35° 34 27, W101° 42 04. 3080 ft elev.

309. *Physalis hederifolia* Common locally along bottom and sides of wash below road (crossed by culvert).

**Loc 25: 29 May 2002.**

Potter County. LAMR, McBride Canyon area, vicinity of McBride House and campground; N35° 32 31, W101° 43 48. Sandy alluvium in canyon, with *Populus sargentii*, *Celtis reticulata*, *Sapindus drummondii*, *Prunus angustifolia*, *Prunus virginiana*; 3095 ft elev.

- 310. *Argemone polyanthemos* Few plants, very scattered.
- 311. *Pediomelum hypogaeum* var. *hypogaeum* Few plants seen.
- 312. *Glycyrrhiza lepidota* Common along roadside and edge of woods.
- 313. *Cryptantha cinerea* var. *jamesii* Scattered plants.

**Loc 25.5: 29 May 2002.**

Potter County. LAMR, Connecting road between McBride Canyon and Mullinaw Creek, short spur road (to oil machinery) off connecting road, about midway between McBride and Mullinaw. Low gravelly hills, with *Mimosa borealis*, *Dalea formosa*.

- 314. *Heterotheca villosa* var. *angustifolia* One large clump; not yet in flower.
- 315. *Calylophus hartwegii* var. *pubescens* Common.

**Loc 26: 29 May 2002.**

Potter County. LAMR, base of Mullinaw Creek near lake area, at 'staging' area for horses; N35° 31 49, W101° 45 33. Deep sandy soil in grassy field with *Celtis* on margins; 2965 ft elev.

- 316. *Abronia fragrans* Common in field and along roadside, scattered.

**Loc 27: 29 May 2002.**

Potter County. LAMR, Mullinaw Creek, upstream from campground and picnic area, following creek eastward from divergence of road and creek to park boundary; N35° 31 32, W101° 45 00. Small, permanent flow with narrow boggy area on the margins, with *Typha domingensis*, *Eleocharis*, *Schoenoplectus*, *Equisetum*, *Apocynum*, and many others; 2950 ft. elev.

- 317. *Pyrrhopappus grandiflorus* Uncommon; rooted in muck.
- 318. *Sphenopholis obtusata* Common.
- 319. *Schoenoplectus pungens* var. *longispicatus* Common.
- 320. *Dichanthelium acuminatum* Common immediately alongside creek.
- 321. *Linum rigidum* Common.
- 322. *Linum pratense* Common; flowers blue.
- 323. *Euphorbia spathulata* Common.
- 324. *Plantago rhodosperma* Common.
- 325. *Apocynum cannabinum* Common; leaves clasping from base to top of stem.
- 326. *Equisetum laevigatum* Common.
- 327. *Juncus interior* Common.
- 328. *Schoenoplectus maritimus* var. *paludosus* Common.
- 329. *Erigeron modestus* Common.
- 330. *Glycyrrhiza lepidota* Common in one area.
- 331. *Amorpha fruticosa* Abundant plants in one area.
- 332. *Eleocharis rostellata* Common.
- 333. *Eleocharis montevidensis* Common.
- 334. *Sisyrinchium montanum* Scattered plants among grasses; mostly near creek edge.
- 335. *Sonchus asper* Common.
- 336. *Hesperostipa comata* Common at this site; in opening above creek, between road and creek.

**Loc 28: 30 May 2002.**

Hutchinson County. LAMR, Bugbee 'plateau' – sandy flats on peninsula between Bugbee Canyon and North Canyon, reached by entrance road through population of 'Bugbee;' N35° 43 05, W101° 35 22. *Gutierrezia*, *Baccharis wrightii*, *Mimosa borealis*, *Dalea formosa*, *Yucca glauca*; 3035 ft elev.

- 337. *Engelmannia peristenia* Uncommon, along roadside.
- 338. *Baccharis wrightii* Common, very scattered.
- 339. *Thelesperma filifolium* var. *intermedium* Common on caprock, S side of peninsula.
- 340. *Erioneuron pilosum* Common at edge of caprock, S side of peninsula.
- 341. *Dalea tenuifolium* Common on caprock, S side of peninsula.

**Loc 29: 30 May 2002.** with Joe Cepeda and Pam Allison

Hutchinson County. LAMR, Bugbee Creek, vicinity of park road crossing near top of canyon, ca. 0.5 mi S of jct with FM 3395; N35° 43 38, W101° 35 39. Scattered *Populus deltoides* and *Tamarix ramosissima* along creek; 2985 ft elev.

- 342. *Argythamnia mercurialina* var. *mercurialina* Few plants at this site; otherwise apparently rare.
- 343. *Ranunculus sceleratus* Scattered emergent plants in muck of creek side.
- 344. *Rumex stenophyllus* Few plants.
- 345. *Sonchus asper* Common.
- 346. *Elaeagnus angustifolia* Small plant growing alongside creek; several larger trees in the area.
- 347. *Sophora nuttalliana* Uncommon.
- 348. *Aristida purpurea* Common in open sandy field.
- 349. *Aristida glauca* Common in open sandy field.
- 350. *Eleocharis montevidensis* Common.
- 351. *Euphorbia dentata/davidii* Common.
- 352. *Tradescantia occidentalis* Uncommon.
- 353. *Commelina erecta* Common.

**Loc 30: 30 May 2002.** with Joe Cepeda and Pam Allison [gyp I]

Moore County. LAMR, Plum Creek area, large gypsum outcrop, crossed by road from main Plum Creek road on unpaved road toward Plum Creek Campground; N35° 36 48, W101° 44 48. 3015 ft elev.

- 354. *Phacelia integrifolia* Scattered but common, restricted to gypsum.
- 355. *Hymenopappus tenuifolius* Scattered and uncommon, restricted to gypsum.
- 356. *Mirabilis linearis* var. *subhispidula* Uncommon, apparently restricted to gypsum in this area.
- 357. *Lithospermum incisum* Common, restricted to gypsum.
- 358. *Aristida fendleri* Common.
- 359. *Schizachyrium scoparium* Common.
- 360. *Calylophus hartwegii* subsp. *fendleri* Locally common, restricted to gypsum.
- 361. *Allionia incarnata* Locally common, restricted to gypsum.

**Loc 31: 30 May 2002.** with Joe Cepeda and Pam Allison [gyp II]

Moore County. LAMR, Plum Creek area, large gypsum outcrop, crossed by secondary road ca. 0.4 mi W of jct with Plum Creek road (paved); N35° 35 51, W101° 43 40. Sparse vegetation; *Oenothera macrocarpa* var. *incana* (not collected) scattered but common in crevices of steep gypsum slope.

- 362. *Euphorbia davidii* Common in grassy field at edge of gypsum slope.

**Loc 32: 30 May 2002.**

Moore County. LAMR, Plum Creek Road just S of park boundary (inside park), at high elevation vista of Plum Creek area; N35° 36 37, W101° 43 28. Surface outcrop of dolomite; 3025 ft elev.

- 363. *Pilostyles thurberi* Uncommon, on *Dalea formosa*
- 364. *Evax prolifera* Many plants in shallow soil near road; off dolomite outcrop.
- 365. *Thelesperma filifolium* var. *intermedium* Common.

**Loc 33: 30 May 2002.**

Moore County. LAMR, NW of Blue Creek Bridge crossing of FM 1913, along sandy terraces of Big Blue Creek and along steep-sided draw small tributary of permanent flow (with scenic waterfall) from S side of

Big Blue Creek. N35° 43 26, W101° 40 46. *Populus deltoides* subsp. *monilifera*, *Sapindus drummondii*, *Prunus angustifolia*, *Celtis reticulata*, *Rosa woodsii*, *Vitis acerifolia*, *Toxicodendron rydbergii*, *Rhus aromatica*, *Salix* spp., *Amorpha fruticosa*, *Schoenoplectus pungens*, *Juncus torreyi*, *Phragmites australis*, *Typha domingensis* along Big Blue Creek; *Equisetum laevigatum*, *Apocynum cannabinum*, *Amorpha fruticosa*, *Eleocharis*, and many others along tributary; 2980 ft elev.

- 366. *Dalea tenuifolium* Rocky soil just above waterfall of tributary; ca. 15 yds outside park boundary.
- 367. *Pyrrhopappus grandiflorus* Scattered but common along tributary; wet soil.
- 368. *Carex emoryi* Uncommon; few plants along stream, ca. 1-1.5 m tall.
- 369. *Rorippa nasturtium-aquaticum* Uncommon, in stream below waterfall.
- 370. *Juncus torreyi* Common along Big Blue Creek.
- 371. *Equisetum laevigatum* Scattered colonies but common.
- 372. *Equisetum laevigatum* Scattered colonies but common.
- 373. *Eleocharis montevidensis* Common along tributary.
- 374. *Eleocharis montevidensis* Common along tributary.
- 375. *Celtis occidentalis* One distinctive tree among numerous *C. reticulata*; edge of waterfall.
- 376. *Celtis reticulata* Common.
- 377. *Salix interior* Common; shrubs along tributary creek.
- 378. *Tripsacum dactyloides* Two plants seen; upper terrace of tributary creek.
- 379. *Lycopus americana* (sterile) Uncommon.
- 380. *Salix exigua* Common shrubs, upper terrace along Big Blue Creek.
- 381. *Salix interior* Common shrubs, upper terrace along Big Blue Creek.
- 382. *Salix nigra* Common trees, upper terrace along Big Blue Creek.

**Loc 34: 30 May 2002. OUT OF PARK**

Moore County. Along FM 1913 between Blue Creek Bridge and jct with FM 3395 toward Bugbee and Sandford Dam, NW of LAMR; N35° 44 22, W101° 39 11. Roadside in area of sandy grassland, with mesquite, *Artemisia filifolia*, *Yucca glauca*, *Gaura villosa*, *Cirsium undulatum*, *Ipomoea leptophylla*; 3015 ft elev.

- 383. *Picradeniopsis woodhousei* Abundant in very local population, immediate roadside.
- 384. *Machaeranthera pinnatifida* var. *glaberrima* Common along roadside

**TRIP 3: 23-28 June 2002**

**Loc 1: 23 June 2002 (Sunday)**

**Rosita**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River; ca. N35° 27 56, W101° 50 53. Wide sandy terraces and dunes flanked by shallow breaks; clay in some areas.

- 385. *Ratibida columnifera* Common.
- 386. *Dalea lanata* Locally common.
- 387. *Psoralidium tenuiflorum* Scattered.
- 388. *Strophostyles leiosperma* Scattered.
- 389. *Amorpha canescens* Locally abundant in one area.
- 390. *Desmanthus illinoiensis* Common.
- 391. *Asclepias arenaria* Scattered but common.
- 392. *Dalea enneandra* Common.
- 393. *Asclepias engelmannii* Scattered but common.
- 394. *Panicum virgatum* Common.
- 395. *Leptoloma cognatum* Locally common.
- 396. *Cenchrus longispinis* Common.

- 397. *Elymus canadensis* Common.
- 398. *Calamovilfa gigantea* Few plants in one area.
- 399. *Salix amygdaloides* Trees; common.
- 400. *Celtis reticulata* Trees; common.
- 401. *Celtis occidentalis* Few small trees, near *C. reticulata*; obviously different from *C. reticulata* in its smaller, weaker stems and larger leaves.
- 402. *Sapindus drummondii* Common.
- 403. *Salix exigua* Shrubs, common.
- 404. *Mirabilis linearis* var. *subhispidata*
- 405. *Mirabilis glabra*
- 406. *Solidago petiolaris* (immature – sterile) Scattered colonies along base of bluff.
- 407. *Heliotropium convolvulaceum* Common.
- 408. *Tribulus terrestris* Common.
- 409. *Chamaesyce glyptosperma* Common.
- 410. *Chamaesyce missurica* Common.
- 411. *Calylophus serrulatus* Common.
- 412. *Linum rigidum* Scattered but common.
- 413. *Physalis longifolia* Locally common.
- 414. *Tidestromia lanuginosa* Common.
- 415. *Chloracantha spinosa* Common in moist areas near river.

**Loc 2: 23 June 2002 (Sunday)**

**Rosita new geology**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River. Bluffs of brownish sandstone-conglomerate at upper (eastern) end of Rosita area; ca. N35° 28 20, W101° 49 09.

- 416. *Mirabilis linearis* var. *subhispidata* Few plants; substrate apparently gypseous.
- 417. *Rhus aromatica* Common shrubs.

**Loc 3: 23 June 2002 (Sunday) OUT OF PARK**

**Picradeniopsis site**

Moore County. Along FM 1913 between Blue Creek Bridge and jct with FM 3395 toward Bugbee and Sandford Dam, NW of LAMR; N35° 44 22, W101° 39 11. Roadside in area of sandy grassland, with mesquite, *Artemisia filifolia*, *Yucca glauca*, *Gaura villosa*, *Cirsium undulatum*, *Ipomoea leptophylla*; 3015 ft elev.

- 418. *Eragrostis curtipedicellata*
- 419. *Chloris verticillata*
- 420. *Eragrostis sessilispica*
- 421. *Paspalum setaceum*

**Loc 4: 23 June 2002 (Sunday) OUT OF PARK**

**1913/287**

Moore County. Hwy 1913 ca. 0.3 miles E of junction with Hwy 287 at Four Way.

- 422. *Pediomelum tenuiflorum*
- 423. *Gaura* sp.
- 424. *Calylophus serrulatus*

**Loc 5: 23 June 2002 (Sunday)**

**Blue Creek top**

Moore County. Near crest of rise out of Blue Creek canyon, west side of Hwy 1913 ca 1 mi NE of Blue Creek bridge, at edge of NPS boundary. Gravelly soil; with *Yucca glauca*, *Paronychia jamesii*, *Liatris*

*punctata*, *Machaeranthera pinnatifida*, *Gaura villosa*, *Tetranneuris scaposa*, *Calylophus serrulatus*, *Aristida* sp., *Bouteloua* spp.

- 425. *Mirabilis linearis* var. *subhispida* Few plants.
- 426. *Mirabilis linearis* var. *subhispida* Few plants.
- 427. *Aristida purpurea* Common.
- 428. *Tridens muticus* var. *elongatus* Common.
- 429. *Asclepias viridiflora* Scattered.
- 430. *Dalea tenuifolia* Common.
- 431. *Scutellaria resinosa* Common.
- 432. *Townsendia texensis* Scattered.
- 433. *Machaeranthera pinnatifida* var. *pinnatifida* Common.
- 434. *Bouteloua curtipendula* Common.
- 435. *Paronychia jamesii* Common.
- 436. *Calylophus serrulatus* Common.
- 437. *Bouteloua hirsuta* Common.
- 438. *Solanum rostratum* Common.
- 439. *Heterotheca stenophylla* Common.
- 440. *Polanisia dodecandra* Common.

**Loc 6: 23 June 2002 (Sunday)**

**Water Authority**

Hutchinson County. Edge of parking area near Water Authority Headquarters, spur road from FM 1319, immediate SE side of Sanford Dam.

- 441. *Tridens muticus* ? Common at edge of parking area.

**Loc 7: 24 June 2002 (Monday) OUT OF PARK**

**1559 roadside**

Hutchinson County. Hwy 1559, ca. 2 mi N of carbon black plant close to Fritch-Borger highway, east of Borger; N35°41' 22", W101° 26' 20". Gravelly soil, roadsides and banks, area of mesquite and *Yucca*, with *Tetranneuris scaposa*, *Melampodium leucanthum*, *Asclepias engelmannii*, *Dalea* spp., *Mirabilis* spp., *Calylophus serrulatus*, *Calylophus hartwegii* var. *pubescens*; 3084 ft elev.

- 442. *Mirabilis linearis* var. *linearis* Scattered plants.
- 443. *Calylophus serrulatus* Common.
- 444. *Dalea purpurea* Common.
- 445. *Dalea candida* Common.
- 446. *Desmanthus cooleyi* Common.
- 447. *Calylophus hartwegii* var. *pubescens* Common on dolomite roadcut.

**Loc 8: 24 June 2002 (Monday)**

**Spur 687**

Hutchinson Co., LAMR, sandy roadside along Spur 687 connecting FM 1319 and FM 687, ca. 0.5 mi NW of jct with FM 687; N35° 44' 24", W101° 33' 44". Area of mesquite and *Artemisia filifolia*; 3062 ft elev.

- 448. *Physalis longifolia* Large population in disturbed, sandy area on south side of road, slight depression.

**Loc 9: 24 June 2002 (Monday)**

**Sand gate**

Hutchinson County. LAMR, boundary road in extreme NE corner of park, between FM 687 and Spring Canyon area, from jct with FM 687 ca. 50 yards to the south. Area of deep sand, gentle W-facing slopes, with *Yucca glauca*, *Artemisia filifolia*, *Prosopis*, *Eriogonum annuum*, *Gutierrezia sarothrae*, *Mentzelia nuda*, *Stillingia sylvatica*, *Krameria lanceolata*.

- 462. *Leptoloma cognatum* Common.

- 463. *Sporobolus cryptandrus* Very common.
- 464. *Kallstroemia parviflora* Locally common in roadbed and sides.
- 465. *Desmanthus cooleyi* Few plants.
- 466. *Asclepias viridiflora* Scattered plants, but common; apparently variable in leaf shape.

**Loc 10: 24 June 2002 (Monday)**

**Sand road**

Hutchinson County. LAMR, boundary road in extreme NE corner of park, between FM 687 and Spring Canyon area, at end of road near Spring Canyon; area of long 'draw' toward Spring Canyon; N35°43'48", W101°32'54". Area of deep sand, gentle slopes, W-facing, with *Yucca glauca*, *Eriogonum annuum*, *Gutierrezia sarothrae*, *Mentzelia nuda*, *Stillingia sylvatica*, *Krameria lanceolata*, *Opuntia polyacantha*, *Chaetopappa ericoides*, *Cryptantha cinerea* var. *jamesii*, *Hymenopappus tenuifolius*, *Gaura villosa*, *Liatris punctata*; 2950 ft elev.

- 449. *Mirabilis glabra* Scattered but common.
- 450. *Dalea lanata* Common.
- 451. *Dalea nana* Uncommon.
- 452. *Dalea purpurea* var. *arenicola* Common.
- 453. *Chenopodium leptophyllum* Common.
- 454. *Heterotheca stenophylla* Common.
- 455. *Euphorbia davidii* Common.
- 456. *Chamaesyce missurica* Common.
- 457. *Asclepias engelmannii* Common.
- 458. *Berlandiera betonicifolia* Rare, two plants seen.
- 459. *Asclepias arenicola* Uncommon.
- 460. *Munroa squarrosa* Uncommon.
- 461. *Helianthus petiolaris* Locally common.

**Loc 11: 24 June 2002 (Monday)**

**Cedar Canyon**

Hutchinson County. LAMR, Cedar Canyon area (parking, boat launch, picnic); N35°41'37", W101°34'23"; comfort station: 35°41'42", W101°34'19". Roadsides, lakeside, and steep red-sandy soil with dolomite boulders from caprock; 2930 ft elev.

- 467. *Astragalus gracilis* Scattered plants along base of slope.
- 468. *Physalis longifolia* Common in disturbed sandy soil.
- 469. *Gaura parviflora* Common in disturbed sandy soil.
- 470. *Oenothera macrocarpa* var. *incana* Few plants on gyp outcrop.
- 471. *Mentzelia oligosperma* Two plants seen, midslope, on red sand.
- 472. *Phacelia integrifolia* Scattered plants, only on gyp.
- 473. *Hymenopappus filifolius* Scattered plants, only on gyp.
- 474. *Salvia reflexa* Large population, in ditch between parking lots.
- 475. *Ranunculus trichophyllus* Large population in shallow water.
- 476. *Panicum hallii* Common.
- 477. *Lactuca serriola* Common.

**Loc 12: 24 June 2002 (Monday)**

**Harbor Bay**

Hutchinson County. LAMR, Harbor Bay area, directly W of Fritch on Harbor Bay Road; N35°38'58", W101°37'46". Roadsides and steep red-sandy slopes with dolomite boulders from caprock; 3190 ft elev., ca. 4 feet above lake level.

- 488. *Argemone* sp. Few plants.
- 489. *Atriplex argentea* (sterile, immature) Single plant seen.

- 490. *Chenopodium glaucum* Scattered but common on beach; prostrate.
- 491. *Dalea candida* Locally common near base of slope.
- 492. *Polygonum arenastrum* Common on beach.
- 493. *Chenopodium berlandieri* Common on beach.
- 494. *Schoenoplectus pungens* Common on beach.
- 495. *Sporobolus texanus* Common on beach.
- 496. *Amaranthus palmeri* Common on beach.
- 497a. *Convolvulus equitans* Large colony near parking area.
- 497b. *Chamaesyce glyptosperma* Common on beach.
- 498. *Chamaesyce glyptosperma* Common on beach.
- 499. *Euphorbia strictior* Few plants near road at mouth of canyon to Harbor Bay.
- 500. *Euphorbia davidii* Common on beach.
- 501. *Polygonum amphibium* (sterile, immature) Common on beach.
- 502. *Bassia scoparia* (sterile, immature) Common on beach.
- 503. *Heliotropium curassavicum* Common on beach.
- 504. *Ipomoea leptophylla* Few plants.
- 505. *Cirsium ochrocentrum* Few plants.

**Loc 13: 24 June 2002 (Monday)**

**Sorghum site**

Hutchinson County. Along short access road (paved) beginning immediately at NW side of Sanford Dam off Hwy 1319, ca. 0.3 mi from jct with Hwy 1319. Edge of road in vicinity of mesquite.

- 506. *Sorghum almum*

**Loc 14: 24 June 2002 (Monday)**

**Spring Canyon**

Hutchinson County. LAMR, Spring Creek Canyon along Spring Creek, ca. 50 yards downstream from first main spring of permanent water flow. Deep sand of creek terrace.

- 507. *Sporobolus airoides* Common.
- 508. *Sporobolus coromandelianus* Common.

**Loc 15: 24 June 2002 (Monday)**

**Spring Lake and vicinity**

Hutchinson County. LAMR, Spring Creek picnic and fishing area around small lake and adjacent marsh area, NE side (immediately downstream) of Sanford Dam, NE side of lake along park boundary; N35° 43' 06"-09', W101° 32' 54"-55'. Ca. 2793 ft elev.

- 509. *Puccinellia fascicularis* Common in marsh.
- 510. *Poa arida* Scattered around edge of marsh.
- 511. *Leptochloa dubia* Scattered plants at edge of parking.
- 512. *Atriplex patula* Common in wet and mucky soil of marsh; sterile.
- 513. *Lemna valdiviana* Common in drainage passages.
- 514. *Potamogeton pectinatus* (sterile) Common in one area.
- 515. *Chloris verticillata* Common along roadside.
- 516. *Proboscidea louisianica* Common at one site.
- 517. *Typha domingensis* Abundant; marsh dominant.
- 518. *Chamaesyce glyptosperma* Sandy disturbed soil at edge of marsh; 2 plants seen; plants small, barely into flower.
- 519. *Kallstroemia parviflora* Common along roadside.
- 520. *Allionia incarnata* Common; only on red gyp soil.
- 521. *Mentzelia reverchonii* Common; only on red gyp soil.

**Loc 16: 25 June 2002 (Tuesday)**

**Plum Creek top**

Potter County. LAMR, Plum Creek Road just S of park boundary, high elevation vista of Plum Creek area; N35° 36 37, W101° 43 28. Surface outcrop of dolomite, with dominant *Mimosa borealis* and *Dalea formosa*; 3025 ft elev.

- 522. *Pilostyles thurberi* Scattered on *Dalea formosa*.
- 523. *Elymus elymoides* Common along roadside.
- 524. *Panicum hallii* Common on outcrop.
- 525. *Bouteloua gracilis* Common on outcrop.
- 526. *Centaurea americana* Few plants along roadside.
- 527. *Calylophus hartwegii* var. *pubescens* Common on outcrop.

**Loc 17: 25 June 2002 (Tuesday)**

**Plum Creek gyp I**

Potter County. LAMR, Plum Creek area, large gypsum outcrop, crossed by road from main Plum Creek road on unpaved road toward Plum Creek Campground, N35° 36 48, W101° 44 48. 3015 ft elev.

- 528. *Haploesthes greggii* Shrubs ca. 1 m+ tall; just into flower. Common in one small area, not seen elsewhere in the park.

**Loc 18: 25 June 2002 (Tuesday)**

**Plum Creek CG**

Potter County. LAMR, Plum Creek area, area of Plum Creek Campground (ca. 0.2 miles east of cmpgrd) and old home site, ca. 3 mi by unpaved park road from jct with Plum Creek Road, broad terraces of Plum Creek. Ca. 2950 ft elev.

- 529. *Argythamnia humilis* Common along roadside.
- 530. *Centaurea americana* Common in fields but few in flower; small plants.
- 531. *Acalypha ostryifolia* Common along roadside.

**Loc 19: 25 June 2002 (Tuesday)**

**Oil dam site**

Hutchinson County. LAMR, immediately below Sanford Dam in Spring Creek area, E side of Canadian River near edge of canyon, disturbed area of oil pumping(?) facility; N35° 42 39, W101° 32 21. Sandy soil.

- 532. *Psilostrophe villosa* Common.

**Loc 20: 26 June 2002 (Wednesday) OUT OF PARK**

**Chicken Creek** (enroute, off park)

- 533. *Veronica anagallis-aquatica*
- 534a. *Lygodesmia texana*
- 534b. *Lygodesmia juncea*
- 535. *Asclepias pumila*

**Loc 21: 26 June 2002 (Wednesday)**

**Chicken Creek**

Potter County. LAMR, Chicken Creek area from access road ca. 1 mile westward to confluence with Canadian River; N35° 28 29, W101° 45 30. Immediate sandy terraces and marshy margins of creek and adjacent riparian woods; ca 3000–3010 ft elev.

- 536. *Argemone polyanthemos* Plants scattered.
- 537. *Potamogeton nodosus* Uncommon.
- 538. *Boehmeria cylindrica* Uncommon.
- 539. *Carex hystericina* Uncommon.

- 540. *Veronica anagallis-aquatica* Rare.
- 541. *Berula erecta* Uncommon.
- 542. *Argythamnia mercurialina* Scattered.
- 543. *Samolus valerandi* var. *parviflorus* Uncommon.
- 544. *Parthenocissus vitacea* Scattered under *Populus*; weak vines.
- 545. *Heliotropium convolvulaceum* Few plants in open sand.
- 546. *Dalea lanata* Scattered on sand – not uncommon; not yet in flower.
- 547. *Prunus virginiana* Few small trees at top of terrace.
- 548. *Lonicera albiflora* Few plants seen.
- 549. *Forestiera pubescens* Scattered along top of embankment bordering creek.
- 550. *Juncus torreyi* Common in wet sand along creek.
- 551. *Fuirena simplex* Common in wet sand along creek.
- 552. *Dichanthelium acuminatum* Common in wet sand along creek.
- 553. *Setaria parviflora* Common in wet sand along creek.
- 554. *Pyrrhopappus grandiflorus* Common in wet sand along creek, edge of embankment.
- 555. *Chenopodium pratericola* Few plants seen.
- 556. *Acalypha ostryifolia* Numerous plants along road near creek crossing.

**Loc 22: 26 June 2002 (Wednesday) OUT OF PARK**

**Cas Johnson roadcut** (off park)

Potter County. 'Cas Johnson' Road ca. 0.5 mi W of jet with Hwy 136, ca. 6 miles S of Fritch. Roadside at exposure of gypsum (this visible from Hwy 136 as an extended bluff for many miles, both sides of hwy).

- 557a. *Dalea tenuifolia* (2)
- 557b. *Dalea candida* var. *oligophylla*
- 558. *Oenothera macrocarpa* var. *incana* (glabrous form)
- 559. *Oenothera macrocarpa* var. *incana*
- 560. *Hedyotis nigricans*
- 561. *Asclepias viridiflora* var. *linearis*
- 562a. *Tetraneuris acaulis*
- 562b. *Townsendia texensis*

**Loc 23: 26 June 2002 (Wednesday)**

**Alibates overlook**

Potter County. LAMR periphery near ALFL, Cas Johnson – Alibates road immediately before descent into main area of LAMR; N35° 34 27, W101° 42 04. Large area of dolomite caprock community on N side of road, bounded on north side by high bluff with vista overlook into Alibates area to north, dominated by *Dalea formosa*, *Mimosa borealis*, and *Cercocarpus montanus*; 3090 ft elev.

- 563a. *Pilostyles thurberi* Very scattered on *Dalea formosa*.
- 563b. *Dalea candida* Common.
- 564. *Calylophus hartwegii* var. *pubescens* Common.

**Loc 24: 26 June 2002 (Wednesday)**

**Alibates 'rough slopes'**

Potter County. ALFL, E of Alibates Creek, along main bluff area (SW-NE trending) near E boundary of park; N35° 34 50, W101° 40 17. Area of steep slopes, sandy with dolomite boulders and rocks.

- 565. *Desmanthus cooleyi* Common on slopes; few yet in flower.
- 566. *Townsendia texensis* Common on slopes; few yet in flower.
- 567. *Heterotheca villosa* var. *angustifolia* Common on slopes.
- 568. *Argythamnia humilis* Common on slopes.
- 569. *Dalea candida* var. *oligophylla* Common on slopes.
- 570. *Asclepias arenaria* Abundant in sandy draw.

571. *Artemisia dracunculus* Several large shrubs in sandy draw; not yet in flower.  
572. *Cycloloma atriplicifolia* Abundant in sandy draw; not yet in flower.

**Loc 25a: 27 June 2002 (Thursday)**

**Sanford-Yake picnic1**

Hutchinson County. LAMR, Sanford-Yake picnic area (between S-Y Ranger Station and S-Y Marina), N35° 42 22, W101° 33, 53. Top edge of dolomite bluffs bordering picnic area; 3022 ft elev.

573a. *Ephedra torreyi* Ca. 500-600 shrubs.

573b. *Ephedra torreyi* Resprouted from burned shrubs – these shoots emerging nearly directly from the ground.

**Loc 25b: 27 June 2002 (Thursday)**

**Sanford-Yake picnic2**

Hutchinson County. LAMR, edge of lake at base of high bluffs bordering Sanford-Yake picnic area (between S-Y Ranger Station and S-Y Marina).

574. *Myriophyllum spicatum* Common, floating in shallow water.

**Loc 26: 27 June 2002 (Thursday)**

**Alibates entrance**

Potter County, LAMR, bottom of hill approaching Alibates Contact Station, ca. 0.3 mi NW of park boundary; N35° 34 47, W101° 42 10. Steep red-sandy slope on east side of road; 3010 ft elev.

575. *Oenothera macrocarpa* var. *incana* Many plants in loose soil of steep roadbank.

**Loc 27: 27 June 2002 (Thursday)**

**Bates Canyon boat ramp**

Potter County. LAMR, Bates Canyon area at end of Bates Canyon Road on SW side of lake, slightly upslope from Bates Canyon boat ramp, N of Alibates Contact Station; N35° 35 15, W101° 42 30. Area of red sandy-clay slopes with dolomite boulders; grassy flats around parking and road; ca. 2910 ft elev.

576. *Populus deltoides* var. *monolifera* Common.

**Loc 28: 27 June 2002 (Thursday)**

**Macbride gyp**

Potter County. LAMR, McBride Canyon area, NW of campground, ca 0.4 mi NW (toward lake) of junction with road to Mullinaw Creek. Small gypsum outcrop crossed by road.

577. *Calylophus hartwegii* var. *fendleri* Numerous plants; obviously true to gyp.

**Loc 29: 27 June 2002 (Thursday)**

**Fritch Fortress road**

Hutchinson County. LAMR, Fritch Fortress Road between park boundary and Fritch Fortress amphitheater, at crest of slope down toward crossing of deep canyon on both sides of road, just west of park boundary. Dolomite caprock with *Dalea formosa* and *Mimosa borealis* on both sides of road.

578. *Pilostyles thurberi* On scattered plants, but not uncommon; parasitic on *Dalea formosa*.

**Loc 30: 27 June 2002 (Thursday) OUT OF PARK**

**Potter 136 gyp** (off park)

Potter County. Roadcut exposure of gypsum along Hwy 136 ca. 12 miles S of Fritch.

579. *Calylophus hartwegii* var. *fendleri*

580. *Asclepias viridiflora* var. *linearis*

581. *Asclepias viridiflora* var. *lanceolata*

**Loc 31: 27 June 2002 (Thursday) OUT OF PARK**

**Amarillo roadside near airport**

Potter County. Roadside south of Amarillo International Airport, along 3rd Avenue ca. 0.2 mi E of junction with Airport Blvd.

582. *Cuscuta* sp. Parasitic on *Convolvulus*

**TRIP 4: 4–9 August 2002**

**Loc 1: 4 August 2002 (Sunday)**

**Rosita 1**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River; vicinity of N35° 27 56, W101° 50 53. Area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas; sandy terraces; 2880 ft elev.

- 583. *Chenopodium leptophyllum* Common.
- 584. *Salix exigua* <> interior Common shrubs.
- 585. *Bassia scoparia* Common.
- 586. *Salsola collina* Common, often mixed with *Salsola tragus*.
- 587. *Salsola tragus* Common.
- 588. *Cenchrus longispinis* Common.
- 589. *Eragrostis secundiflora* Scattered plants.
- 590. *Tridens albescens* Common.
- 591. *Sporobolus cryptandrus* Common.
- 592. *Helianthus annuus* Local populations.
- 593. *Palafoxia sphacelata* Common.
- 594. *Baccharis salicina* Common.
- 595. *Lactuca ludoviciana* Few plants seen.
- 596. *Chloris virgata* Common.
- 597. *Panicum capillare* Common.
- 598. *Echinochloa crus-galli* Common.
- 599. *Panicum virgatum* Common.
- 600. *Dalea lanata* Scattered plants, locally common.
- 601. *Chenopodium missouriense* (immature)
- 602. *Chamaesyce glyptosperma* Common.
- 603. *Chamaesyce glyptosperma* Common.
- 604. *Bromus inermis* Common in one area.

**Loc 2: 4 August 2002 (Sunday)**

**Rosita 2 by river**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River; vicinity of N35° 20 02, W101° 50 39. Area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas; sandy terraces; 2933 ft elev.

- 605. *Triplasis purpurea* Common.
- 606. *Panicum virgatum* Common.
- 607. *Andropogon gerardii* Common.
- 608. *Panicum obtusum* Common.
- 609. *Chenopodium berlandieri* (immature) Common.
- 610. *Euphorbia davidii* Common.
- 611. *Chenopodium leptophyllum* Common.

612. *Bassia scoparia* Common.

**Loc 3: 4 August 2002 (Sunday)**

**Rosita 3 dunes**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River, in area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas. Large dunes in vicinity of N35° 27 59, W101° 50 23. 2942 ft elev.

613. Unknown Numerous plants in relatively small area on east side of dunes, mostly growing in the dunes and in deep sand along edge; sterile since first observed in July. [Later identified as *Psoralidium lanceolatum*.]

614. *Setaria leucopila* Common.

615. *Apocynum cannabinum* Common.

**Loc 4: 4 August 2002 (Sunday)**

**Rosita 4 rocks**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River, in area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas. Bluffs of brownish sandstone-conglomerate at upper (eastern) end of Rosita area. N35° 28 20-24, W101° 49 08-09. 2824 ft elev.

616. *Isocoma pluriflora* Common in this area.

617. *Euphorbia marginata* Scattered plants.

**Loc 5: 4 August 2002 (Sunday)**

**Rosita 5 entrance**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River, in area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas. Deep sandy roadsides in area of extreme western park boundary; N35° 27 58, W101° 51 31.

618. *Chamaesaracha conoides* Large colony here; otherwise uncommon.

619. *Amaranthus arenicola* Common.

620. *Abronia fragrans* Large colony here; otherwise uncommon.

621. *Setaria leucopila* Common.

622. *Croton texensis* Common.

623. *Mentzelia nuda* Common.

**Loc 6: 4 August 2002 (Sunday) OUT OF PARK**

**Canadian River dunes –off park**

Potter County. Large area of high dunes, ENE side of Hwy 287, ca. 2 mi N of Canadian River crossing; N35° 29 39, W101° 53 53. Deep sand along side of highway; 3076 ft elev.

624. *Muhlenbergia* sp.

625. *Dalea lanata*

626. *Dalea villosa*

627. *Dalea nana*

628. *Hymenopappus tenuifolius*

629. *Palafoxia sphacelata*

630. *Townsendia texensis*

631. *Froelichia gracilis*

632. *Calylophus serrulatus*

633. *Eriogonum annuum*

634. *Eriogonum alatum*

- 635. *Cryptantha cinerea* var. *jamesii*
- 636. *Mentzelia nuda*
- 637. *Erigeron bellidiastrum* var. *bellidiastrum*
- 638. *Machaeranthera pinnatifida* var. *pinnatifida*
- 639. *Berlandiera betonicifolia*
- 640. *Artemisia filifolia*
- 641. *Heterotheca subaxillaris*
- 642. *Desmanthus cooleyi*

**Loc 7: 4 August 2002 (Sunday) OUT OF PARK**

**Hwy 1913**

Moore County. Roadside along Hwy 1913, ca 4 mi E of jct with Hwy 87/287 at Fourway. Low area beside road. Flat areas with exposed limestone in places, mostly heavily grazed.

- 643. *Vernonia marginata*

**Loc 8: 5 August 2002 (Monday)**

**Sand road**

Hutchinson County. LAMR, boundary road in extreme NE corner of park, between FM 687 and Spring Canyon area, at end of road near overlook of Spring Canyon. Area of deep sand, gentle slopes, W-facing, with *Yucca glauca*, *Eriogonum annuum*, *Gutierrezia sarothrae*, *Mentzelia nuda*, *Stillingia sylvatica*, *Artemisia filifolia*, *Krameria lanceolata*, *Opuntia polyacantha*, *Chaetopappa ericoides*, *Cryptantha cinerea* var. *jamesii*, *Hymenopappus tenuifolius*, *Gaura villosa*, *Liatris punctata*.

- 644. *Dalea nana* Rare; few plants seen in one small area.
- 645. *Portulaca oleracea* Scattered along roadbed.
- 646. *Cuscuta cuspidata* One population seen.
- 647. *Leptoloma cognatum* Common.
- 648. *Eragrostis sessilispica* Common.
- 649. *Bouteloua hirsuta* Common.
- 650. *Bouteloua gracilis* Common.
- 651. *Asclepias pumila* Few plants in one area, shallow roadbank.
- 652. *Bouteloua eriopoda* Common near Spring Canyon overlook.
- 653. *Eragrostis cilianensis* Common.
- 654. *Schizachyrium scoparium* Common.
- 655. *Munroa squarrosa* Common along roadbed in one area.
- 656. *Eriogonum annuum* Common.
- 657. *Croton glandulosus* Uncommon.
- 658. *Evolvulus nuttallianus* Scattered but common.
- 659. *Calylophus serrulatus* Common.
- 660. *Heterotheca villosa* var. *angustifolia* Scattered but common.
- 661. *Cycloloma atriplicifolia* Common along roadbed.

**Loc 9: 5 August 2002 (Monday)**

**Ranger Station lawn**

Hutchinson Co., LAMR, NPS Ranger Station on Sanford-Yake Road, ca. 0.2 mi N of jct with High Plains Road. Lawn and other disturbed/maintained sites in close vicinity.

- 662. *Eragrostis cilianensis* Common.
- 663. *Portulaca pilosa* Scattered plants.

**Loc 10: 5 August 2002 (Monday)**

**Below dam**

Hutchinson County. LAMR, NE side (immediately downstream) of Sanford Dam, vicinity Spring Creek picnic and fishing area around small lake; N35° 42 55, W101° 32 53.

664. *Ambrosia psilostachya* Common.

665. *Isocoma pluriflora* Common around edge of marsh.

**Loc 11: 5 August 2002 (Monday)**

**Spring Creek (near springs)**

Hutchinson County. LAMR, Spring Creek Canyon along Spring Creek, ca. 20-50 yards downstream from first main spring of permanent water flow, near park boundary just S of Hwy 687 (but not in sight of road). Riparian vegetation.

666. *Mirabilis glabra* Few plants.

667. *Dalea aurea* Rare here, two plants seen.

668. *Setaria parviflora* Common.

669. *Cyperus schweinitzii* Few plants.

670. *Chenopodium leptophyllum* Common.

671. *Panicum capillare* Common.

672. *Bothriochloa barbinodis* Common.

673. *Solidago gigantea* Common.

674. *Fuirena simplex* Common.

675. *Lycopus americanus* Common.

676. *Salix interior* Common, colonial shrubs.

677a. *Funastrum* (*Sarcostemma*) *cynanchoides* Common.

677b. *Palafoxia sphacelata* Common.

**Loc 12: 5 August 2002 (Monday)**

**Harbor Bay**

Hutchinson County. LAMR, Harbor Bay area, directly W of Fritch on Harbor Bay Road; N35° 38 58, W101° 37 46. Roadsides and steep red-sandy slopes with dolomite boulders from caprock; 3190 ft elev., ca. 4 feet above lake level.

678. *Mirabilis linearis* var. *subhispidata* Few plants; upper part of lakeshore.

679. *Sporobolus texanus* Common along lakeshore.

680. *Sporobolus texanus* Common along lakeshore.

681. *Chenopodium glaucum* Common along lakeshore; procumbent.

682. *Bassia scoparia* Common along lakeshore.

683. *Bassia scoparia* Common along lakeshore.

684. *Heterotheca subaxillaris* Common along lakeshore.

685. *Chenopodium leptophyllum* Common along lakeshore.

686. *Leptochloa fascicularis* Common along lakeshore; branches procumbent.

687. *Echinochloa crus-galli* Common along lakeshore.

688. *Conyza canadensis* var. *glabrata* Common along lakeshore.

689. *Symphyotrichum divaricatum* Common along lakeshore.

690. *Polygonum amphibium* Common along lakeshore.

691. *Pluchea odorata* Scattered but common along lakeshore.

692. *Toxicodendron radicans* var. *rydbergii* Common in ravine beside road approaching lakeshore.

**Loc 13: 6 August 2002 (Tuesday)**

**Alibates bottom**

Potter County. LAMR, along Alibates approach road, ca. 1/2 mi SE of Alibates Contact Station; N35° 34 48, W101° 41 58. Broad, relatively flat valley-fill areas of red sand; 3017 ft elev.

693. *Chenopodium berlandieri*

694. *Eragrostis cilianensis* Common.

695. *Amaranthus retroflexus* Common.  
696. *Teucrium laciniatum* Small colony at edge of field; uncommon in area.

**Loc 14: 6 August 2002 (Tuesday)**

**Alibates ridge road**

Potter County. LAMR, unimproved road along exposed ridge west of ALFL, originating from road between Alibates Contact Station and ALFL, just past sharp road curve to north; N35° 35 09-10, W101° 41 19. 3090 ft elev.

697. *Muhlenbergia torreyi* Common in one area.  
698. *Tetranneuris acaulis* Scattered plants but not uncommon.

**Loc 15: 6 August 2002 (Tuesday)**

**Bates boat ramp**

Potter County. LAMR, Bates Canyon area at end of Bates Canyon Road on SW side of lake, slightly upslope from Bates Canyon boat ramp, N of Alibates Contact Station; N35° 35 15, W101° 42 30. Area of red sandy-clay slopes with dolomite boulders; grassy flats around parking and road; ca. 2910 ft elev.

- 699a. *Panicum virgatum* Also see 699b.  
699b. *Panicum virgatum* Also see 699a.  
700. *Lactuca ludoviciana* Scattered plants but not uncommon.

**Loc 16: 6 August 2002 (Tuesday)**

**'Dolomite point' gyp**

Potter County. LAMR, small, exposed gypsum hillock along unimproved road going N from Bates Canyon road (paved road) along eastern edge of lake; N35° 35 45, W101° 41 14. Area of sandy terraces; 2906 ft elev.

701. *Mirabilis linearis* var. *linearis* One plant seen, on gyp outcrop.  
702. *Asclepias viridiflora* Common at edge of outcrop.  
703. *Amaranthus arenicola* Common in sand around outcrop.  
704. *Calylophus hartwegii* subsp. *fendleri* Few plants on gyp outcrop.

**Loc 17: 6 August 2002 (Tuesday)**

**'Dolomite point' sand/ river**

Potter County. LAMR, east side of Canadian River along unpaved road roughly following eastern margin of Lake Meredith, ca. 1 mile N of junction with Bates Canyon Road; N35° 35 53, W101° 40 52. Deep sandy terraces and shallow dunes; 2904 ft elev.

705. *Chenopodium pratericola* Common.  
706. *Physalis longifolia* Common.  
707. *Asclepias arenaria* Common.

**Loc 18: 6 August 2002 (Tuesday)**

**'Dolomite point' near river**

Potter County. LAMR, east side of Canadian River along unpaved road roughly following eastern margin of Lake Meredith, ca. 3 miles N of junction with Bates Canyon Road, south of mouth of Turkey Creek; N35° 36 19, W101° 40 24. Near base of bluffs; 2877 ft elev.

708. *Chenopodium pratericola* Common.  
709. *Chenopodium berlandieri* Common.  
710. *Asclepias subverticillata* Large colony at this site; not seen elsewhere.

**Loc 19: 6 August 2002 (Tuesday)**

**Macbride Canyon**

Potter County. LAMR, Macbride Canyon, SW side of canyon, roughly across from old home site, slopes limestone boulders, N35° 32 47, W101° 44 23. 3019 ft elev.

711. *Eriogonum jamesii* Large population in red, presumably gypseous sandy clay. Not seen elsewhere in this area.

**Loc 20: 6 August 2002 (Tuesday)**

**Macbride – Mullinaw**

Potter County. LAMR, high point in road between Macbride Canyon and Mullinaw Creek, at junction with spur road to pumping facility; N35° 32 44, W101° 44 25-26.

712. *Calylophus lavandulifolius* Uncommon.

713. *Heterotheca villosa* var. *angustifolia* Several large plants; many stems from base.

**Loc 21: 6 August 2002 (Tuesday)**

**Mullinaw Creek**

Potter County. LAMR, Mullinaw Creek in S part of park, east side of Lake Meredith, between Rosita area and ALFL, as the creek flows along narrow draw above campground area, N side of road. Riparian vegetation.

714. *Chamaesyce stictospora* Scattered.

715. *Rosa arkansana* Small population at base of bluff.

716. *Fimbristylis puberula* var. *interior* Common.

**Loc 22: 7 August 2002 (Wednesday)**

**Plum Creek house site**

Potter County. LAMR, Plum Creek area on west side of Lake Meredith, area of Plum Creek Campground and old home site, ca. 3 mi by unpaved park road from jct with Plum Creek Road. Broad terraces of Plum Creek; ca. 2950–2956 ft elev.

717. *Ulmus pumila* Several trees, apparently persisting from planting; N35 36 58, W101 45 27.

718. *Ulmus americana* Several trees, persisting from planting; N35 38 57, W101 45 24.

719. *Maclura pomifera* Several trees, persisting from planting; N35 36 57, W101 45 25.

720. *Morus alba* Several trees, persisting from planting; N35 31 59, W101 45 27.

721. *Juglans microcarpa* One tree seen, in ravine, apparently native; N35 36 59; W101 45 25

722. *Gleditsia triacanthos* One tree, planted and persisting; N35 37 01, W101 45 20.

**Loc 23: 7 August 2002 (Wednesday)**

**Plum Creek area**

Potter County. LAMR, Plum Creek area on west side of Lake Meredith, unpaved road toward Plum Creek Campground from Plum Creek Road; N35° 36 32, W101° 44 16. Red-sandy roadsides.

723. *Lygodesmia juncea* Large population but uncommon in the area.

724. *Asclepias pumila* Scattered colonies, uncommon.

**Loc 24: 7 August 2002 (Wednesday)**

**Plum Creek gyp III**

Potter County. LAMR, Plum Creek area on west side of Lake Meredith, large area of gypsum exposure near intersection of Plum Creek Road and road toward Plum Creek Campground; N35° 36 05, W101° 43 45.

725. *Enneapogon desvauxii* Scattered.

726. *Calylophus fendleri* Abundant on gyp, mostly past flower.

727. *Eriogonum jamesii* Common in red, gypseous soil at edge of outcrop; apparently restricted to this habitat.

728. *Calylophus serrulatus* Common at edge of gyp, on the gyp.

729. *Oenothera macrocarpa* var. *incana* Scattered but common on gyp.

730. *Muhlenbergia torreyi* Scattered but common on gyp.

**Loc 25: 8 August 2002 (Thursday)**

**Sanford-Yake Marina**

Hutchinson County. LAMR, area of Sanford-Yake Marina, near close to Sanford Dam. Area of red sandy-clay slopes with dolomite boulders from caprock; sandy soil between parking lot and marina and sandy-clay lake banks.

731. *Amaranthus blitoides* Scattered along rocky slope of lake.

732. *Eclipta prostrata* Scattered at immediate edge of lake, among rocks.

**Loc 26: 8 August 2002 (Thursday)**

**Cedar Canyon**

Hutchinson County. LAMR, Cedar Canyon area (parking, boat launch, picnic); N35° 41 37, W101° 34 23. Roadsides and steep red-sandy soil with dolomite boulders from caprock; 2930 ft elev.

733. *Convolvulus arvensis* Flowers white striped, with yellow center; grassy area beside parking lot.

734. *Xanthium strumarium* var. *canadense* Scattered but common on beach.

735. *Citrullus lanatus* Few plants, scattered on 'beach' area.

736. *Grindelia ciliata* Common on upper beach area.

737. *Heterotheca villosa* var. *angustifolia* Uncommon; upslope from beach, near base of bluff.

**Loc 27: 8 August 2002 (Thursday)**

**Check Station**

Hutchinson County. LAMR, lawn and roadsides of small park building ("Check Station") at junction of park roads to Cedar Canyon and Sanford-Yake Marina, just N of LAMR Ranger Station.

738a. *Solanum rostratum* Abundant in sandy field immediately behind building, in full flower.

738b. *Thuja occidentalis* Cultivated in front of building.

738c. *Gleditsia triacanthos* Cultivated, thornless form; lawn.

**Loc 28: 8 August 2002 (Thursday)**

**Fritch Fortress slope**

Hutchinson County. LAMR, just upslope from Fritch Fortress boat launching area; vicinity of N35° 48 45, W105° 35 31. Steep slopes of red-sandy gypseous soil with dolomite boulders from caprock, and grassy margins and disturbed soil around parking lot.

739. *Amaranthus* sp.

740. *Mentzelia decapetala* Numerous plants; apparently restricted to this geological feature.

741. *Leptochloa dubia*

742. unidentified grass

**Loc 29: 8 August 2002 (Thursday)**

**Fritch Fortress top**

Hutchinson County. LAMR, Fritch Fortress Road in area of Fritch Fortress amphitheater, SE of Fritch Fortress boat launch area, at south end of loop around FF 'plateau', recently burned vegetation in sandy soil, grading to shallow dolomite outcrop area on south side of road, slightly lower.

743. *Chamaesyce glyptosperma* Common in burned area.

744. *Panicum virgatum* Common in burned area.

745. *Muhlenbergia arenicola* Common in burned area.

746. *Gutierrezia sphaerocephala* Scattered along roadside and in burned area.

747. *Bothriochloa barbinodis* Common along roadside and in burned area.

748. *Dalea jamesii* Uncommon in dolomite outcrop area below road.

749. *Calylophus hartwegii* var. *pubescens* d Common in dolomite outcrop area below road.

**Loc 30: 8 August 2002 (Thursday)**

**Blue Creek**

Moore County. LAMR, NW of Blue Creek Bridge crossing of FM 1913, along sandy terraces of Big Blue Creek and along steep-sided draw small tributary of permanent flow (with scenic waterfall) from S side of Big Blue Creek. N35° 43 26, W101° 40 46. *Populus deltoides* subsp. *monilifera*, *Sapindus drummondii*, *Prunus angustifolia*, *Celtis reticulata*, *Rosa woodsii*, *Vitis acerifolia*, *Toxicodendron rydbergii*, *Rhus aromatica*, *Salix* spp., *Amorpha fruticosa*, *Schoenoplectus pungens*, *Juncus torreyi*, *Phragmites australis*, *Typha domingensis* along Big Blue Creek; *Equisetum laevigatum*, *Apocynum cannabinum*, *Amorpha fruticosa*, *Eleocharis*, and many others along tributary; 2980 ft elev.

750. *Astragalus lotiflorus* Few plants seen; deep sand along creek dunes.

751. *Triplasis purpurea* Scattered but common.

752. *Cryptantha cinerea* var. *jamesii* Few plants seen; far past flr and frt.

753. *Andropogon gerardii* Common.

754. *Eragrostis trichodes* Common.

755. *Sorghastrum nutans* Scattered but common.

756. *Lactuca ludoviciana* Scattered plants.

757. *Euphorbia hexagona* Scattered plants.

758. *Verbena hastata* Scattered but common.

759. *Lycopus americanus* Scattered but common.

760. *Palafoxia sphacelata* Common.

761. *Oenothera jamesii* Few plants.

762. *Tripsacum dactyloides* Few plants in one area along trail to waterfall.

763. *Oenothera engelmannii* Scattered plants along deep sand near creek.

764. *Leersia oryzoides* (sterile) Few plants.

765. *Eustoma russellianum* Locally common, but few populations.

**TRIP 5: 18–22 September 2002**

**Loc 1: 18 September 2002 (Wednesday) OUT OF PARK**

**AMA Airport**

765. *Ambrosia grayi*

**Loc 2: 18 September 2002 (Wednesday)**

**Rosita dunes**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River, in area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas. Large dunes in vicinity of N35° 27 59, W101° 50 23. Ca. 2942 ft elev.

766. **unknown** -- sterile, no evidence of flrs or frt; apparently with deep rhizomes. [Later identified as *Psoralidium lanceolatum*.]

767. *Sporobolus giganteus* Common.

768. *Rayjacksonia annua* Common.

769. *Vernonia marginata* Few plants.

769. *Munroa squarrosa* Locally common.

770. *Chenopodium leptophyllum* Common.

771. *Leptoloma cognatum* Common.

772. *Amaranthus blitoides* Locally common.

773. *Senecio riddellii* Common in some areas; deep sand.

774. *Sporobolus giganteus* Common.

775. *Amaranthus palmeri* Common.

776. *Amaranthus arenicola* (staminate) Common in dunes.  
 777. *Amaranthus arenicola* (pistillate) Common in dunes.  
 778. *Amaranthus arenicola* (pistillate) Common in dunes.

**Loc 3: 18 September 2002 (Wednesday)**

**Rosita**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River, in area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas. Sandy terraces, vicinity of N35° 27 56, W101° 50 53; 2880 ft elev.

779. *Gaura coccinea* Common.  
 780. *Mirabilis linearis* var. *subhispidata* Few plants.  
 781. *Phragmites australis* Uncommon.  
 782. *Echinochloa crus-galli* Common.  
 783. *Echinochloa crus-galli* Common.  
 784. *Eragrostis spectabilis* Common.  
 785. *Triplasis purpurea* Scattered.  
 786. *Tridens albescens* Common.  
 787. *Grindelia nuda* Common.  
 788. *Sporobolus giganteus* Common.  
 789. *Eragrostis secundiflora* Scattered.  
 790. *Sporobolus texanus* Scattered.  
 791. *Sporobolus giganteus* Scattered.  
 792. *Liatris punctata* Common.  
 793. *Ipomopsis longiflora* Few plants at one site.  
 794. *Gutierrezia sarothrae* Common.  
 795. *Artemisia ludoviciana* Common.  
 796. *Sorghastrum nutans* Common.  
 797. *Polygonum buxiforme* Common.  
 798. *Solidago petiolaris* Scattered colonies along base of bluffs.  
 799. *Chenopodium leptophyllum* Common.  
 800. *Bouteloua gracilis* Common.  
 801. *Tridens muticus* var. *elongatus* Common.  
 802. *Chloris virgata* Common.  
 803. *Schizachyrium scoparium* Common.  
 804. *Krascheninnikovia lanata* Uncommon.  
 805. *Chloracantha spinosa* Scattered colonies but common in wet sites near river.  
 806. *Sporobolus cryptandrus* Huge plant, over clay.

**Loc 4: 19 September 2002 (Thursday)**

**Cedar Canyon**

Hutchinson County. LAMR, Cedar Canyon area (parking, boat launch, picnic); N35° 41 37, W101° 34 23. Roadsides and steep red-sandy soil with dolomite boulders from caprock; 2930 ft elev.

807. *Leptochloa fascicularis*  
 808. *Leptochloa dubia*  
 809. *Leptochloa dubia*

**Loc 5: 19 September 2002 (Thursday)**

**Marina**

Hutchinson County. LAMR, vicinity of Sanford-Yake Marina, near close to Sanford Dam. Area of red sandy-clay slopes with dolomite boulders from caprock; sandy soil between parking lot and marina and sandy-clay lake banks.

- 810. *Panicum miliaceum* Few plants.
- 811. *Chamaesyce glyptosperma* Common.
- 812. *Cyperus strigosus* Scattered but common along lakeshore.
- 813. *Echinochloa crus-galli* Common.
- 814. *Digitaria sanguinalis* Common along lakeshore.
- 815. *Setaria pumila* Common along lakeshore.
- 816. *Eragrostis barrelieri* Common along lakeshore.

**Loc 6: 19 September 2002 (Thursday) OUT OF PARK**

**Fritch Fortress Road**

Hutchinson Co., ca. 0.3 mi E of LAMR park boundary beside Sanford-Yake road from LAMR Ranger Station toward Sanford, near junction with High Plains Road, N35° 40 35, W101° 34 42.

- 817. *Chenopodium berlandieri*
- 818. *Arundo donax*

**Loc 7: 19 September 2002 (Thursday)**

**Fritch Fortress (Pilstyles area)**

Hutchinson County. LAMR, Fritch Fortress Road between park boundary and Fritch Fortress amphitheater, at crest of slope down toward crossing of deep canyon on both sides of road, just west of park boundary. Dolomite caprock with *Dalea formosa* and *Mimosa borealis* on both sides of road.

- 819. *Mirabilis linearis* var. *linearis* Several plants beside road on on roadcut; flowers white.

**Loc 8a: 19 September 2002 (Thursday)**

**Ranger Station lawn**

Hutchinson Co., LAMR, NPS Ranger Station on Sanford-Yake Road, ca. 0.2 mi N of jet with High Plains Road. Lawn and other disturbed/maintained sites in close vicinity.

- 820. *Amaranthus palmeri* Common
- 821. *Sporobolus cryptandrus* Common
- 822. *Salsola tragus* Common
- 823. *Salsola collina* Common

**Loc 8b: 19 September 2002 (Thursday)**

**Ranger Station field**

Hutchinson Co., LAMR, NPS Ranger Station on Sanford-Yake Road, ca. 0.2 mi N of jet with High Plains Road. Sandy field with mesquite on N side of gate entrance to Ranger Station.

- 824. *Chamaesyce stictospora* Common in sandy field and roadside.
- 825. *Chamaesyce stictospora* Common along roadside and sandy field.
- 826. *Panicum hallii* Common.
- 827. *Gutierrezia sphaerocephala* Common.
- 828. *Dyssodia papposa* Common in one area.
- 829. *Chenopodium leptophyllum* Common.
- 830. *Brickellia eupatorioides* var. *corymbosula* Common.
- 831. *Erigeron colomexicanus* Common.
- 832. *Eriogonum annuum* Common.
- 833. *Chenopodium incanum* Common here; not seen elsewhere.
- 834. *Artemisia carruthii* Common in one area.

**Loc 9: 19 September 2002 (Thursday) OUT OF PARK**

**Picradeniopsis site**

Hutchinson County. Fritch Fortress Road, NE of Fritch, ca 1 mi N of jct with Hwy 136; N35° 39 00, W101°34 36. Grassland with *Yucca glauca* and scattered mesquite, hardpacked sandy soil of close roadside; with *Asclepias latifolia*, *Ratibida tagetes* (not yet in flower), *Berlandiera lyrata*, *Convolvulus arvensis*, *Phyla* sp., *Sphaeralcea coccinea*, *Hordeum pusillum*, *Coelorachis cylindrica*; 3190 ft elev. 835. *Dyssodia papposa* -- Common at this one site.

**Loc 10: 20 September 2002 (Friday)**

**Harbor Bay**

Hutchinson County. LAMR, Harbor Bay area, directly W of Fritch on Harbor Bay Road. Roadsides and steep red-sandy slopes with dolomite boulders from caprock; N35° 38 58, W101° 37 46. 3190 ft elev., ca. 4 feet above lake level.

836. *Cycloloma atriplicifolia* Common along lakeshore.

837. *Eclipta prostrata* Common along lakeshore.

838. *Atriplex argentea* var. *argentea* Few plants.

839. *Polygonum ramosissimum* var. *ramosissimum* Common along lakeshore.

**Loc 11: 20 September 2002 (Friday)**

**Spring Creek headwaters**

Hutchinson County. LAMR, Spring Creek Canyon along Spring Creek, ca. 20-50 yards downstream from first main spring of permanent water flow, near park boundary just S of Hwy 687 (but not in sight of road). Riparian vegetation.

840. *Paspalum setaceum* Common in dry sand along creek.

841. *Lycopus americanus* Common in wet soil of creek edge; shaded.

842. *Lobelia cardinalis* Common in wet soil of creek edge; shaded.

843. *Amaranthus arenicola* Common in dry sand along creek.

**Loc 12: 20 September 2002 (Friday)**

**Spring Lake at gate, top of road**

Hutchinson County. LAMR, vicinity of NPS gate at top of steeply descending park road to Spring Creek picnic and fishing area immediately below Sanford Dam, at jct with FM 1319 on SE side of Sanford Dam. Slight slopes, sandy soil, with *Yucca glauca*, *Mimosa borealis*, *Mentzelia nuda*, *Gutierrezia* sp. *Tetranneuris scaposa*, *Chaetopappa ericoides*, and *Bouteloua* spp.

844. *Senecio flaccidus* var. *flaccidus* Scattered plants on rocky slope.

845. *Heterotheca villosa* var. *angustifolia* Common on rocky slope.

846. *Liatris punctata* Common on rocky slope.

**Loc 13: 20 September 2002 (Friday)**

**Spring Lake vicinity**

Hutchinson County. LAMR, Spring Creek picnic and fishing area around small lake and adjacent marsh area, NE side (immediately downstream) of Sanford Dam, NE side of lake along park boundary; N35° 43 06, W101° 32 54.

847. *Amaranthus palmeri* (pistillate) Common.

848. *Amaranthus palmeri* (staminate) Common.

849. *Bassia scoparia* Common.

850. *Salsola collina* Common.

851. *Chamaesyce serpens* Common at edge of picnic area.

852. *Sporobolus cryptandrus* Common.

853. *Symphytotrichum expansum* Numerous plants in drainage ditch at edge of marsh; not seen elsewhere.

854. *Flaveria campestris* Few plants along south edge of lake.

855. *Convolvulus equitans* Common.  
 856. *Bouteloua gracilis* Common.  
 857. *Atriplex patula* Common in one small part of marsh.

**Loc 14: 20 September 2002 (Friday)**

**Bugbee Canyon**

Hutchinson County. LAMR, Bugbee Creek, vicinity of park road crossing near top of canyon, ca. 0.5 mi S of jct with FM 3395; N35° 43 38, W101° 35 39. Scattered *Populus deltoides* and *Tamarix ramosissima* along creek; 2985 ft elev.

858. *Symphyotrichum falcatum* (no rhizomes) Numerous plants.  
 859. *Bidens frondosa* Scattered but relatively numerous plants.  
 860. *Cyperus strigosus* Few plants (or inconspicuous).  
 861. *Solidago altissima* var. *gilvocanescens* Small but conspicuous population.  
 862. *Helianthus maximiliani* Common in one area.

**Loc 15: 20 September 2002 (Friday)**

**Sand gate and road**

Hutchinson County. LAMR, boundary road in extreme NE corner of park, between FM 687 and Spring Canyon area. Area of deep sand, gentle slopes, W-facing, with *Yucca glauca*, *Eriogonum annuum*, *Gutierrezia sarothrae*, *Mentzelia nuda*, *Stillingia sylvatica*, *Krameria lanceolata*, *Opuntia polyacantha*, *Chaetopappa ericoides*, *Cryptantha cinerea* var. *jamesii*, *Hymenopappus tenuifolius*, *Gaura villosa*, *Liatris punctata*; large draw toward Spring Canyon --- vicinity of N35° 43 48, W101° 32 55; 2990 ft elev.

863. *Cuscuta cuspidata* (on *Eriogonum annuum*) Common at this one site.  
 864. *Cuscuta cuspidata* (on *Ambrosia psilostachya*) Common at this one site.  
 865. *Corispermum hyssopifolium* Common along deep sand of road.  
 866. *Mimosa rupertiana* Scattered.  
 867. *Linum rigidum* Scattered.  
 868. *Bouteloua eriopoda* Common in area near Spring Creek overlook.  
 869. *Eragrostis curvula* Common.  
 870. *Chamaesyce missurica* Common.  
 871. *Chrysothamnus pulchellus* Many plants along this large draw; not seen elsewhere.  
 872. *Leptoloma cognatum* Common.  
 873. *Sporobolus cryptandrus* Common.  
 874. *Mollugo verticillata* Few plants seen in one area.

**Loc 16: 21 September 2002 (Saturday)**

**Alibates caprock**

Potter County. LAMR periphery near ALFL, Cas Johnson – Alibates road immediately before descent into main area of LAMR; N35° 34 27, W101° 42 04. Large area of dolomite caprock community on N side of road, bounded on north side by high bluff with vista overlook into Alibates area to north, dominated by *Dalea formosa*, *Mimosa borealis*, and *Cercocarpus montanus*; 3090 ft elev.

875. *Aristida fendleriana* Common.  
 876. *Schizachyrium scoparium* Common.  
 877. *Tridens muticus* Common.  
 878. *Sporobolus cryptandrus* Common.  
 879. *Sporobolus vaginiflorus* Common at edge of road pavement.  
 880. *Convolvulus equitans* Roadside (compare leaf size with 881, at same site).  
 881. *Convolvulus equitans* Roadside (compare leaf size with 880, at same site).  
 882. *Enneapogon desvauxii* Small population, many individuals, edge of dolomite.

**Loc 17: 21 September 2002 (Saturday)**

**Bates Boat ramp**

Potter County. LAMR, Bates Canyon area at end of Bates Canyon Road on SW side of lake, slightly upslope from boat ramp, N of Alibates Contact Station; N35° 35 15, W101° 42 30. Area of red sandy-clay slopes with dolomite boulders; grassy flats around parking and road; ca. 2910 ft elev.

883. *Panicum virgatum* Common. Huge clusters, ca. 10 feet tall; in mud of channel off end of boat ramp.

884. *Panicum virgatum* Common. Many plants, mostly 2-3 feet tall; gentle slopes just up from river channel. Apparently different from 883, which grows in channel off end of boat ramp.

**Loc 18: 21 September 2002 (Saturday)**

**McBride Canyon**

Potter County. LAMR, Macbride Canyon, bottom and sides of canyon, roughly in area of old home site and picnic area-rest rooms. Riparian woods on terraces, side slopes with limestone boulders; ca. 3010-3030 ft elev.

885. *Symphyotrichum fendleri* Few plants in one small area.

886. *Symphyotrichum falcatum* (rhizomatous) Common, base of slope.

887. *Sporobolus giganteus* Common.

888. *Tridens flavus* Common along roadside.

889. *Artemisia campestris* var. *caudata* Common in one area, near campground, first terrace of creek.

890. *Euphorbia strictior* Common along roadside.

**Loc 19: 21 September 2002 (Saturday)**

**McBride-Mullinaw**

Potter County. LAMR, high point in road between Macbride Canyon and Mullinaw Creek, at junction with short spur road to pumping facility; N35° 32 44, W101° 44 25-26

891. *Symphyotrichum fendleri* Large population on steep slope above road.

**Loc 20: 21 September 2002 (Saturday)**

**Mullinaw Creek**

Potter County. LAMR, Mullinaw Creek, narrow draw and creek channel above campground area, N of road. Riparian vegetation.

892. *Muhlenbergia asperifolia* Common along creek.

893. *Sporobolus cryptandrus* Common around parking area.

894. *Salsola collina* Common around parking area.

895. *Salsola collina* Common around parking area.

896. *Dichanthelium acuminatum* Common in one area along creek.

897. *Euphorbia hexagaona* Numerous plants along roadbank; perennial.

898. *Artemisia campestris* var. *caudata* Numerous plants along creek in one area, first terrace.

899. *Chenopodium leptophyllum* Few plants.

**Loc 21: 21 September 2002 (Saturday)**

**Alibates ridge road**

Potter County. LAMR, unimproved road along exposed dolomite ridge west of ALFL, originating from road between Alibates Contact Station and ALFL, just past sharp road curve to north; N35° 35 09-10, W101° 41 19. 3090 ft elev.

900. *Bouteloua hirsuta* Common; growing in small tufts.

901. *Bouteloua gracilis* Common; growing in rings, rhizomatous.

902. *Muhlenbergia torreyi* Common along roadside.

**Loc 22: 21 September 2002 (Saturday)**

**Alibates rough breaks**

Potter County. ALFL, E of Alibates Creek, along main bluff area (SW-NE trending) near E boundary of park, north side of paved road on access road toward gas facility; vicinity of N35° 34 50, W101° 40 17. Sandy draw near main road.

903. *Artemisia dracunculus* Few large shrubs along draw.

**Loc 23: 21 September 2002 (Saturday)**

**Alibates bottom**

Potter County. LAMR, along Alibates approach road, ca. 1/2 mi SE of Alibates Contact Station, broad, relatively flat valley-fill areas of red sand; N35° 34 48, W101° 41 58. 3017 ft elev.

904. *Sporobolus vaginiflorus*

905. *Sporobolus giganteus*

906. *Muhlenbergii arenicola*

907. *Symphyotrichum falcatum* (rhizomes) None yet in flower; common.

908. *Bouteloua hirsuta* Common in muck along ditch with long-standing water and aquatics.

909. *Argythamnia humilis* Common.

**Loc 24: 22 September 2002 (Sunday)**

**Chicken Creek**

Potter County. LAMR, Chicken Creek area from access road ca. 1 mile westward to confluence with Canadian River; N35° 28 29, W101° 45 30. Immediate sandy terraces and marshy margins of creek and adjacent riparian woods; ca 3000–3010 ft elev.

911. *Aristida adscensionis* Common.

912. *Carex hystericina* Few plants, scattered.

913. *Rorippa nasturtium-aquaticum* Uncommon; sterile.

914. *Senecio riddellii* Scattered plants.

915. *Helenium autumnale* Few plants in single population.

916. *Symphyotrichum falcatum* Common in moist soil; rhizomatous.

917. *Ambrosia trifida* Few plants along road.

918. *Strophostyles leiosperma* Common along creek.

919. *Epilobium leptophyllum* Rare, in muck at edge of *Typha* population.

920. *Salix amygdaloides* Common, small trees.

921. *Desmodium paniculatum* Scattered plants.

922. *Solidago gigantea* Several populations, barely above first terrace.

923. *Ulmus pumila* Scattered trees.

924. *Ribes aurea* Uncommon shrubs.

925. *Cephalanthus occidentalis* Uncommon, under stand of *Populus*.

927. *Strophostyles helvula* Scattered plants but common.

928. *Boehmeria cylindrica* Few plants.

929. *Chenopodium leptophyllum* Scattered plants.

930. *Artemisia campestris* var. *caudata* Few plants.

931. *Muhlenbergia asperifolia* Common in one area along creek.

932. *Pycnanthemum tenuifolium* Small population at single site along creek.

933. *Samolus valerandi* var. *parviflorus* Uncommon.

934. *Ludwigia palustris* Rare.

935. *Forestiera pubescens* Common.

936. *Forestiera neomexicana* Common.

937. *Leersia oryzoides* Few plants seen.

938. *Panicum capillare* Common.

939. *Juncus torreyi* Common; rhizomatous.

940. *Agalinis tenuifolia* var. *parviflora* Ca. 50 plants seen immediately upstream from creek crossing of road; mostly past flower.

- 941. *Eragrostis spectabilis* Common.
- 942. *Paspalum setaceum* Few plants seen.
- 943. *Sagittaria latifolia* Uncommon; sterile.
- 944. *Panicum rigidulum* Few plants seen.
- 945. *Cyperus niger* Uncommon.
- 946. *Cyperus strigosus* Uncommon.
- 947. *Potamogeton nodosus* Rare.

**Loc 25: 22 September 2002 (Sunday) OUT OF PARK**

**Coetas Creek**

Potter County. Road through private land toward Chicken Creek, at crossing of Coetas Creek (a feeder of Lake Meredith, north of LAMR park area along Chicken Creek). Large area of marshy vegetation along borders of creek.

- 948. *Spiranthes magnicamporum* Abundant at this site.

**Loc 26: 22 September 2002 (Sunday)**

**Sorghum site**

Hutchinson County. Along short access road (paved) beginning immediately at NW side of Sanford Dam off Hwy 1319, ca. 0.3 mi from jct with Hwy 1319. Edge of road in vicinity of mesquite.

- 910. *Sorghum* sp. One plant near roadside, under *Celtis*.

**Loc 27: 22 September 2002 (Sunday)**

**Ranger Station**

Hutchinson Co., LAMR, NPS Ranger Station on Sanford-Yake Road, ca. 0.2 mi N of jct with High Plains Road. Lawn and other disturbed/maintained sites in close vicinity.

- 949. *Aristida adscensionis* Common at edge of yard, along fence.
- 950. *Conyza ramosissima* One plant seen.

**TRIP 6: 16–17 October 2002**

**Loc 1: 16 October 2002 (Wednesday)**

**Rosita**

Potter County. LAMR, Rosita Meadows area at SW extremity of parkland on SE side of Canadian River, approached from Hwy 87/287 at crossing of Canadian River, in area of wide sandy terraces and dunes flanked by shallow breaks, clay in some areas. Vicinity of N35° 27 56, W101° 50 53; 2880 ft elev.

- 951. *Mirabilis linearis* var. *linearis* Few plants seen at this site.
- 952. *Artemisia ludoviciana* var. *mexicana* Common.
- 953. *Symphyotrichum fendleri* Large colony on rocky slope of hill of breaks.
- 954. *Senecio riddellii* Scattered plants in deep sand.
- 955. *Stephanomeria pauciflora* Small colony.
- 956. *Schizachyrium scoparium* Common.
- 957. *Schizachyrium scoparium* Common.
- 958. *Solidago petiolaris* Scattered colonies at base of bluff.
- 959. *Symphyotrichum falcatum* (rhizomes) Common but scattered in sandy terrace.
- 960. *Andropogon gerardii* var. *chrysocoma* Common.

**Loc 2: 16 October 2002 (Wednesday)**

**Blue Creek**

Moore County. LAMR, NW of Blue Creek Bridge crossing of FM 1913, along sandy terraces of Big Blue Creek and along steep-sided draw small tributary of permanent flow (with scenic waterfall) from S side of

Big Blue Creek. N35° 43 26, W101° 40 46. *Populus deltoides* subsp. *monilifera*, *Sapindus drummondii*, *Prunus angustifolia*, *Celtis reticulata*, *Rosa woodsii*, *Vitis acerifolia*, *Toxicodendron rydbergii*, *Rhus aromatica*, *Salix* spp., *Amorpha fruticosa*, *Schoenoplectus pungens*, *Juncus torreyi*, *Phragmites australis*, *Typha domingensis* along Big Blue Creek; *Equisetum laevigatum*, *Apocynum cannabinum*, *Amorpha fruticosa*, *Eleocharis*, and many others along tributary; 2980 ft elev.

961. *Flaveria campestris* Few plants seen in small saline area beside stream.

962. *Ulmus pumila* Scattered.

963. *Solidago altissima* var. *gilvocanescens* Large colony at one place.

964. *Vitis acerifolia* Common at mouth of tributary stream.

965. *Solidago petiolaris* Scattered colonies.

966. *Cycloloma atriplicifolia* Common but scattered in deep sand.

### **Loc 3: 16 October 2002 (Wednesday)**

#### **Bugbee Creek**

Hutchinson County. LAMR, Bugbee Creek, vicinity of creek crossing of park road in canyon, ca. 0.5 mi S of jct with FM 3395; N35° 43 38, W101° 35 39. Scattered *Populus* and *Tamarix* along creek; 2985 ft elev.

967. *Bouteloua curtipendula* Common along roadside.

968. *Bouteloua curtipendula* Common along roadside.

969. *Solidago petiolaris* Colony in rocky habitat.

970. *Ambrosia trifida* Common along stream.

971. *Parthenocissus vitacea* Scattered on first terrace.

972. *Teucrium canadense* var. *occidentalis* Common near stream.

### **Loc 4: 17 October 2002 (Thursday) OUT OF PARK**

#### **black site N of carbon black plant**

Hutchinson Co., Hwy 1559, ca. 2 mi N of carbon black plant; N35° 41 22, W101° 26 20. Gravelly soil, roadsides and banks, area of mesquite and *Yucca*, with *Tetaneuris scaposa*, *Melampodium leucanthum*, *Asclepias engelmannii*, *Dalea* spp., *Mirabilis* spp., *Calylophus serrulatus*, *Calylophus hartwegii* var. *pubescens*; 3084 ft elev.

973. *Desmanthus cooleyi*

974. *Liatris punctata*

### **Loc 5: 17 October 2002 (Thursday) OUT OF PARK**

#### **W Borger roadside**

Hutchinson County. Slightly downslope from roadside of Hwy 136 from Borger to Fritch, ca. 2 mi WSW of jct with Hwy 1319, low area in grazed pasture land.

975. *Xanthisma texanum*

976. *Rhus glabra*

### **Loc 6: 17 October 2002 (Thursday)**

#### **Below dam**

Hutchinson County. LAMR, NE side (immediately downstream) of Sanford Dam, vicinity Spring Creek picnic and fishing area around small lake, N35° 42 55, W101° 32 53.

977. *Amphiachyris dracunculoides* Common at this one site.

### **Loc 7: 17 October 2002 (Thursday)**

#### **Marina**

Hutchinson County. LAMR, area of Sanford-Yake Marina, near close to Sanford Dam. Area of red sandy-clay slopes with dolomite boulders from caprock; sandy soil between parking lot and marina and sandy-clay lake banks.

978. *Rumex altissimus* Numerous plants along lakeshore, all in rosette form.  
979. *Artemisia campestris* var. *caudata* Few plants.  
980. *Chenopodium missouriense* Huge plant (6 feet tall, with many branches) growing among boulders.

**Loc 8: 17 October 2002 (Thursday) OUT OF PARK**

**Borger sewage plant**

Hutchinson County. City of Borger, roadbank of approach to sewage treatment plant on W side of Rock Creek, W side of town, N35° 39 44, W101° 24 12.

981. *Solidago petiolaris*  
982. *Yucca glauca*  
983. *Symphyotrichum fendleri*  
984. *Solidago altiplanities* – at Rock Creek crossing

**Loc 9: 17 October 2002 (Thursday) OUT OF PARK**

**Borger lawn**

Hutchinson County. City of Borger,

985. *Crataegus phaenopyrum*

## APPENDIX 5: Collections in LAMR Herbarium (Ranger Station).

The following collections are housed in the LAMR Ranger Station herbarium (here notated as “LAMR”). These collections were made from 1970 through 1972 by LAMR personnel and associates: Barbara A. Lund, Edwin Day, Mary Ruth Hooper, and W.J. Burke. Identifications here have been corrected and updated with current nomenclature. Collections made on 25 May 1971 (Lund), “June” 1971 (Hooper), and 28 Aug 1971 (Burke) are not unequivocally clear in their provenance but were all marked “Alibates” with the same label protocol as others – these are here noted as from ALFL. For each collection, the notation in square brackets has been added in the present study; remaining data are from the label.

### AMARANTHACEAE

#### ***Tidestromia lanuginosa***

[ALFL: Potter Co.]: Alibates, near Turkey Creek, 17 Aug 1970, Day s.n. (LAMR -- 3 sheets)

### ANACARDIACEAE

#### ***Rhus aromatica* var. *pilosissima***

[ALFL: Potter Co.]: Alibates, 24 Apr 1970, Lund s.n. (LAMR)

[ALFL: Potter Co.]: Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR)

[LAMR]: Alibates, Sanford Recreation Area, Chicken Creek, clay loam soil, short grass prairie community, 3000 ft, 13 Jul 1970, Lund s.n. (LAMR-2 sheets)

[ALFL: Potter Co.]: Alibates, 17 Jul 1971, Hooper s.n. (LAMR)

### APIACEAE

#### ***Berula erecta***

[LAMR]: Potter Co., Chicken Creek, 3000 ft, 13 Jul 1970, Lund s.n. (LAMR)

### ASCLEPIADACEAE

#### ***Asclepias* sp.**

[ALFL: Potter Co., Alibates National Monument, 17 Jul 1971, Hooper s.n. (LAMR)

### BORAGINACEAE

#### ***Cryptantha cinerea* var. *jamesii***

[ALFL: Potter Co.]: Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR-- 2 sheets)

#### ***Cryptantha mimina***

[LAMR]: Alibates, Sanford Recreation Area, Bates Canyon, 25 Mar 1971, Lund s.n. (LAMR)

[ALFL: Potter Co.]: Alibates, Petroglyphs, 3150 ft, 24 Apr 1970, Lund s.n. (LAMR)

#### ***Lappula redowskii* (= *L. occidentalis*)**

[ALFL: Potter Co.]: Alibates, flint quarry area, near S. Turkey Creek, 24 Apr 1970, Lund s.n. (LAMR)

[LAMR]: Alibates, Sanford Recreation Area, clay loam soil, short grass prairie, 22 Apr 1971, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Alibates, Sanford Recreation Area, uncommon in patches, Headquarters roadside, 3000 ft, Lund s.n. (LAMR-- 2 sheets)

### CAPPARACEAE

#### ***Polanisia dodecandra***

[ALFL: Potter Co.]: Alibates, 3000 ft, 28 Aug 1970, Day s.n. (LAMR)

[LAMR: Hutchinson Co.]: Bugbee Canyon, 16 Sep 1971, Lund s.n. (LAMR)

[LAMR: Potter Co.]: Alibates, Sanford Recreation Area, 17 Aug 1970, Lund s.n. (LAMR)

**CARYOPHYLLACEAE**

**Paronychia jamesii**

[ALFL: Potter Co.]: Alibates, caprock, 3200 ft, 30 Aug 1970, Lund s.n. (LAMR--3 sheets)

**CHENOPODIACEAE**

**Chenopodium leptophyllum**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, 2900 ft, Bugbee Canyon, 16 Sep 1971, Lund s.n. (LAMR-- 2 sheets)

**Salsola tragus**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, clay loam soil, short grass prairie, 16 Sep 1971, Lund s.n. (LAMR)

**CROSSOSOMATACEAE**

**Glossopetalon (Forsellesia) planitierum**

[ALFL: Potter Co.]: Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

**APIACEAE**

**Cymopterus montanus**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, clay loam soil, short grass prairie, 3000 ft,

**Ammoselinum popei**

[LAMR: Moore Co.]: Sanford Recreation Area, Plum Creek, 29 Apr 1971, Lund s.n. (LAMR)

**ASTERACEAE**

**Ambrosia psilostachya**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

**Aphanostephus ramosissimus** var. **ramosissimus**

[LAMR: Moore Co.]: Sanford Recreation Area, Plum Creek, 29 Apr 1971, Lund s.n. (LAMR)

**Artemisia filifolia**

[LAMR: Potter Co.]: Sanford Recreation Area, clay loam soil, short grass prairie, Chicken Creek, 3000 ft, 13 Jul 1970, Lund s.n. (LAMR)

**Baccharis salicina**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

**Bidens frondosa**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

**Centaurea americana**

[ALFL: Potter Co., Alibates, 26 Jun 1971, M.R. Hooper s.n. (LAMR)

**Chaetopappa ericoides**

[ALFL: Potter Co., Alibates, 3150 ft, petroglyphs, 24 Apr 1970, Lund s.n. (LAMR)  
[ALFL: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

[LAMR]: Bates Canyon, Potter Co., rocky slope, northerly exposure, 19 Apr 1971, Lund s.n. (LAMR)

**Cirsium ochrocentrum**

[ALFL]: Potter Co., Alibates, 26 Jun 1971, Hooper s.n. (LAMR)

**Echinacea angustifolia**

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR-- 2 sheets)

**Erigeron bellidiastrum** var. **robustum**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 3 sheets)

[ALFL]: Potter Co., Alibates, 26 Jun 1971, Hooper s.n. (LAMR)

**Erigeron modestus**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 3000 ft, 17 Apr 1972, Lund s.n. (LAMR)

**Gaillardia pulchella**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR-2 sheets)

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

**Grindelia ciliata**

[LAMR: Potter Co.]: Sanford Recreation Area, ESA Area, 3000 ft, clay loam soil, short grass prairie, 3000 ft, 29 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

**Gutierrezia sarothrae**

[LAMR]: Alibates, Hutchinson Co., Bugbee Canyon, roadside, 16 Sep 1971, Lund s.n. (LAMR-2 sheets)

**Gutierrezia sphaerocephala**

[LAMR]: Hutchinson Co., Alibates, Headquarters lawn, 3000 ft, 10 Jul 1970, Lund (LAMR-2 sheets)

[LAMR]: Hutchinson Co., Alibates, Headquarters caprock plateau, 3000 ft, 23 Aug 1970, Lund (LAMR-4 sheets)

[ALFL]: Potter Co., Alibates National Monument, 26 Jun 1971, Hooper s.n. (LAMR)

[ALFL]: Potter Co., Alibates National Monument, caprock, 3200 ft, 30 Aug 1970, Lund s.n. (LAMR-2 sheets)

**Helianthus petiolaris**

[ALFL]: Potter Co., Alibates National Monument, Jun 1971, Hooper s.n. (LAMR)

**Hymenopappus flavescens**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Headquarters lawn, clay loam soil, short grass prairie, 3000 ft, 10 Jul 1970, Lund s.n. (LAMR)

**Liatris punctata**

[LAMR: Hutchinson Co.]: Cedar Canyon bluff, 29 Sep 1970, Ice and Day s.n. (LAMR)

[LAMR: Hutchinson Co.]: Bugbee Canyon, roadside, 16 Sep 1971, Lund s.n. (LAMR)

**Machaeranthera tanacetifolia**

[ALFL: Potter Co.]: Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 3 sheets)

**Machaeranthera pinnatifida** var. **pinnatifida**

[ALFL: Potter Co.]: Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

**Melampodium leucanthum**

[ALFL: Potter Co.]: Alibates, 7 Jun 1970, Lund s.n. (LAMR) - 2 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Headquarters, caprock plateau, 3000 ft, clay loam soil, short grass prairie, 23 Aug 1970, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Headquarters, caprock plateau, 3000 ft, clay loam soil, short grass prairie, 3 Jun 1970, Lund s.n. (LAMR -- 2 sheets)

**Psilostrophe villosa (= Psilostrophe tagetina)**

[ALFL: Potter Co.]: Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

**Pyrrhopappus multicaulis** – identification uncertain

[LAMR: Hutchinson Co.]: Sanford Recreation Area, clay loam soil, short grass prairie, 3000 ft, headquarters lawn, 21 Apr 1972, Lund s.n. (LAMR)

**Pyrrhopappus pauciflorus**

[LAMR: Potter Co.]: Sanford Recreation Area, Recreation Area, Chicken Creek, 3000 ft, clay loam soil, short grass prairie, 13 Jul 1970, Lund s.n. (LAMR)

**Ratibida columnifera**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, 3000 ft, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR -- 2 sheets)

**Symphotrichum falcatum**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR -- 3 sheets)

**Tetraneuris scaposa** var. **scaposa**

[LAMR]: Potter Co., Bates Canyon, rocky slope northerly exposure, 19 Apr 1971, Lund s.n. (LAMR)

**Senecio flaccidus**

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

[LAMR]: Hutchinson Co., Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 17 May 1971, Lund s.n. (LAMR -- 2 sheets)

**Sonchus asper**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 17 May 1971, Lund s.n. (LAMR)

**Stephanomeria pauciflora**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Headquarters, 3000 ft, clay loam soil, short grass prairie, 26 May 1972, Lund s.n. (LAMR)

**Thelesperma megapotamicum**

[LAMR]: Hutchinson Co., Alibates, 26 Jun 1971, Hooper s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 3 Jun 1970, Lund s.n. (LAMR)

**Thelesperma filifolium** var. **intermedium**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 17 May 1971, Lund s.n. (LAMR)

**Tragopogon dubius**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 22 Apr 1971, Lund s.n. (LAMR -- 2 sheets)

**Vernonia marginata**

[ALFL]: Potter Co., Alibates, 17 Jul 1971, Hooper s.n. (LAMR)

**Xanthium strumarium** var. **canadense**

[LAMR: Hutchinson Co.]: Bugbee Canyon, 16 Sep 1971, Lund s.n. (LAMR)

**Zinnia grandiflora**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, 26 May 1972, W. Bauer (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 3 Jun 1970, Lund s.n. (LAMR -- 2 sheets)

**CONVOLVULACEAE**

**Evolvulus nuttallianus**

[ALFL]: Potter Co., Alibates, talus below caprock, near quarries, 3050 ft, 30 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

**Ipomoea leptophylla**

[ALFL]: Potter Co., Alibates, Jun 1971, Hooper s.n. (LAMR)

**BRASSICACEAE**

**Descurainia pinnata**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters roadside, 3000 ft, clay loam soil, short grass prairie, 22 Apr 1971, Lund s.n. (LAMR -- 2 sheets)

**Descurainia sophia**

[LAMR: Potter Co.]: Sanford Recreation Area, Bates Canyon, roadside at boatramp in disturbed soil, uncommon, 1 Apr 1971, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters roadside, 3000 ft, clay loam soil, short grass prairie, 22 Apr 1971, Lund s.n. (LAMR) -- 4 sheets)

**Lepidium oblongum**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters roadside, 3000 ft, clay loam soil, short grass prairie, 22 Apr 1971, Lund s.n. (LAMR)

[LAMR: Potter Co.]: Sanford Recreation Area, Bates Canyon, roadside, disturbed soil by boatramp, common, 19 Apr 1971, Lund s.n. (LAMR)

**Lepidium virginicum**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters roadside, uncommon, 3000 ft, clay loam soil, short grass prairie, 22 Apr 1971, Lund s.n. (LAMR)

[ALFL]: Potter Co., Alibates, Flint Quarries area near S. Turkey Creek, 3100 ft, 24 Apr 1970, Lund s.n. (LAMR)

**Lesquerella gordonii**

[ALFL]: Potter Co., Alibates National Monument, 3000 ft, petroglyphs, 24 Apr 1970, Lund s.n. (LAMR)

[LAMR]: Potter Co., Sanford Recreation Area, flats, 19 Apr 1971, Lund s.n. (LAMR)

**Lesquerella ovalifolia**

[LAMR]: Potter Co., Bates Canyon, rocky hillside, N exposure, uncommon, 19 Apr 1971, Lund s.n. (LAMR)

[LAMR]: Potter Co., Bates Canyon, 25 Mar 1971, Lund s.n. (LAMR)

**CAMPANULACEAE**

**Lobelia cardinalis**

[LAMR]: Hutchinson Co., Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

**CUPRESSACEAE**

**Juniperus monosperma**

[LAMR: Potter Co.]: Sanford Recreation Area, Chicken Creek, clay loam soil, short grass prairie, 3000 ft, 13 Jul 1970, Lund s.n. (LAMR)

[ALFL]: Potter Co., Alibates, 3050 ft, talus below caprock near quarries, 30 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

**CYPERACEAE**

**Cyperus 'filiculmis'**

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 29 Aug 1970, Lund s.n. (LAMR)

**Fimbristylis puberula interior**

[LAMR]: Potter Co., Chicken Creek, 3000 ft, 13 Jul 1970, Lund s.n. (LAMR)

**Fuirena simplex**

[LAMR]: Hutchinson Co., Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

**Schoenocaulon pungens** (*Scirpus americanus*)

[LAMR: Potter Co.]: Sanford Recreation Area, E. near McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 19 Jun 1970, Lund s.n. (LAMR)

**EPHEDRACEAE**

**Ephedra torreyana**

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

**Ephedra torreyana** [IDed as *E. antisyphylitica*]

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

**EUPHORBIACEAE**

**Argythamnia mercurialina**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR)

**Argythamnia humilis**

[LAMR]: Hutchinson Co., Headquarters, 26 May 1972, Lund s.n. (LAMR)

**Croton texensis**

[ALFL]: Potter Co., Alibates, caprock, 3200 ft, 30 Aug 1970, Lund s.n. (LAMR -- 2 sheets) [ CHECK ID]

[LAMR: Potter Co.]: Sanford Recreation Area, clay loam soil, short grass prairie, fenced ESA, McBride Canyon, 3000 ft, 29 Aug 1970, Lund s.n. (LAMR --2 sheets)

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR-3 sheets)

**Chamaesyce** sp.

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters roadside, uncommon, 3000 ft, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR)

**Chamaesyce lata**

[ALFL: Potter Co.]: Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR)

**Chamaesyce** [maculata]

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR)

**Chamaesyce missurica**

[LAMR: Potter Co.]: Sanford Recreation Area, fenced ESA, McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 29 Aug 1970, Lund s.n. (LAMR)

**Euphorbia davidii**

[LAMR: Potter Co.]: Sanford Recreation Area, clay loam soil, short grass prairie, East SA, McBride Canyon, 3000 ft, 29 Aug Lund s.n. (LAMR)

**Euphorbia** [hexagona]

[LAMR: Potter Co.]: Sanford Recreation Area, fenced ESA, McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 29 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

**Euphorbia** [spathulata]

[LAMR: Moore Co.]: Sanford Recreation Area, Plum Creek, 29 Apr 1971, Lund s.n. (LAMR)

**FABACEAE**

**Amorpha fruticosa**

[LAMR: Pottere Co.]: Sanford Recreation Area, Chicken Creek, 3000 ft, clay loam soil, short grass prairie, 13 Jul 1970, Lund s.n. (LAMR)

**Astragalus lotiflorus**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 17 May 1971, Lund s.n. (LAMR -- 2 sheets)

**Astragalus missouriensis**

[LAMR: Potter Co.]: Sanford Recreation Area, Bates Canyon, hillside, northerly exposure, 19 Apr 1971, Lund s.n. (LAMR)

[LAMR: Moore Co.]: Sanford Recreation Area, Plum Creek, 29 Apr 1971, Lund s.n. (LAMR)

[ALFL]: Potter Co., Alibates, petroglyphs, 3000 ft, 24 Apr 1970, Lund s.n. (LAMR)

**Astragalus nuttallianus** var. undetermined

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn, 3000 ft, clay loam soil, short grass prairie, 17 May 1971, Lund s.n. (LAMR -- 2 sheets)

**Astragalus nuttallianus** var. **austrinus**

[ALFL]: Potter Co., Alibates, flint quarry area, near S. Turkey Creek, 3100 ft, 24 Apr 1970, Lund s.n. (LAMR)

**Dalea aurea**

[ALFL]: Potter Co., Alibates, Jun 1971, Hooper s.n. (LAMR)

**Dalea enneandra**

[LAMR: Potter Co.]: Sanford Recreation Area, E. near McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 19 Jun 1970, Lund s.n. (LAMR -- 2 sheets)

**Dalea formosa**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, clay loam soil, short grass prairie, 3 Jun 1970, Lund s.n. (LAMR -- 3 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, clay loam soil, short grass prairie, 15 Jun 1970, Day s.n. (LAMR)

**Dalea tenuifolia**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, 3000 ft, clay loam soil, short grass prairie, 3 Jun 1970, Lund s.n. (LAMR)

**Desmanthus illinoensis**

[LAMR]: Hutchinson Co., Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

**Glycyrrhiza lepidota**

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 19 Jun 1970, Lund s.n. (LAMR-2 sheets)

**Pomaria jamesii**

[LAMR: Potter Co.]: Sanford Recreation Area, clay loam soil, short grass prairie, McBride Canyon, 3000 ft, 29 Aug 1970, Lund s.n. (LAMR)

**Prosopis glandulosa**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

**FUMARIACEAE**

**Corydalis aurea**

[ALFL]: Potter Co., Alibates, petroglyphs, 3150 ft, 24 Apr 1970, Lund s.n. (LAMR)

[LAMR: Potter Co.]: Sanford Recreation Area, Bates Canyon, 25 Mar 1971, Lund s.n. (LAMR)

**KRAMERIACEAE**

**Krameria lanceolata**

[ALFL]: Potter Co., Alibates, 25 May 1970, Lund s.n. (LAMR)

[LAMR]: Hutchinson Co., Sanford Recreation Area, clay loam soil, short grass prairie, 26 May 1972, Bauer (LAMR)

**LAMIACEAE**

**Mollucella laevis**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters lawn (cultivated escaped), 3000 ft, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR)

**Monarda pectinata**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

[LAMR]: Hutchinson Co., Headquarters, 26 May 1972, Lund s.n. (LAMR -- 2 sheets)

**Monarda punctata**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

**LILIACEAE****Allium drummondii**

[LAMR: Moore Co.]: Sanford Recreation Area, Plum Creek, 29 Apr 1971, Lund s.n. (LAMR -- 2 sheets)

[ALFL]: Potter Co., Alibates, flint quarry near S. Turkey Creek, 3100 ft, 24 Apr 1970, Lund s.n. (LAMR)

**LINACEAE****Linum rigidum** (as L. "aristatum")

[ALFL]: Potter Co., Alibates, Jun 1971, Hooper s.n. (LAMR)

**LOASACEAE****Mentzelia nuda** (as Mentzelia "stricta")

[ALFL]: Potter Co., Alibates, 17 Aug 1970, Day s.n. (LAMR)

[LAMR]: Hutchinson Co., Bugbee Canyon, 16 Sep 1971, Lund s.n. (LAMR)

**MALVACEAE****Callirhoe involucreta**

[ALFL]: Potter Co., Alibates, 26 Jun 1971, Hooper s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 3000 ft, 17 Apr 1972, Lund s.n. (LAMR)

**PEDALIACEAE****Martynia louisianica**

[ALFL]: Potter Co., Alibates, Jun 1971, Hooper s.n. (LAMR)

**OLEACEAE****Forestiera neomexicana** (as Forestiera pubescens)

[LAMR]: Potter Co., Bates Canyon, 2 Apr 1971, Lund s.n. (LAMR -- 3 sheets)

**ONAGRACEAE****Calylophus serrulatus**

[ALFL]: Potter Co., Alibates, sandy wash, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

**Gaura coccinea**

[LAMR: Hutchinson Co.]: HQ lawn, 3000 ft, 17 Apr 1972, Lund s.n. (LAMR)

**Oenothera albicaulis**

[LAMR: Moore Co.]: Sanford Recreation Area, Potter Co., Plum Creek, 29 Apr 1971, Lund s.n. (LAMR)

**Stenosiphon linifolius**

[LAMR]: Hutchinson Co., Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

## **PAPAVERACEAE**

### ***Argemone polyanthemus* (as *Argemone albiflora*)**

[ALFL]: Potter Co., Alibates, 26 Jun 1971, Hooper s.n. (LAMR)

## **PLANTAGINACEAE**

### ***Plantago patagonica***

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

## **POACEAE**

### ***Bothriochloa ischaemum***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters area, roadside, clay loam soil, short grass prairie, 3000 ft, 26 May 1972, Lund s.n. (LAMR)

### ***Bothriochloa laguroides* (as “*B. barbinodis*”)**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters area, lawn, clay loam soil, short grass prairie, 3000 ft, 10 Jul 1970, Lund s.n. (LAMR)

[LAMR]: Hutchinson Co., headquarters area, roadside, 3000 ft, 24 Aug 1970, Burke s.n. (LAMR-2 sheets)

### ***Bothriochloa laguroides* (as “*Bothriochloa saccharoides*”)**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR -- 2 sheets)

### ***Andropogon gerardii* var. *paucipilus* (as *Andropogon hallii*)**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters area, roadside, clay loam soil, short grass prairie, 3000 ft, 24 Aug 1970, Burke s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, sandy hillside with little bluestem, 3000 ft, 26 May 1972, Lund s.n. (LAMR)

### ***Aristida adscensionis***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters area, roadside, clay loam soil, short grass prairie, 3000 ft, 24 Aug 1970, Burke s.n. (LAMR)

### ***Aristida fendleriana***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters area, caprock plateau, clay loam soil, short grass prairie, 3000 ft, 23 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

### ***Aristida glauca***

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR -- 2 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, roadside near headquarters area, clay loam soil, short grass prairie, 3000 ft, 26 May 1970, Lund s.n. (LAMR)

### ***Aristida longeseta***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Fritch Fortress area, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, caprock plateau, clay loam soil, short grass prairie, 23 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

***Bouteloua curtipendula***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, caprock plateau, clay loam soil, short grass prairie, 23 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR-2 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, clay loam soil, short grass prairie, 24 Aug 1970, Burke s.n. (LAMR)

[ALFL]: Potter Co., Alibates, caprock, 3200 ft, 30 Aug 1970, Lund s.n. (LAMR-3 sheets)

***Bouteloua eriopoda*** (as “*Scleropogon brevifolius*”)

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR)

***Bouteloua gracilis***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, clay loam soil, short grass prairie, 3 Sep 1971, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, caprock plateau, clay loam soil, short grass prairie, 23 Aug 1970, Lund s.n. (LAMR -- 4 sheets)

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR -- 3 sheets)

[ALFL]: Potter Co., Alibates, caprock, 3200 ft, 30 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

***Bouteloua hirsuta***

[LAMR]: Hutchinson Co., Sanford Recreation Area, headquarters, caprock plateau, 3000 ft, 23 Aug 1970, Lund s.n. (LAMR)

***Cenchrus longispinus*** (as “*C. incertus*”)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, clay loam soil, short grass prairie, 24 Aug 1970, Burke s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR -- 2 sheets)

***Chloris verticillata***

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR-2 sheets)

[ALFL]: Potter Co., Alibates, caprock, 3200 ft, 30 Aug 1970, Lund s.n. (LAMR)

***Chloris virgata***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, clay loam soil, short grass prairie, 24 Aug 1970, Burke s.n. (LAMR)

***Cynodon dactylon***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, clay loam soil, short grass prairie, 3 Sep 1971, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR)

***Digitaria sanguinalis***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters area, clay loam soil, short grass prairie, 25 Aug 1970, Burke s.n. (LAMR -- 2 sheets)

**Echinochloa crus-galli**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside and lawn, clay loam soil, short grass prairie, 26 May 1972, Lund s.n. (LAMR)

**Elymus canadensis**

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR -- 2 sheets)

**Elymus elymoides** (as *Sitanion hystrix*)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, 3000 ft, clay loam soil, short grass prairie, 17 May 1971, Lund s.n. (LAMR -- 3 sheets)

[ALFL]: Potter Co., Alibates National Monument, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR-2 sheets)

**Erioneuron pilosum**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR-3 sheets)

**Hordeum pusillum**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR)

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR-3 sheets)

**Leersia oryzoides**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900, 16 Sep 1971, Lund s.n. (LAMR)

**Leptoloma cognatum**

[ALFL]: Potter Co., Alibates National Monument, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR-3 sheets)

**Lolium perenne**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 17 May 1971, Lund s.n. (LAMR)

**Panicum capillare** (as "*Leptoloma cognatum*")

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Sanford-Yake area, 3000 ft, clay loam soil, short grass prairie, 25 Aug 1970, Burke s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, caprock plateau, 3000 ft, clay loam soil, short grass prairie, 23 Aug 1970, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Hutchinson Co., Sanford-Yake area, 3000 ft, 28 Aug 1970, Burke s.n. (LAMR)

**Panicum hallii**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, roadside near headquarters, 3000 ft, clay loam soil, short grass prairie, 26 May 1972, Lund s.n. (LAMR)

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR-2 sheets)

***Panicum obtusum***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR - 2 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, bottom of a wash, 3000 ft, clay loam soil, short grass prairie, 26 May 1971, Lund s.n. (LAMR)

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR)

***Panicum virgatum***

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, fenced ESA, 3000 ft, clay loam soil, short grass prairie, 29 Aug 1970, Lund s.n. (LAMR -- 3 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

***Pascopyrum smithii***

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR -- 2 sheets)

***Setaria leucopila* (as *S. macrostachya*)**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, 3000 ft, clay loam soil, short grass prairie, 24 Aug 1970, Burke s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, caprock plateau, 3000 ft, clay loam soil, short grass prairie, 23 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

[LAMR: Hutchinson Co., headquarters, roadside, 3000 ft, 3 Sep 1971, Lund s.n. (LAMR)

***Setaria parviflora* (as "*S. geniculata*")**

[LAMR: Potter Co.]: Sanford Recreation Area, Chicken Creek, 3000 ft, clay loam soil, short grass prairie, 13 Jul 1970, Lund s.n. (LAMR -- 2 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

***Setaria glauca* (as "*S. viridis*")**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, 3000 ft, clay loam soil, short grass prairie, 24 Aug 1970, Burke s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, lawn, 3000 ft, clay loam soil, short grass prairie, 10 Jul 1970, Lund s.n. (LAMR)

***Sorghastrum nutans***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

***Sorghum halepense***

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR)

***Sporobolus cryptandrus***

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, roadside, 3000 ft, clay loam soil, short grass prairie, 24 Aug 1970, Burke s.n. (LAMR -- 3 sheets)

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, riparian habitat, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR -- 3 sheets)

**Tridens muticus**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Fritch Fortress, 3000 ft, clay loam soil, short grass prairie, 28 Aug 1970, Burke s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, caprock plateau, 3000 ft, clay loam soil, short grass prairie, 23 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

**POLYGONACEAE**

**Paronychia jamesii** (as "Chorizanthe brevicornu Torr.")

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Headquarters, rocky flat area, 3000 ft, 12 Oct 1971, Lund s.n. (LAMR)

**Eriogonum longifolium**

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR -- 2 sheets)

[ALFL]: Potter Co., Alibates, caprock, 3200 ft, 30 Aug 1970, Lund s.n. (LAMR)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Headquarters, caprock plateau, clay loam soil, short grass prairie, 3000 ft, 23 Aug 1970, Lund s.n. (LAMR -- 2 sheets)

**Eriogonum annuum**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 2900 ft, 16 Sep 1971, Lund s.n. (LAMR)

**POLYGALACEAE**

**Polygala alba**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Headquarters, clay loam soil, short grass prairie, 3000 ft, 3 Jun 1970, Lund s.n. (LAMR)

**RANUNCULACEAE**

**Delphinium carolinianum** var. **virescens**

[ALFL]: Potter Co., Alibates, 3000 ft, 25 May 1970, Lund s.n. (LAMR -- 2 sheets)

**RUBIACEAE**

**Hedyotis nigricans**

[ALFL]: Potter Co., Alibates, Jun 1971, Hooper s.n. (LAMR)

**SALICACEAE**

**Populus deltoides** var. **monilifera**

[LAMR: Potter Co.]: Sanford Recreation Area, Chicken Creek, clay loam soil, short grass prairie, 3000 ft, 13 Jul 1970, Lund s.n. (LAMR -- 3 sheets)

**Salix amygdaloides**

[LAMR: Potter Co.]: Sanford Recreation Area, Chicken Creek, clay loam soil, short grass prairie, 3000 ft, 13 Jul 1970, Lund s.n. (LAMR -- 2 sheets)

**Salix interior**

[LAMR: Potter Co.]: Sanford Recreation Area, E. near McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 19 Jun 1970, Lund s.n. (LAMR -- 2 sheets)

**SAPINDACEAE**

**Sapindus drummondii**

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 19 Jun 1970, Lund s.n. (LAMR)

## SCROPHULARIACEAE

### **Penstemon ambiguus**

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR -- 3 sheets)

[LAMR]: Hutchinson Co., Sanford Recreation Area, clay loam soil, short grass prairie, 26 May 1972, Bauer s.n. (LAMR -- 2 sheets)

## SOLANACEAE

### **Chamaesaracha sordida**

[ALFL]: Potter Co., Alibates, flint quarry near S. Turkey Creek, 3100 ft, 24 Apr 1970, Lund s.n. (LAMR)

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR -- 2 sheets)

[LAMR: Hutchinson Co.]: Sanford Recreation Area, headquarters, disturbed soil by parking lot, clay loam soil, short grass prairie, 3000 ft, 21 Apr 1971, Lund s.n. (LAMR) -- 2 sheets)

### **Quincula (Physalis) lobata**

[LAMR]: Moore Co., Sanford Recreation Area, Plum Creek, 29 Apr 1971, Lund s.n. (LAMR)

### **Solanum rostratum**

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR)

## TAMARICACEAE

### **Tamarix ramosissima**

[LAMR: Potter Co.]: Sanford Recreation Area, near McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 19 Jun 1970, Lund s.n. (LAMR)

## TYPHACEAE

### **Typha domingensis**

[LAMR: Hutchinson Co.]: Sanford Recreation Area, Bugbee Canyon, 3000 ft, 16 Sep 1971, Lund s.n. (LAMR)

## ULMACEAE

### **Celtis reticulata**

[LAMR: Potter Co.]: Sanford Recreation Area, fenced ESA, McBride Canyon, 3000 ft, clay loam soil, short grass prairie, 22 Apr 1971, Lund s.n. (LAMR)

## VERBENACEAE

### **Glandularia bipinnatifida**

[ALFL]: Potter Co., Alibates, 3200 ft, 7 Jun 1970, Lund s.n. (LAMR -- 2 sheets)

[LAMR]: Hutchinson Co., Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 3000 ft, 10 Jul 1970, Lund s.n. (LAMR -- 2 sheets)

### **Verbena bracteata**

[LAMR]: Hutchinson Co., Sanford Recreation Area, headquarters, lawn, clay loam soil, short grass prairie, 3000 ft, 10 Jul 1970, Lund s.n. (LAMR -- 3 sheets)

## VITACEAE

### **Vitis acerifolia**

[LAMR: Potter Co.]: Sanford Recreation Area, McBride Canyon, fenced ESA, 3000 ft, clay loam soil, short grass prairie, 29 Aug 1970, Lund s.n. (LAMR)

[LAMR: Potter Co.]: Sanford Recreation Area, Chicken Creek, 3000 ft, clay loam soil, short grass prairie, 13 Jul 1970, Lund s.n. (LAMR)

**ZYGOPHYLLACEAE**

***Kallstroemia parviflora***

[LAMR: Hutchinson Co.]: Bugbee Canyon, 16 Sep 1971, Lund s.n. (LAMR -- 2 sheets)

**APPENDIX 6:** Species potentially to be included on the LAMR/ALFL checklist, based on vouchers collected by Wright and Meador (1981).

These 27 species will be added to the list, pending confirmation of their identity and provenance within the parkland. Species marked by an asterisk are unexpected in the panhandle; others, as indicated, are included on lists of potentially occurring species listed in Appendix 2a, 2b, or 2c. Unannotated species are reported to occur within the panhandle or close to it.

<b>Taxon</b>	<b>Notes</b>
* <i>Acourtia nana</i> (Gray) Reveal & King	Previously known in Texas only from the trans-Pecos area and few counties to the east of it.
* <i>Ambrosia artemisiifolia</i> L.	Previously known in Texas only from the eastern and south-central parts of the state and in Hardeman County.
<i>Ammannia coccinea</i> Rottb.	
* <i>Asclepias brachystephana</i> Engelm. ex Torr.	Previously known in Texas only from the trans-Pecos area and few counties slightly north of it.
<i>Bergia texana</i> (Hook.) Seub. ex Walp.	Appendix 2b.
<i>Chenopodium fremontii</i> S. Wats.	Appendix 2b.
* <i>Croton pottsii</i> (Klotzsch) Muell.-Arg.	Previously known from southwest Texas and a few counties just south of the panhandle.
<i>Eriogonum alatum</i> Torr.	Appendix 2b.
* <i>Gossypianthus lanuginosus</i> (Poir.) Moq. var. <i>lanuginosus</i>	Previously known from central Texas; no panhandle localities.
<i>Helianthus ciliaris</i> DC.	Appendix 2a.
<i>Hesperostipa neomexicana</i> (Thurb. ex Coult.) Barkworth	Appendix 2c.
<i>Lepidium densiflorum</i> Schrad.	Appendix 2b.
<i>Lythrum californicum</i> Torr. & Gray	Appendix 2b.
<i>Malvella lepidota</i> (Gray)	Fryxell
<i>Marsilea vestita</i> Hook. & Grev.	Appendix 2b.
<i>Mimosa nuttallii</i> (DC.) B.L. Turner	Appendix 2b.
<i>Oenothera canescens</i> Torr. & Frem.	Appendix 2b.
<i>Oenothera grandis</i> L'Her. ex Ait.	
<i>Oenothera laciniata</i> Hill	Appendix 2c.
<i>Orobanche ludoviciana</i> Nutt.	Appendix 2b.
<i>Oxalis albicans</i> Kunth (= <i>Oxalis corniculata</i> var. <i>wrightii</i> )	
<i>Physalis cinerascens</i> (Dunal) A.S. Hitchc.	Appendix 2b.
<i>Poa arachnifera</i> Torr.	Appendix 2c.
<i>Polygala lindheimeri</i> Gray var. <i>parviflora</i> Wheelock	
<i>Polygonum pensylvanicum</i> L.	Appendix 2b.
* <i>Silene antirrhina</i> L.	Widespread in Texas but no previously reported panhandle localities.
<i>Talinum parviflorum</i> Nutt.	

**APPENDIX 7: Summary of Bell et al. (2000) floristic results.**

7a. Names on the Bell et al. list (2000) not accounted for on the Nesom & O’Kennon list

7b. Complete list of species noted by Bell et al. (2000)

**7a. Names on the Bell et al. list (2000) not accounted for on the Nesom & O’Kennon list.**

<b>Taxon</b>	<b>Notes</b>
<i>Eragrostis curtipedicellata</i>	Reasonable ID – included on the probable and potential lists.
<i>Hilaria jamesii</i>	Reasonable ID – included on the potential list.
<i>Heterotheca canescens</i>	Almost certain misID for <i>Heterotheca villosa</i> .
<i>Oenothera missouriensis</i>	Almost certain misID for <i>Oenothera macrocarpa</i> var. <i>incana</i> .
<i>Euphorbia dentata</i>	Almost certain misID for <i>Euphorbia davidii</i> .
<i>Scutellaria drummondii</i>	Probable misID, probably for <i>Scutellaria resinosa</i> , which is common in the Bell transect area. <i>Scutellaria drummondii</i> is rare in the Texas panhandle.
<i>Gaura sinuata</i>	MisID? <i>Gaura sinuata</i> is not documented for the Texas panhandle.
<i>Grindelia squarrosa</i>	MisID? <i>Grindelia squarrosa</i> is not documented for the Texas panhandle.
<i>Erodium texanum</i>	MisID? <i>Erodium texanum</i> is not documented for the Texas panhandle.
<i>Tiquilia canescens</i>	Definite misID, perhaps for <i>Tidestromia lanuginosa</i> ???
<i>Schrankia uncinata</i>	Definite misID, probably for <i>Mimosa nuttallii</i> .
<i>Carex planostachys</i>	Probable misID; out-of-range for the panhandle, but still a possibility.
<i>Euthamia camporum</i>	Probable misID, perhaps? for <i>Gutierrezia sarothrae</i> . <i>Euthamia camporum</i> is a synonym of <i>Euthamia gymnospermoides</i> , which has been documented from eastern panhandle counties but not the LAMR/ALFL area.
<i>Euphorbia prostrata</i>	Probable misID for some other species of <i>Chamaesyce</i> , perhaps <i>C. glyptosperma</i> , which is abundant in the area of the Bell transects.
<i>Chenopodium album</i>	Probable misID for <i>Chenopodium berlandieri</i> , which is common in the Bell transect area and elsewhere in the park.
<i>Evax verna</i>	Probable misID for <i>Evax prolifera</i> , which grows commonly at various other sites on the parkland. <i>Evax verna</i> is rare in the panhandle.
<i>Acacia greggii</i>	Definite misID, perhaps for <i>Mimosa borealis</i> , which is common in the Bell transect area. <i>Acacia greggii</i> is a distinctive shrub that does not occur in the Texas panhandle.
<i>Rhus aromatica</i> var. <i>flabelliformis</i>	Definite misID for <i>Rhus aromatica</i> var. <i>serotina</i> , which is common in the Bell transect area. <i>Rhus aromatica</i> var. <i>flabelliformis</i> is a synonym of <i>Rhus trilobata</i> , which apparently does not occur in the panhandle area.
<i>Cercocarpus montanus</i>	Probable misID? – this distinctive shrub occurs at one site in nearby in LAMR but we did not find it in the Bell transect area.
<i>Polanisia jamesii</i>	Probable misID; easily confused with <i>Polanisia dodecandra</i> , which is common and widespread in LAMR/ALFL. <i>Polanisa jamesii</i> is rare in the panhandle.

We also note that plants identified by Bell et al. (2000) as *Mentzelia decapetala* are almost certainly *Mentzelia nuda*. *Mentzelia decapetala* is an obligate gypsophile and apparently does not occur in the Bell transect area; we found *M. nuda* in abundance there.

## 7b. Complete list of species noted by Bell et al. (2000)

Agropyron smithii  
Allium drummondii  
Ambrosia psilostachya  
Andropogon gerardii var. paucipilis  
Aphanostephus ramosissimus  
Aristida purpurea  
Aristida wrightii  
Artemisia caudata  
Artemisia filifolia  
Artemisia ludoviciana  
Asclepias engelmanniana  
Asclepias verticillata  
Asclepias viridiflora  
Aster commutatus  
Astragalus gracilis  
Astragalus missouriensis  
Astragalus mollissimus  
Bothriochloa laguroides  
Bouteloua curtipendula  
Bouteloua eriopoda  
Bouteloua gracilis  
Bouteloua hirsuta  
Buchloe dactyloides  
Calylophus serrulatus  
Celtis reticulata  
Centaurea americana  
Centaurea americana  
Ceratooides lanata  
Chamaesaracha coronopus  
Chloris verticillata  
Cirsium ochrocentrum  
Cirsium undulatum  
Comandra umbellata  
Commelina erecta  
Croton texensis  
Cryptantha minima  
Cucurbita foetidissima  
Cuscuta cuspidata  
Dalea aurea  
Dalea enneandra  
Dalea formosa  
Dalea purpurea  
Digitaria cognata  
Echinocereus reichenbachii  
Elymus canadensis  
Eriogonum annuum  
Eriogonum longifolium  
Erioneuron pilosum  
Evolvulus nuttallianus  
Gaillardia pulchella  
Gaura coccinea  
Gilia rigidula  
Gutierrezia sarothrae  
Haplopappus spinulosus  
Helianthus annuus  
Helianthus petiolaris  
Heliotropium convolvulaceum  
Heterotheca canescens  
Heterotheca stenophylla  
Heterotheca villosa  
Hoffmannseggia jamesii  
Hordeum pusillum  
Hymenopappus flavescens  
Hymenopappus tenuifolius  
Hymenoxys scaposa  
Ipomoea leptophylla  
Krameria lanceolata  
Lepidium virginicum  
Lesquerella gordonii  
Leucelene ericoides  
Liatris punctata  
Linum rigidum  
Machaeranthera tanacetifolia  
Melampodium leucanthum  
Mentzelia decapetala  
Mentzelia oligosperma  
Mirabilis linearis  
Monarda punctata  
Monroa squarrosa  
Muhlenbergia arenicola  
Opuntia macrorhiza  
Opuntia polyacantha var. trichophora  
Oxytropis lambertii  
Palafoxia sphacelata  
Panicum hallii  
Panicum obtusum  
Panicum virgatum  
Paronychia jamesii  
Penstemon fendleri  
Petalostemon candidum  
Plantago patagonica  
Polygala alba  
Prionopsis ciliata  
Prosopis glandulosa

Prunus angustifolia  
Psilostrophe tagetina  
Psoralea cuspidata  
Psoralea tenuiflora  
Psoralidium linearifolium  
Ptelea trifoliata  
Ratibida columnifera  
Salsola iberica  
Schizachyrium scoparium  
Senecio douglasii var. longilobus  
Senecio plattensis  
Setaria leucopila  
Sitanion hystrix  
Solanum elaeagnifolium  
Solanum rostratum  
Solidago petiolaris

Sorghastrum nutans  
Sphaeralcea coccinea  
Sporobolus cryptandrus  
Stenosiphon linifolius  
Stillingia sylvatica  
Stipa comata  
Teucrium laciniatum  
Thelesperma filifolium  
Thelesperma megapotamicum  
Tradescantia occidentalis  
Tragia ramosa  
Tridens muticus  
Vulpia octoflora  
Xanthium strumarium  
Yucca glauca  
Zinnia grandiflora

**APPENDIX 8:** Vouchered species checklist, arranged by family.

All taxa are arranged alphabetically by family (See Appendix 9 for arrangement by species). Following the species name are the common name and abundance estimate – see Table 3. The first set of vouchers is deposited at BRIT; any duplicate specimens are deposited at the herbarium of the University of Texas at Austin (TEX); any others are to be distributed. Nomenclature primarily follows Kartesz (1999). Species marked with an asterisk (\*) are represented by vouchers which have not been processed.

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
AGAVACEAE		
<i>Yucca glauca</i> Nutt. var. <i>glauca</i> *	soapweed yucca	Abundant
ALISMATACEAE		
<i>Sagittaria latifolia</i> Willd.	thin paspalum	Rare
AMARANTHACEAE		
<i>Amaranthus arenicola</i> I.M. Johnston	sandhill amaranth	Common
<i>Amaranthus blitoides</i> S. Wats.	mat amaranth	Common
<i>Amaranthus palmeri</i> S. Wats.	carelessweed	Common
<i>Amaranthus polygonoides</i> L.*	tropical amaranth	Uncommon
<i>Amaranthus retroflexus</i> L.	redroot amaranth	Uncommon
<i>Amaranthus spinosus</i> L.*	spiny pigweed	Uncommon
<i>Tidestromia lanuginosa</i> (Nutt.) Standl.	woolly tidestromia	Common
ANACARDIACEAE		
<i>Rhus aromatica</i> Ait. var. <i>pilosissima</i> (Engelm.) Shinnery	fragrant sumac	Abundant
<i>Rhus microphylla</i> Engelm. ex Gray	littleleaf sumac	Rare
<i>Toxicodendron rydbergii</i> (Small ex Rydb.) Greene	poison ivy	Common
APIACEAE		
<i>Ammoselinum popei</i> Torr. & Gray	plains sandparsley	Uncommon
<i>Berula erecta</i> (Huds.) Coville	cutleaf waterparsnip	Uncommon
<i>Cicuta maculata</i> L. var. <i>maculata</i>	spotted water hemlock	Uncommon
<i>Cymopterus acaulis</i> (Pursh) Raf.	plains springparsley	Uncommon
<i>Cymopterus montanus</i> Nutt. ex Torr. & Gray	mountain springparsley	Uncommon
APOCYNACEAE		
<i>Apocynum cannabinum</i> L.	Indianhemp	Common
ASCLEPIADACEAE		
<i>Asclepias arenaria</i> Torr.	sand milkweed	Common
<i>Asclepias asperula</i> (Dcne.) Woods. ssp. <i>asperula</i>	spider milkweed	Common
<i>Asclepias engelmanniana</i> Woods.	Engelmann's milkweed	Common
<i>Asclepias latifolia</i> (Torr.) Raf.*	broadleaf milkweed	Common
<i>Asclepias pumila</i> (Gray) Vail	plains milkweed	Uncommon
<i>Asclepias subverticillata</i> (Gray) Vail	horsetail milkweed	Rare

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
<i>Asclepias viridiflora</i> Raf.	green comet milkweed	Uncommon
<i>Funastrum cynanchoides</i> (Dcne.) Schlechter ssp. <i>cynanchoides</i>	fringed twinevine	Uncommon
ASTERACEAE		
<i>Ambrosia psilostachya</i> DC.	Cuman ragweed	Abundant
<i>Ambrosia trifida</i> L.	white prairie aster	Uncommon
<i>Amphiachyris dracunculoides</i> (DC.) Nutt.	prairie broomweed	Uncommon
<i>Aphanostephus ramosissimus</i> DC. var. <i>ramosissimus</i>	plains dozedaisy	Uncommon
<i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michx.) Hall & Clements	beach wormwood	Uncommon
<i>Artemisia carruthii</i> Wood ex Carruth.	Carruth's sagewort	Rare
<i>Artemisia dracunculus</i> L.	tarragon	Rare
<i>Artemisia filifolia</i> Torr.*	sand sagebrush	Abundant
<i>Artemisia ludoviciana</i> Nutt. ssp. <i>ludoviciana</i>	white sagebrush	Abundant
<i>Baccharis salicina</i> Torr. & Gray	Great Plains false willow	Abundant
<i>Baccharis wrightii</i> Gray	Wright's baccharis	Uncommon
<i>Berlandiera betonicifolia</i> (Hook.) Small	Texas greeneyes	Rare
<i>Berlandiera lyrata</i> Benth.	lyreleaf greeneyes	Common
<i>Bidens frondosa</i> L.	devil's beggartick	Uncommon
<i>Brickellia eupatorioides</i> (L.) Shinnery var. <i>corymbulosa</i> (Torr. & Gray) Shinnery	false boneset	Uncommon
<i>Centaurea americana</i> Nutt.	American star-thistle	Common
<i>Chaetopappa ericoides</i> (Torr.) Nesom	rose heath	Common
<i>Chloracantha spinosa</i> (Benth.) Nesom	spiny chloracantha	Common
<i>Chrysothamnus pulchellus</i> (Gray) Greene	southwestern rabbitbrush	Uncommon
<i>Cirsium ochrocentrum</i> Gray	yellowspine thistle	Common
<i>Cirsium undulatum</i> (Nutt.) Spreng.	wavyleaf thistle	Uncommon
<i>Conyza canadensis</i> (L.) Cronq. var. <i>glabrata</i> (Gray) Cronq.	Canadian horseweed	Common
<i>Conyza ramosissima</i> Cronq.	dwarf horseweed	Rare
<i>Dyssodia papposa</i> (Vent.) A.S. Hitchc.	fetid marigold	Uncommon
<i>Echinacea angustifolia</i> DC. var. <i>angustifolia</i>	blacksamson echinacea	Common
<i>Eclipta prostrata</i> (L.) L.	false daisy	Common
<i>Engelmannia peristenia</i> (Raf.) Goodman & Lawson	Engelmann's daisy	Uncommon
<i>Erigeron bellidiastrum</i> Nutt. var. <i>robustus</i> Cronq.	western daisy fleabane	Common
<i>Erigeron colomexicanus</i> A. Nels.	running fleabane	Common
<i>Erigeron modestus</i> Gray	plains fleabane	Common
<i>Evax prolifera</i> Nutt. ex DC.	bighead pygmyweed	Common
<i>Flaveria campestris</i> J.R. Johnston	alkali yellowtops	Uncommon
<i>Gaillardia pinnatifida</i> Torr. var. <i>pinnatifida</i>	red dome blanketflower	Common
<i>Gaillardia pulchella</i> Foug. var. <i>pulchella</i> *	firewheel	Common
<i>Grindelia ciliata</i> (Nutt.) Spreng.	false golden-weed	Common
<i>Grindelia nuda</i> Wood var. <i>nuda</i>	curlytop gumweed	Common
<i>Gutierrezia sarothrae</i> (Pursh) Britt. & Rusby	broom snakeweed	Common

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<i>Gutierrezia sphaerocephala</i> Gray	roundleaf snakeweed	Uncommon
<i>Haploesthes greggii</i> Gray var. <i>texana</i> (Coult.) I.M. Johnston	false broomweed	Rare
<i>Helenium autumnale</i> L.	Riddell's ragwort	Rare
<i>Helenium microcephalum</i> DC. var. <i>microcephalum</i> *		Uncommon
<i>Helianthus annuus</i> L.	common sunflower	Uncommon
<i>Helianthus maximiliani</i> Schrad.	Maximilian sunflower	Common
<i>Helianthus petiolaris</i> Nutt.	prairie sunflower	Common
<i>Heterotheca stenophylla</i> (Gray) Shinnery	stiffleaf false goldenaster	Common
<i>Heterotheca subaxillaris</i> (Lam.) Britt. & Rusby	camphorweed	Common
<i>Heterotheca villosa</i> (Pursh) Shinnery var. <i>angustifolia</i> (Rydb.) Semple	hairy golden aster	Common
<i>Hymenopappus filifolius</i> Hook. var. <i>cinereus</i> (Rydb.) I.M. Johnston	fineleaf hymenopappus	Uncommon
<i>Hymenopappus flavescens</i> Gray var. <i>flavescens</i>	collegeflower	Common
<i>Hymenopappus tenuifolius</i> Pursh	Chalk Hill hymenopappus	Common
<i>Isocoma pluriflora</i> (Torr. & Gray) Greene	southern goldenbush	Common
<i>Lactuca ludoviciana</i> (Nutt.) Riddell	biannual lettuce	Uncommon
<i>Lactuca serriola</i> L.	prickly lettuce	Uncommon
<i>Liatris punctata</i> Hook. var. <i>punctata</i>	dotted blazing star	Common
<i>Lygodesmia juncea</i> (Pursh) D. Don ex Hook.	rush skeletonplant	Common
<i>Machaeranthera pinnatifida</i> (Hook.) Shinnery var. <i>glaberrima</i> (Rydb.) B.L. Turner & Hartman	lacy tansyaster	Common
<i>Machaeranthera pinnatifida</i> (Hook.) Shinnery var. <i>pinnatifida</i>	lacy tansyaster	Common
<i>Machaeranthera tanacetifolia</i> (Kunth) Nees	tansyleaf tansyaster	Common
<i>Melampodium leucanthum</i> Torr. & Gray	plains blackfoot	Common
<i>Packera plattensis</i> (Nutt) W.A. Weber & A. Löve	prairie groundsel	Uncommon
<i>Palafoxia sphacelata</i> (Nutt. ex Torr.) Cory	othake	Common
<i>Pluchea odorata</i> (L.) Cass. var. <i>odorata</i>	sweetscent	Common
<i>Psilostrophe tagetina</i> (Nutt.) Greene var. <i>cerifera</i> (A. Nels.) B.L. Turner	paper daisy	Common
<i>Pyrrhopappus grandiflorus</i> (Nutt.) Nutt.	tuberous desert-chicory	Common
<i>Ratibida columnifera</i> (Nutt.) Woot. & Standl.	upright prairie coneflower	Uncommon
<i>Rayjacksonia annua</i> (Rydb.) R.L. Hartman & M.A. Lane	viscid tansyaster	Uncommon
<i>Scorzonera laciniata</i> L.	cutleaf vipergrass	Uncommon
<i>Senecio flaccidus</i> Less. var. <i>flaccidus</i>	threadleaf ragwort	Uncommon
<i>Senecio riddellii</i> Torr. & Gray	Riddell's ragwort	Common
<i>Solidago altissima</i> L. var. <i>gilvocanescens</i> (Rydb.) Semple	a goldenrod	Uncommon
<i>Solidago gigantea</i> Ait.	giant goldenrod	Common
<i>Solidago petiolaris</i> Ait.	downy ragged goldenrod	Common
<i>Sonchus asper</i> (L.) Hill	spiny sowthistle	Common
<i>Stephanomeria pauciflora</i> (Torr.) A. Nels.	brownplume wirelettuce	Uncommon

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<i>Symphyotrichum divaricatum</i> (Nutt.) Nesom	southern annual saltmarsh aster	Common
<i>Symphyotrichum expansum</i> (Poepp. ex Spreng.) Nesom	southwestern annual saltmarsh aster	Rare
<i>Symphyotrichum falcatum</i> (Lindl.) Nesom var. <i>commutatum</i> (Torr. & Gray) Nesom	white prairie aster	Common
<i>Symphyotrichum fendleri</i> (Gray) Nesom	Fendler's aster	Uncommon
<i>Taraxacum officinale</i> G.H. Weber ex Wiggers	common dandelion	Uncommon
<i>Tetranneuris acaulis</i> (Pursh) Greene	stemless four-nerve daisy	Uncommon
<i>Tetranneuris scaposa</i> (DC.) Greene var. <i>scaposa</i>	stemmy four-nerve daisy	Common
<i>Thelesperma filifolium</i> (Hook.) Gray var. <i>intermedium</i> (Rydb.) Shinnery	stiff greenthread	Common
<i>Thelesperma megapotamicum</i> (Spreng.) Kuntze	Hopi tea greenthread	Common
<i>Townsendia texensis</i> Larsen	Texas Townsend daisy	Common
<i>Tragopogon dubius</i> Scop.	yellow salsify	Uncommon
<i>Vernonia baldwinii</i> Torr. ssp. <i>interior</i> (Small) Faust*	interior ironweed	Uncommon
<i>Vernonia marginata</i> (Torr.) Raf.	plains ironweed	Uncommon
<i>Xanthium strumarium</i> L. var. <i>canadense</i> (P. Mill.) Torr. & Gray	Canada cocklebur	Uncommon
<i>Zinnia grandiflora</i> Nutt.	Rocky Mountain zinnia	Common
BORAGINACEAE		
<i>Cryptantha cinerea</i> (Greene) Cronq. var. <i>jamesii</i> Cronq.	James' cryptantha	Common
<i>Cryptantha minima</i> Rydb.	little cryptantha	Common
<i>Heliotropium convolvulaceum</i> (Nutt.) Gray	phlox heliotrope	Common
<i>Heliotropium curassavicum</i> L. var. <i>curassavicum</i>	salt heliotrope	Common
<i>Lappula occidentalis</i> (S. Wats.) Greene	flatspine stickseed	Common
<i>Lappula occidentalis</i> (S. Wats.) Greene var. <i>occidentalis</i>	flatspine stickseed	Common
<i>Lithospermum incisum</i> Lehm.	narrowleaf stoneseed	Common
BRASSICACEAE		
<i>Descurainia pinnata</i> (Walt.) Britt. var. <i>ochroleuca</i> (Woot.) Shinnery	tansy mustard	Common
<i>Descurainia sophia</i> (L.) Webb ex Prantl	herb sophia	Common
<i>Dimorphocarpa candicans</i> (Raf.) Rollins	Palmer's spectaclepod	Uncommon
<i>Erysimum capitatum</i> (Dougl. ex Hook.) Greene var. <i>capitatum</i>	prairie-rocket wallflower	Uncommon
<i>Lepidium oblongum</i> Small	veiny pepperweed	Common
<i>Lepidium virginicum</i> L.*	Virginia pepperweed	Uncommon
<i>Lesquerella gordonii</i> (Gray) S. Wats.	Gordon's bladderpod	Common
<i>Lesquerella ovalifolia</i> Rydb. ex Britt.	roundleaf bladderpod	Common
<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek	watercress	Rare

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CACTACEAE		
<i>Coryphantha vivipara</i> (Nutt.) Britt. & Rose	foxtail pincushion cactus	Uncommon
<i>Echinocereus reichenbachii</i> (Terscheck ex Walp.) Haage f.	lace hedgehog cactus	Common
<i>Escobaria missouriensis</i> (Sweet) D.R. Hunt*	plains nipple cactus	Uncommon
<i>Opuntia fragilis</i> (Nutt.) Haw.*	brittle pricklypear	Uncommon
<i>Opuntia imbricata</i> (Haw.) DC.*	tree cholla	Uncommon
<i>Opuntia leptocaulis</i> DC.*	pencil cholla	Uncommon
<i>Opuntia macrorhiza</i> Engelm.*	plains prickly-pear	Common
<i>Opuntia phaeacantha</i> Engelm.	tulip pricklypear	Uncommon
<i>Opuntia polyacantha</i> Haw.*	plains pricklypear	Uncommon
<i>Opuntia</i> sp.	unidentified pricklypear	Uncommon
CAMPANULACEAE		
<i>Lobelia cardinalis</i> L.	cardinalflower	Common
CAPPARACEAE		
<i>Polanisia dodecandra</i> (L.) DC. ssp. <i>trachysperma</i> (Torr. & Gray) Iltis	redwhisker clammyweed	Common
CAPRIFOLIACEAE		
<i>Lonicera albiflora</i> Torr. & Gray	western white honeysuckle	Uncommon
CARYOPHYLLACEAE		
<i>Minuartia michauxii</i> (Fenzl) Farw. var. <i>texana</i> (B.L. Robins.) Mattf.	Texas stitchwort	Unommon
<i>Paronychia jamesii</i> Torr. & Gray	James' nailwort	Common
CHENOPODIACEAE		
<i>Atriplex argentea</i> Nutt. var. <i>argentea</i>	silverscale saltbush	Uncommon
<i>Atriplex canescens</i> (Pursh) Nutt. var. <i>canescens</i>	fourwing saltbush	Common
<i>Atriplex patula</i> L.*	halberd-leaf saltbush	Rare – only 1 population seen
<i>Bassia scoparia</i> (L.) A.J. Scott	Mexican summer-cypress	Abundant
<i>Chenopodium berlandieri</i> Moq.	pitseed goosefoot	Common
<i>Chenopodium glaucum</i> L.	oakleaf goosefoot	Common
<i>Chenopodium incanum</i> (S. Wats.) Heller var. <i>elatum</i> Crawford	mealy goosefoot	Uncommon
<i>Chenopodium leptophyllum</i> (Moq.) Nutt. ex S. Wats.	narrowleaf goosefoot	Common
<i>Chenopodium missouriense</i> Aellen	Missouri goosefoot	Uncommon
<i>Chenopodium pratericola</i> Rydb.	desert goosefoot	Common
<i>Corispermum americanum</i> (Nutt.) Nutt.	tickseed	Common
<i>Cycloloma atriplicifolium</i> (Spreng.) Coult.	winged pigweed	Common
<i>Krascheninnikovia lanata</i> (Pursh) A.D.J. Meeuse & Smit	winterfat	Common

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<i>Salsola collina</i> Pallas	slender Russian thistle	Common
<i>Salsola tragus</i> L.	prickly Russian thistle	Abundant
<i>Suaeda calceoliformis</i> (Hook.) Moq.*	Pursh seepweed	Uncommon
<i>Suckleya suckleyana</i> (Torr.) Rydb.*	poison suckleya	Rare
COMMELINACEAE		
<i>Commelina erecta</i> L.	whitemouth dayflower	Common
<i>Tradescantia occidentalis</i> (Britt.) Smyth var. <i>occidentalis</i>	prairie spiderwort	Uncommon
CONVOLVULACEAE		
<i>Convolvulus arvensis</i> L.	field bindweed	Common
<i>Convolvulus equitans</i> Benth.	Texas bindweed	Common
<i>Evolvulus nuttallianus</i> J.A. Schultes	shaggy dwarf morning-glory	Common
<i>Ipomoea leptophylla</i> Torr.	bush morning-glory	Common
CROSSOSOMATACEAE		
<i>Glossopetalon (Forsellesia) planitierum</i> (Ensign) St. John*	plains greasebush	Rare
CUCURBITACEAE		
<i>Citrullus lanatus</i> (Thunb.) Matsumura & Nakai	watermelon	Uncommon
<i>Cucurbita foetidissima</i> Kunth	Missouri gourd	Uncommon
CUPRESSACEAE		
<i>Juniperus monosperma</i> (Engelm.) Sarg.	oneseed juniper	Common
<i>Thuja occidentalis</i> L.	arborvitae	1 plant seen [cultivated]
CUSCUTACEAE		
<i>Cuscuta cuspidata</i> Engelm.	cusp dodder	Uncommon
CYPERACEAE (14)		
<i>Carex emoryi</i> Dewey	Emory's sedge	Uncommon
<i>Carex hystericina</i> Muhl. ex Willd.	bottlebrush sedge	Uncommon
<i>Cyperus niger</i> Ruiz & Pavón	black flatsedge	Uncommon
<i>Cyperus schweinitzii</i> Torr.	Schweinitz's flatsedge	Uncommon
<i>Cyperus strigosus</i> L.	strawcolored flatsedge	Uncommon
<i>Eleocharis macrostachya</i> Britt.*	common spikerush	Common
<i>Eleocharis montevidensis</i> Kunth	sand spikerush	Common
<i>Eleocharis rostellata</i> (Torr.) Torr.	beaked spikerush	Common
<i>Fimbristylis puberula</i> (Michx.) Vahl var. <i>interior</i> (Britt.) Kral	hairy fimbry	Common
<i>Fuirena simplex</i> Vahl	western umbrella-sedge	Common
<i>Schoenoplectus acutus</i> (Muhl. ex Bigelow) A.& D. Löve var. <i>acutus</i>	hardstem bulrush	Common

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<i>Schoenoplectus maritimus</i> (L.) Lye	cosmopolitan bulrush	Common
<i>Schoenoplectus pungens</i> (Vahl) Pallas var. <i>longispicatus</i> (Britt.) S.G. Sm.	common threesquare	Common
<i>Schoenoplectus tabernaemontani</i> (K.C. Gmel.) Pallas	softstem bulrush	Common
ELAEAGNACEAE		
<i>Elaeagnus angustifolia</i> L.	Russian olive	Uncommon
EPHEDRACEAE		
<i>Ephedra coryi</i> E.L. Reed	Cory's jointfir	Rare
<i>Ephedra torreyana</i> S. Wats. var. <i>torreyana</i>	Torrey's jointfir	Uncommon
EQUISETACEAE		
<i>Equisetum laevigatum</i> A. Braun	smooth horsetail	Uncommon
EUPHORBIACEAE		
<i>Acalypha ostryifolia</i> Riddell	pineland threeseed mercury	Uncommon
<i>Argythamnia humilis</i> (Engelm. & Gray) Muell.-Arg.	low silverbush	Common
<i>Argythamnia mercurialina</i> (Nutt.) Muell.-Arg. var. <i>mercurialina</i>	tall silverbush	Uncommon
<i>Chamaesyce fendleri</i> (Torr. & Gray) Small	Fendler's sandmat	Common
<i>Chamaesyce glyptosperma</i> (Engelm.) Small	ribseed sandmat	Abundant
<i>Chamaesyce lata</i> (Engelm.) Small	hoary sandmat	Common
<i>Chamaesyce missurica</i> (Raf.) Shinners	prairie sandmat	Common
<i>Chamaesyce serpens</i> (Kunth) Small	matted sandmat	Uncommon
<i>Chamaesyce stictospora</i> (Engelm.) Small	slimseed sandmat	Common
<i>Croton glandulosus</i> L.	vente conmigo	Uncommon
<i>Croton texensis</i> (Klotzsch) Muell.-Arg. var. <i>texensis</i>	Texas croton	Common
<i>Euphorbia davidii</i> Subils	David's spurge	Common
<i>Euphorbia hexagona</i> Nutt. ex Spreng.	sixangle spurge	Uncommon
<i>Euphorbia marginata</i> Pursh	snow on the mountain	Uncommon
<i>Euphorbia spathulata</i> Lam.	warty spurge	Uncommon
<i>Euphorbia strictior</i> Holz.	panhandle spurge	Uncommon
<i>Stillingia sylvatica</i> Garden ex L.	queen's-delight	Common
<i>Tragia ramosa</i> Torr.	branched noseburn	Common
FABACEAE		
<i>Amorpha canescens</i> Pursh	leadplant	Rare
<i>Amorpha fruticosa</i> L.	desert false indigo	Common
<i>Astragalus gracilis</i> Nutt.	slender milkvetch	Uncommon
<i>Astragalus lotiflorus</i> Hook.	lotus milkvetch	Uncommon
<i>Astragalus missouriensis</i> Nutt.	Missouri milkvetch	Common
<i>Astragalus mollissimus</i> Torr. var. <i>mollissimus</i>	woolly locoweed	Common
<i>Astragalus nuttallianus</i> DC. var. <i>nuttallianus</i>	smallflowered milkvetch	Common

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<i>Coronilla varia</i> L.	purple crownvetch	Rare
<i>Dalea aurea</i> Nutt. ex Pursh	golden prairie clover	Rare
<i>Dalea candida</i> Michx. ex Willd. var. <i>oligophylla</i> (Torr.) Shinnery	white prairie clover	Common
<i>Dalea enneandra</i> Nutt.	nineanther prairie clover	Common
<i>Dalea formosa</i> Torr.	featherplume	Abundant
<i>Dalea jamesii</i> (Torr.) Torr. & Gray	James' prairie clover	Uncommon
<i>Dalea lanata</i> Spreng. var. <i>lanata</i>	woolly prairie clover	Uncommon
<i>Dalea nana</i> Torr. ex Gray	dwarf prairie clover	Uncommon
<i>Dalea purpurea</i> Vent. var. <i>arenicola</i> (Wemple) Barneby	violet prairie clover	Common
<i>Dalea tenuifolia</i> (Gray) Shinnery	slimleaf prairie clover	Common
<i>Desmanthus cooleyi</i> (Eat.) Trel.	Cooley's bundleflower	Common
<i>Desmanthus illinoensis</i> (Michx.) MacM. ex B.L. Robins. & Fern.	prairie mimosa	Common
<i>Desmodium paniculatum</i> (L.) DC.	peachleaf willow	Uncommon
<i>Gleditsia triacanthos</i> L.	honeylocust	Uncommon
<i>Glycyrrhiza lepidota</i> Pursh	American licorice	Common
<i>Hoffmannseggia glauca</i> (Ortega) Eifert	Indian rushpea	Common
<i>Medicago minima</i> (L.) L.	burr medick	Common
<i>Medicago sativa</i> L.	alfalfa	Uncommon
<i>Melilotus albus</i> Medik.	white sweet clover	Common
<i>Melilotus officinalis</i> (L.) Lam.	yellow sweetclover	Common
<i>Mimosa borealis</i> Gray	fragrant mimosa	Abundant
<i>Mimosa nuttallii</i> (DC.) B.L. Turner*	Nuttall's sensitive-briar	Common
<i>Mimosa rupertiana</i> B.L. Turner	eastern sensitive plant	Uncommon
<i>Oxytropis lambertii</i> Pursh var. <i>articulata</i> (Greene) Barneby	purple locoweed	Uncommon
<i>Pediomelum cuspidatum</i> (Pursh) Rydb.	largebract Indian breadroot	Uncommon
<i>Pediomelum hypogaeum</i> (Nutt. ex Torr. & Gray) Rydb. var. <i>hypogaeum</i>	subterranean Indian breadroot	Uncommon
<i>Pediomelum linearifolium</i> (Torr. & Gray) J. Grimes	narrowleaf Indian breadroot	Uncommon
<i>Pomaria jamesii</i> (Torr. & Gray) Walp.	James' pomaria	Common
<i>Prosopis glandulosa</i> Torr. var. <i>glandulosa</i>	honey mesquite	Common
<i>Psoralidium lanceolatum</i> (Pursh) Rydb.	lemon scurfpea	Uncommon
<i>Psoralidium tenuiflorum</i> (Pursh) Rydb.	slimflower scurfpea	Uncommon
<i>Robinia pseudoacacia</i> L.	black locust	Uncommon
<i>Sophora nuttalliana</i> B.L. Turner	silky sophora	Uncommon
<i>Strophostyles helvula</i> (L.) Ell.	trailing wild bean	Uncommon
<i>Strophostyles leiosperma</i> (Torr. & Gray) Piper	slickseed fuzzybean	Common
FUMARIACEAE		
<i>Corydalis aurea</i> Willd.*	golden corydalis	Rare
GENTIANACEAE		
<i>Eustoma exaltatum</i> (L.) Salisb. ex G. Don ssp. <i>russellianum</i> (Hook.) Kartesz	showy prairie-gentian	Rare

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
GERANIACEAE		
<i>Erodium cicutarium</i> (L.) L'Hér. ex Ait.	redstem stork's bill	Common
GROSSULARIACEAE		
<i>Ribes aureum</i> Pursh var. <i>villosum</i> DC.	buffalo currant	Uncommon
HALORAGACEAE		
<i>Myriophyllum spicatum</i> L.	spike watermilfoil	Uncommon
HYDROPHYLLACEAE		
<i>Phacelia integrifolia</i> Torr.	gypsum phacelia	Uncommon
IRIDACEAE		
<i>Sisyrinchium montanum</i> Greene	strict blue-eyed grass	Uncommon
JUGLANDACEAE		
<i>Juglans microcarpa</i> Berl.	little walnut	Uncommon
JUNCACEAE		
<i>Juncus interior</i> Wieg.	inland rush	Common
<i>Juncus torreyi</i> Coville	Torrey's rush	Common
KRAMERIACEAE		
<i>Krameria lanceolata</i> Torr.	trailing krameria	Common
LAMIACEAE		
<i>Hedeoma drummondii</i> Benth.	Drummond's false pennyroyal	Common
<i>Lamium amplexicaule</i> L.*	henbit	Common
<i>Lycopus americanus</i> Muhl. ex W. Bart.	American water horehound	Common
<i>Mollucella laevis</i> L.*		Rare
<i>Monarda pectinata</i> Nutt.	pony beebalm	Common
<i>Monarda punctata</i> L. var. <i>occidentalis</i> (Epling) Palmer & Steyermark	dotted monarda	Common
<i>Pycnanthemum tenuifolium</i> Schrad.	narrowleaf mountainmint	Rare – only one population
<i>Salvia reflexa</i> Hornem.	lanceleaf sage	Uncommon
<i>Scutellaria resinosa</i> Torr.	sticky skullcap	Common
<i>Teucrium canadense</i> L. var. <i>occidentale</i> (Gray) McClintock & Epling	western germander	Uncommon
<i>Teucrium laciniatum</i> Torr.	lacy germander	Uncommon
LEMNACEAE		
<i>Lemna valdiviana</i> Phil.	pale duckweed	Uncommon
LILIACEAE		
<i>Allium drummondii</i> Regel	Drummond's onion	Common

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
LINACEAE		
<i>Linum compactum</i> A. Nels.*	flax	Common
<i>Linum pratense</i> (J.B.S. Norton) Small	meadow flax	Common
<i>Linum rigidum</i> Pursh	stiffstem flax	Common
LOASACEAE		
<i>Mentzelia decapetala</i> (Pursh ex Sims) Urban & Gilg ex Gilg	tenpetal blazingstar	Uncommon
<i>Mentzelia nuda</i> (Pursh) Torr. & Gray	bractless blazingstar	Abundant
<i>Mentzelia oligosperma</i> Nutt. ex Sims	chickenthief	Uncommon
<i>Mentzelia reverchonii</i> (Urban & Gilg) H.J. Thompson & Zavortink	Reverchon's blazingstar	Uncommon
MALVACEAE		
<i>Callirhoe involucrata</i> (Torr. & Gray) Gray	purple poppymallow	Common
<i>Sphaeralcea angustifolia</i> (Cav.) G. Don	copper globemallow	Common
<i>Sphaeralcea coccinea</i> (Nutt.) Rydb.	scarlet globemallow	Abundant
MOLLUGINACEAE		
<i>Mollugo verticillata</i> L.	green carpetweed	Rare
MORACEAE		
<i>Maclura pomifera</i> (Raf.) Schneid.	osage orange	[persistent]
<i>Morus alba</i> L.	white mulberry	[persistent]
NYCTAGINACEAE		
<i>Abronia fragrans</i> Nutt. ex Hook.	snowball sand verbena	Uncommon
<i>Allionia incarnata</i> L.	trailing windmills	Uncommon
<i>Mirabilis glabra</i> (S. Wats.) Standl.	smooth four o'clock	Uncommon
<i>Mirabilis linearis</i> (Pursh) Heimerl var. <i>linearis</i>	a four-o'clock	Common
<i>Mirabilis linearis</i> (Pursh) Heimerl var. <i>subhispida</i> (Heimerl) Spellenb.	a four-o'clock	Common
OLEACEAE		
<i>Forestiera neomexicana</i> Gray	New Mexico forestiera	Common
<i>Forestiera pubescens</i> Nutt. var. <i>pubescens</i>	stretchberry	Common
ONAGRACEAE		
<i>Calylophus hartwegii</i> (Benth.) Raven ssp. <i>fendleri</i> (Gray) Towner & Raven	Hartweg's sundrops	Uncommon
<i>Calylophus hartwegii</i> (Benth.) Raven ssp. <i>pubescens</i> (Gray) Towner & Raven	Hartweg's evening primrose	Common
<i>Calylophus lavandulifolius</i> (Torr. & Gray) Raven	lavenderleaf sundrops	Uncommon
<i>Calylophus serrulatus</i> (Nutt.) Raven	yellow sundrops	Abundant
<i>Epilobium leptophyllum</i> Raf.	slickseed fuzzybean	Rare
<i>Gaura coccinea</i> Nutt. ex Pursh	scarlet beeblossom	Common
<i>Gaura parviflora</i> Dougl. ex Lehm.	velvet-leaved gaura	Uncommon

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
<i>Gaura villosa</i> Torr.	woolly beeblossom	Common
<i>Ludwigia palustris</i> (L.) Ell.	marsh-purselane	Rare
<i>Oenothera albicaulis</i> Pursh*	whitest evening-primrose	Rare
<i>Oenothera engelmannii</i> (Small) Munz	Engelmann's evening-primrose	Uncommon
<i>Oenothera jamesii</i> Torr. & Gray	trumpet evening-primrose	Uncommon
<i>Oenothera macrocarpa</i> Nutt. var. <i>incana</i> (Gray) Reveal	glade-lily	Uncommon
<i>Oenothera macrocarpa</i> Nutt. var. <i>oklahomensis</i> (J.B.S. Norton) Reveal	Oklahoma evening-primrose	Rare
<i>Stenosiphon linifolius</i> (Nutt. ex James) Heynh.	false gaura	Common
PAPAVERACEAE		
<i>Argemone polyanthemus</i> (Fedde) G.B. Ownbey	crested pricklypoppy	Uncommon
<i>Argemone</i> sp.	unidentified pricklypoppy	Rare
PEDALIACEAE		
<i>Proboscidea louisianica</i> (P. Mill.) Thellung ssp. <i>louisianica</i>	ram's horn	Common
PLANTAGINACEAE		
<i>Plantago patagonica</i> Jacq.	woolly plantain	Common
<i>Plantago rhodosperma</i> Dcne.	redseed plantain	Uncommon
POACEAE		
<i>Aegilops cylindrica</i> Host	jointed goatgrass	Uncommon
<i>Andropogon gerardii</i> Vitman var. <i>chrysocomus</i> (Nash) Fern.	a bluestem grass	Common
<i>Andropogon gerardii</i> Vitman var. <i>paucipilus</i> (Nash) Fern.	big bluestem	Common
<i>Aristida adscensionis</i> L.	sixweeks threeawn	Common
<i>Aristida fendleriana</i> Steud.	Fendler's three awn	Common
<i>Aristida glauca</i> (Nees) Walp. (syn. = <i>A. wrightii</i> Nash)	three awn	Common
<i>Aristida purpurea</i> Nutt.	purple threeawn	Abundant
<i>Bothriochloa barbinodis</i> (Lag.) Herter	cane bluestem	Common
<i>Bothriochloa ischaemum</i> (L.) Keng var. <i>songarica</i> (Rupr. ex Fisch. & C.A. Mey.) Celarier & Harlan	yellow bluestem	Common
<i>Bothriochloa laguroides</i> (DC.) Herter ssp. <i>torreyana</i> (Steud.) Allred & Gould	silver beardgrass	Common
<i>Bouteloua curtipendula</i> (Michx.) Torr. var. <i>curtipendula</i>	sideoats grama	Common
<i>Bouteloua eriopoda</i> (Torr.) Torr.	black grama	Uncommon
<i>Bouteloua gracilis</i> (Willd. ex Kunth) Lag. ex Griffiths	blue grama	Common
<i>Bouteloua hirsuta</i> Lag.	hairy grama	Common
<i>Bouteloua pectinata</i> Featherly*	tall grama	Common

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
<i>Bromus catharticus</i> Vahl	rescuegrass	Common
<i>Bromus inermis</i> Leyss.	smooth brome	Uncommon
<i>Bromus japonicus</i> Thunb. ex Murr.	Japanese brome	Common
<i>Buchloe dactyloides</i> (Nutt.) Engelm.	buffalograss	Common
<i>Calamovilfa gigantea</i> (Nutt.) Scribn. & Merr.	giant sandreed	Uncommon
<i>Cenchrus incertus</i> M.A. Curtis	grassbur	common
<i>Cenchrus longispinus</i> (Hack.) Fern.	mat sandbur	Common
<i>Chloris verticillata</i> Nutt.	tumble windmill grass	Common
<i>Chloris virgata</i> Sw.	feather fingergrass	Uncommon
<i>Coelorachis cylindrica</i> (Michx.) Nash	cylinder jointtail grass	Rare
<i>Cynodon dactylon</i> (L.) Pers.	Bermudagrass	Common
<i>Dichanthelium acuminatum</i> (Sw.) Gould & C.A. Clark	tapered rosette grass	Common
<i>Digitaria sanguinalis</i> (L.) Scop.	hairy crabgrass	Common
<i>Distichlis spicata</i> (L.) Greene	inland saltgrass	Common
<i>Echinochloa crus-galli</i> (L.) Beauv.	barnyardgrass	Common
<i>Elymus canadensis</i> L.	Canada wildrye	Common
<i>Elymus elymoides</i> (Raf.) Swezey	squirreltail	Common
<i>Enneapogon desvauxii</i> Desv. ex Beauv.	nineawn pappusgrass	Uncommon
<i>Eragrostis barrelieri</i> Daveau	Mediterranean lovegrass	Uncommon
<i>Eragrostis cilianensis</i> (All.) Vign. ex Janchen	stinkgrass	Common
<i>Eragrostis curvula</i> (Schrad.) Nees	weeping lovegrass	Common
<i>Eragrostis secundiflora</i> J. Presl.	red lovegrass	Uncommon
<i>Eragrostis sessilispica</i> Buckl.	tumble lovegrass	Common
<i>Eragrostis spectabilis</i> (Pursh) Steud.	purple lovegrass	Uncommon
<i>Eragrostis trichodes</i> (Nutt.) Wood	sand lovegrass	Common
<i>Eriochloa contracta</i> A.S. Hitchc.*	prairie cup grass	Uncommon
<i>Erioneuron pilosum</i> (Buckl.) Nash	hairy woollygrass	Uncommon
<i>Hesperostipa comata</i> (Trin. & Rupr.) Barkworth	needle and thread	Uncommon
<i>Hordeum pusillum</i> Nutt.	little barley	Common
<i>Leersia oryzoides</i> (L.) Sw.	rice cutgrass	Uncommon
<i>Leptochloa dubia</i> (Kunth) Nees	green sprangletop	Uncommon
<i>Leptochloa fusca</i> (L.) Kunth ssp. <i>fascicularis</i> (Lam.) N. Snow	saltpond grass	Common
<i>Leptoloma cognatum</i> (J.A. Schultes) Chase	fall witchgrass	Common
<i>Lolium arundinaceum</i> (Schreb.) S.J. Darbyshire	meadow fescue	Uncommon
<i>Lolium perenne</i> L.*	rye grass	Common
<i>Lolium temulentum</i> L.	Darnel ryegrass	Uncommon
<i>Monroa squarrosa</i> (Nutt.) Torr.	false buffalograss	Uncommon
<i>Muhlenbergia arenicola</i> Buckl.	sand muhly	Uncommon
<i>Muhlenbergia asperifolia</i> (Nees & Meyen ex Trin.) Parodi	scratchgrass	Uncommon
<i>Muhlenbergia torreyi</i> (Kunth) A.S. Hitchc. ex Bush	ring muhly	Uncommon
<i>Panicum capillare</i> L.	witchgrass	Common
<i>Panicum hallii</i> Vasey var. <i>hallii</i>	Hall's panicgrass	Common
<i>Panicum miliaceum</i> L.	broomcorn millet	Rare
<i>Panicum obtusum</i> Kunth	vine mesquite	Common

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
<i>Panicum rigidulum</i> Bosc ex Nees	broadleaf arrowhead	Rare
<i>Panicum virgatum</i> L.	switchgrass	Common
<i>Pascopyrum smithii</i> (Rydb.) A. Löve	western wheatgrass	Common
<i>Paspalum setaceum</i> Michx.	thin paspalum	Uncommon
<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	common reed	Common
<i>Poa arida</i> Vasey	plains bluegrass	Uncommon
<i>Polypogon monspeliensis</i> (L.) Desf.	annual rabbitsfoot grass	Uncommon
<i>Polypogon viridis</i> (Gouan) Breistr.	beardless rabbitsfoot grass	Uncommon
<i>Puccinellia fasciculata</i> (Torr.) Bickn.	salt marsh goosegrass	Rare
<i>Schedonnardus paniculatus</i> (Nutt.) Trel.	tumblegrass	Uncommon
<i>Schizachyrium scoparium</i> (Michx.) Nash var. <i>scoparium</i>	little bluestem	Abundant
<i>Setaria leucopila</i> (Scribn. & Merr.) K. Schum.	streambed bristlegrass	Abundant
<i>Setaria parviflora</i> (Poir.) Kergu�len	marsh bristlegrass	Common
<i>Setaria pumila</i> (Poir.) Roemer & J.A. Schultes ssp. <i>pallidifusca</i> (Schumacher) B.K. Simon	yellow bristlegrass	Common
<i>Sorghastrum nutans</i> (L.) Nash	Indiangrass	Common
<i>Sorghum halepense</i> (L.) Pers.	Johnsongrass	Uncommon
<i>Sphenopholis obtusata</i> (Michx.) Scribn.	prairie wedgescale	Uncommon
<i>Sporobolus airoides</i> (Torr.) Torr.	alkali sacaton	Uncommon
<i>Sporobolus coromandelianus</i> (Retz.) Kunth	Madagascar dropseed	Uncommon
<i>Sporobolus cryptandrus</i> (Torr.) Gray	sand dropseed	Abundant
<i>Sporobolus giganteus</i> Nash	giant dropseed	Common
<i>Sporobolus texanus</i> Vasey	Texas dropseed	Common
<i>Sporobolus vaginiflorus</i> (Torr. ex Gray) Wood	poverty dropseed	Uncommon
<i>Tridens albescens</i> (Vasey) Woot. & Standl.	white tridens	Common
<i>Tridens flavus</i> (L.) A.S. Hitchc.	purpletop tridens	Uncommon
<i>Tridens muticus</i> (Torr.) Nash var. <i>elongatus</i> (Buckl.) Shinnery	slim tridens	Common
<i>Triplasis purpurea</i> (Walt.) Chapman	purple sandgrass	Uncommon
<i>Tripsacum dactyloides</i> (L.) L.	eastern gamagrass	Uncommon
<i>Vulpia octoflora</i> (Walt.) Rydb.	sixweeks fescue	Common
POLEMONIACEAE		
<i>Gilia rigidula</i> Benth. ssp. <i>acerosa</i> (Gray) Wherry	bluebowls	Common
<i>Ipomopsis longiflora</i> (Torr.) V. Grant	flaxflowered ipomopsis	Uncommon
POLYGALACEAE		
<i>Polygala alba</i> Nutt.	white milkwort	Common
POLYGONACEAE		
<i>Eriogonum annuum</i> Nutt.	annual buckwheat	Common
<i>Eriogonum jamesii</i> Benth.	James' buckwheat	Uncommon
<i>Eriogonum longifolium</i> Nutt.	longleaf buckwheat	Common
<i>Polygonum amphibium</i> L. var. <i>emersum</i> Michx.	water knotweed	Common
<i>Polygonum arenastrum</i> Jord. ex Boreau	oval-leaf knotweed	Common
<i>Polygonum buxiforme</i> Small	box knotweed	Common

<b>FAMILY/Species</b>	<b>Common Name</b>	<b>Abundance at LAMR/ALFL</b>
<i>Polygonum ramosissimum</i> Michx. var. <i>ramosissimum</i>	bushy knotweed	Common
<i>Rumex altissimus</i> Wood	pale dock	Uncommon
<i>Rumex crispus</i> L.*	curly dock	Uncommon
<i>Rumex stenophyllus</i> Ledeb.	narrow-leaf dock	Rare
PORTULACEAE		
<i>Portulaca oleracea</i> L.	little hogweed	Uncommon
<i>Portulaca pilosa</i> L.	kiss me quick	Uncommon
POTAMOGETONACEAE		
<i>Potamogeton nodosus</i> Poir.	longleaf pondweed	Uncommon
<i>Potamogeton pectinatus</i> L.	sago pondweed	Uncommon
PRIMULACEAE		
<i>Samolus valerandi</i> L. ssp. <i>parviflorus</i> (Raf.) Hultén	seaside brookweed	Rare
PTERIDACEAE		
<i>Cheilanthes feei</i> T. Moore	slender lipfern	Rare
<i>Pellaea atropurpurea</i> (L.) Link	purple cliffbrake	Rare
RAFFLESACEAE		
<i>Pilostyles thurberi</i> Gray	Thurber's stemsucker	Uncommon
RANUNCULACEAE		
<i>Delphinium carolinianum</i> Walt. ssp. <i>virescens</i> (Nutt.) Brooks	Carolina larkspur	Uncommon
<i>Ranunculus aquatilis</i> L. var. <i>diffusus</i> Withering	northeastern white water-crowfoot	Uncommon
<i>Ranunculus sceleratus</i> L.	cursed buttercup	Uncommon
ROSACEAE		
<i>Cercocarpus montanus</i> Raf. var. <i>argenteus</i> (Rydb.) F.L. Martin	silver mountain mahogany	Uncommon
<i>Prunus angustifolia</i> Marsh.	Chickasaw plum	Common
<i>Prunus virginiana</i> L.	chokecherry	Uncommon
<i>Rosa arkansana</i> Porter	prairie rose	Uncommon
<i>Rosa woodsii</i> Lindl.	Woods' rose	Uncommon
RUBIACEAE		
<i>Cephalanthus occidentalis</i> L.	common buttonbush	Uncommon
<i>Hedyotis nigricans</i> (Lam.) Fosberg var. <i>nigricans</i> *		Common
RUTACEAE		
<i>Ptelea trifoliata</i> L.	common hoptree	Common

FAMILY/Species	Common Name	Abundance at LAMR/ALFL
SALICACEAE		
<i>Populus deltoides</i> Bartr. ex Marsh. ssp. <i>monilifera</i> (Ait.) Eckenwalder	plains cottonwood	Abundant
<i>Salix amygdaloides</i> Anderss.	peachleaf willow	Common
<i>Salix exigua</i> Nutt. var. <i>sericans</i> (Nees) Dorn	narrowleaf willow	Common
<i>Salix interior</i> Rowlee	sandbar willow	Common
<i>Salix nigra</i> Marsh.	black willow	Uncommon
SANTALACEAE		
<i>Comandra umbellata</i> (L.) Nutt. ssp. <i>pallida</i> (A. DC.) Piehl	bastard toad-flax	Common
SAPINDACEAE		
<i>Sapindus saponaria</i> L. var. <i>drummondii</i> (Hook. & Arn.) L. Benson*	western soapberry	Common
SCROPHULARIACEAE		
<i>Agalinis tenuifolia</i> (Vahl) Raf. var. <i>parviflora</i> (Nutt.) Pennell	slenderleaf false foxglove	Uncommon
<i>Castilleja sessiliflora</i> Pursh	downy paintedcup	Uncommon
<i>Mimulus glabratus</i> Kunth*	round-leaf monkey-flower	Uncommon
<i>Penstemon albidus</i> Nutt.	white penstemon	Common
<i>Penstemon ambiguus</i> Torr.	gilia beardtongue	Common
<i>Penstemon fendleri</i> Torr. & Gray	Fendler's penstemon	Common
<i>Veronica anagallis-aquatica</i> L.	water speedwell	Rare
SOLANACEAE		
<i>Chamaesaracha conoides</i> (Moric. ex Dunal) Britt.	gray five eyes	Uncommon
<i>Chamaesaracha sordida</i> (Dunal) Gray	hairy five eyes	Common
<i>Physalis hederifolia</i> Gray	ivy leaf groundcherry	Uncommon
<i>Physalis longifolia</i> Nutt.	longleaf groundcherry	Common
<i>Quincula lobata</i> (Torr.) Raf.	Chinese lantern	Common
<i>Solanum elaeagnifolium</i> Cav.	silverleaf nightshade	Common
<i>Solanum rostratum</i> Dunal	buffalobur nightshade	Common
TAMARICACEAE		
<i>Tamarix chinensis</i> Lour.	fivestamen tamarisk	Common
<i>Tamarix ramosissima</i> Ledeb.	saltcedar	Abundant
TYPHACEAE		
<i>Typha domingensis</i> Pers.	southern cattail	Common
ULMACEAE		
<i>Celtis occidentalis</i> L.	common hackberry	Uncommon
<i>Celtis reticulata</i> Torr.	netleaf hackberry	Common
<i>Ulmus americana</i> L.	American elm	Uncommon [cultivated]

<b>FAMILY/Species</b>	<b>Common Name</b>	<b>Abundance at LAMR/ALFL</b>
<i>Ulmus pumila</i> L.	Siberian elm	Common
URTICACEAE		
<i>Boehmeria cylindrica</i> (L.) Sw.	smallspike false nettle	Uncommon
VERBENACEAE		
<i>Glandularia bipinnatifida</i> (Nutt.) Nutt.	Dakota mock vervain	Uncommon
<i>Glandularia pumila</i> (Rydb.) Umber	pink mock vervain	Uncommon
<i>Verbena bracteata</i> Lag. & Rodr.*	large-bract vervain	Common
<i>Verbena hastata</i> L. var. <i>scabra</i> Moldenke	swamp verbena	Uncommon
VIOLACEAE		
<i>Hybanthus verticillatus</i> (Ortega) Baill.	babyslippers	Common
VITACEAE		
<i>Parthenocissus vitacea</i> (Knerr) A.S. Hitchc.	woodbine	Uncommon
<i>Vitis acerifolia</i> Raf.	mapleleaf grape	Common
ZANNICHELLIACEAE		
<i>Zannichellia palustris</i> L.	horned pondweed	Uncommon
ZYGOPHYLLACEAE		
<i>Kallstroemia parviflora</i> J.B.S. Norton	warty caltrop	Common
<i>Tribulus terrestris</i> L.	puncturevine	Common

**APPENDIX 9:** Guide to vouchered taxa, arranged by species.

Species vouchered by Nesom and O'Kennon (Appendix 8), arranged alphabetically by species. Following the species names are family and common names.

Species	Family	Common Name
<i>Abronia fragrans</i> Nutt. ex Hook.	Nyctaginaceae	snowball sand verbena
<i>Acalypha ostryifolia</i> Riddell	Euphorbiaceae	pineland threeseed mercury
<i>Aegilops cylindrica</i> Host	Poaceae	jointed goatgrass
<i>Agalinis tenuifolia</i> (Vahl) Raf. var. <i>parviflora</i> (Nutt.) Pennell	Scrophulariaceae	slenderleaf false foxglove
<i>Allionia incarnata</i> L.	Nyctaginaceae	trailing windmills
<i>Allium drummondii</i> Regel	Liliaceae	Drummond's onion
<i>Amaranthus arenicola</i> I.M. Johnston	Amaranthaceae	sandhill amaranth
<i>Amaranthus blitoides</i> S. Wats.	Amaranthaceae	mat amaranth
<i>Amaranthus palmeri</i> S. Wats.	Amaranthaceae	carelessweed
<i>Amaranthus polygonoides</i> L.	Amaranthaceae	tropical amaranth
<i>Amaranthus retroflexus</i> L.	Amaranthaceae	redroot amaranth
<i>Amaranthus spinosus</i> L.	Amaranthaceae	spiny pigweed
<i>Ambrosia psilostachya</i> DC.	Asteraceae	Cuman ragweed
<i>Ambrosia trifida</i> L.	Asteraceae	white prairie aster
<i>Ammoselinum popei</i> Torr. & Gray	Apiaceae	plains sandparsley
<i>Amorpha canescens</i> Pursh	Fabaceae	leadplant
<i>Amorpha fruticosa</i> L.	Fabaceae	desert false indigo
<i>Amphiachyris dracunculoides</i> (DC.) Nutt.	Asteraceae	prairie broomweed
<i>Andropogon gerardii</i> Vitman var. <i>chrysocomus</i> (Nash) Fern.	Poaceae	a bluestem grass
<i>Andropogon gerardii</i> Vitman var. <i>paucipilus</i> (Nash) Fern.	Poaceae	big bluestem
<i>Aphanostephus ramosissimus</i> DC. var. <i>ramosissimus</i>	Asteraceae	plains dozedaisy
<i>Apocynum cannabinum</i> L.	Apocynaceae	Indianhemp
<i>Argemone</i> sp.	Papaveraceae	unidentified pricklypoppy
<i>Argemone polyanthemos</i> (Fedde) G.B. Ownbey	Papaveraceae	crested pricklypoppy
<i>Argythamnia humilis</i> (Engelm. & Gray) Muell.-Arg.	Euphorbiaceae	low silverbush
<i>Argythamnia mercurialina</i> (Nutt.) Muell.-Arg. var. <i>mercurialina</i>	Euphorbiaceae	tall silverbush
<i>Aristida adscensionis</i> L.	Poaceae	sixweeks threeawn
<i>Aristida fendleriana</i> Steud.	Poaceae	Fendler's three awn
<i>Aristida glauca</i> (Nees) Walp. (syn. = <i>A. wrightii</i> Nash)	Poaceae	three awn
<i>Aristida purpurea</i> Nutt.	Poaceae	purple threeawn
<i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michx.) Hall & Clements	Asteraceae	beach wormwood
<i>Artemisia carruthii</i> Wood ex Carruth.	Asteraceae	Carruth's sagewort
<i>Artemisia dracunculus</i> L.	Asteraceae	tarragon
<i>Artemisia filifolia</i> Torr.	Asteraceae	sand sagebrush

Species	Family	Common Name
<i>Artemisia ludoviciana</i> Nutt. ssp. <i>ludoviciana</i>	Asteraceae	white sagebrush
<i>Asclepias arenaria</i> Torr.	Asclepiadaceae	sand milkweed
<i>Asclepias asperula</i> (Dcne.) Woods. ssp. <i>asperula</i>	Asclepiadaceae	spider milkweed
<i>Asclepias engelmanniana</i> Woods.	Asclepiadaceae	Engelmann's milkweed
<i>Asclepias latifolia</i> (Torr.) Raf.	Asclepiadaceae	broadleaf milkweed
<i>Asclepias pumila</i> (Gray) Vail	Asclepiadaceae	plains milkweed
<i>Asclepias subverticillata</i> (Gray) Vail	Asclepiadaceae	horsetail milkweed
<i>Asclepias viridiflora</i> Raf.	Asclepiadaceae	green comet milkweed
<i>Astragalus gracilis</i> Nutt.	Fabaceae	slender milkvetch
<i>Astragalus lotiflorus</i> Hook.	Fabaceae	lotus milkvetch
<i>Astragalus missouriensis</i> Nutt.	Fabaceae	Missouri milkvetch
<i>Astragalus mollissimus</i> Torr. var. <i>mollissimus</i>	Fabaceae	woolly locoweed
<i>Astragalus nuttallianus</i> DC. var. <i>nuttallianus</i>	Fabaceae	smallflowered milkvetch
<i>Atriplex argentea</i> Nutt. var. <i>argentea</i>	Chenopodiaceae	silverscale saltbush
<i>Atriplex canescens</i> (Pursh) Nutt. var. <i>canescens</i>	Chenopodiaceae	fourwing saltbush
<i>Atriplex patula</i> L.	Chenopodiaceae	halberd-leaf saltbush
<i>Baccharis salicina</i> Torr. & Gray	Asteraceae	Great Plains false willow
<i>Baccharis wrightii</i> Gray	Asteraceae	Wright's baccharis
<i>Bassia scoparia</i> (L.) A.J. Scott	Chenopodiaceae	Mexican summer-cypress
<i>Berlandiera betonicifolia</i> (Hook.) Small	Asteraceae	Texas greeneyes
<i>Berlandiera lyrata</i> Benth.	Asteraceae	lyreleaf greeneyes
<i>Berula erecta</i> (Huds.) Coville	Apiaceae	cutleaf waterparsnip
<i>Bidens frondosa</i> L.	Asteraceae	devil's beggartick
<i>Boehmeria cylindrica</i> (L.) Sw.	Urticaceae	smallspike false nettle
<i>Bothriochloa barbinodis</i> (Lag.) Herter	Poaceae	cane bluestem
<i>Bothriochloa ischaemum</i> (L.) Keng var. <i>songarica</i> (Rupr. ex Fisch. & C.A. Mey.) Celarier & Harlan	Poaceae	yellow bluestem
<i>Bothriochloa laguroides</i> (DC.) Herter ssp. <i>torreyana</i> (Steud.) Allred & Gould	Poaceae	silver beardgrass
<i>Bouteloua curtipendula</i> (Michx.) Torr. var. <i>curtipendula</i>	Poaceae	sideoats grama
<i>Bouteloua eriopoda</i> (Torr.) Torr.	Poaceae	black grama
<i>Bouteloua gracilis</i> (Willd. ex Kunth) Lag. ex Griffiths	Poaceae	blue grama
<i>Bouteloua hirsuta</i> Lag.	Poaceae	hairy grama
<i>Bouteloua pectinata</i> Featherly	Poaceae	tall grama
<i>Brickellia eupatorioides</i> (L.) Shinnery var. <i>corymbulosa</i> (Torr. & Gray) Shinnery	Asteraceae	false boneset
<i>Bromus catharticus</i> Vahl	Poaceae	rescuegrass
<i>Bromus inermis</i> Leyss.	Poaceae	smooth brome
<i>Bromus japonicus</i> Thunb. ex Murr.	Poaceae	Japanese brome
<i>Buchloe dactyloides</i> (Nutt.) Engelm.	Poaceae	buffalograss
<i>Calamovilfa gigantea</i> (Nutt.) Scribn. & Merr.	Poaceae	giant sandreed
<i>Callirhoe involucrata</i> (Torr. & Gray) Gray	Malvaceae	purple poppymallow
<i>Calylophus hartwegii</i> (Benth.) Raven ssp. <i>fendleri</i> (Gray) Towner & Raven	Onagraceae	Hartweg's sundrops

Species	Family	Common Name
<i>Calylophus hartwegii</i> (Benth.) Raven ssp. <i>pubescens</i> (Gray) Towner & Raven	Onagraceae	Hartweg's evening primrose
<i>Calylophus lavandulifolius</i> (Torr. & Gray) Raven	Onagraceae	lavenderleaf sundrops
<i>Calylophus serrulatus</i> (Nutt.) Raven	Onagraceae	yellow sundrops
<i>Carex emoryi</i> Dewey	Cyperaceae	Emory's sedge
<i>Carex hystericina</i> Muhl. ex Willd.	Cyperaceae	bottlebrush sedge
<i>Castilleja sessiliflora</i> Pursh	Scrophulariaceae	downy paintedcup
<i>Celtis occidentalis</i> L.	Ulmaceae	common hackberry
<i>Celtis reticulata</i> Torr.	Ulmaceae	netleaf hackberry
<i>Cenchrus incertus</i> M.A. Curtis	Poaceae	grassbur
<i>Cenchrus longispinus</i> (Hack.) Fern.	Poaceae	mat sandbur
<i>Centaurea americana</i> Nutt.	Asteraceae	American star-thistle
<i>Cephalanthus occidentalis</i> L.	Rubiaceae	common buttonbush
<i>Cercocarpus montanus</i> Raf. var. <i>argenteus</i> (Rydb.) F.L. Martin	Rosaceae	silver mountain mahogany
<i>Chaetopappa ericoides</i> (Torr.) Nesom	Asteraceae	rose heath
<i>Chamaesaracha conoides</i> (Moric. ex Dunal) Britt.	Solanaceae	gray five eyes
<i>Chamaesaracha sordida</i> (Dunal) Gray	Solanaceae	hairy five eyes
<i>Chamaesyce fendleri</i> (Torr. & Gray) Small	Euphorbiaceae	Fendler's sandmat
<i>Chamaesyce glyptosperma</i> (Engelm.) Small	Euphorbiaceae	ribseed sandmat
<i>Chamaesyce lata</i> (Engelm.) Small	Euphorbiaceae	hoary sandmat
<i>Chamaesyce missurica</i> (Raf.) Shinnery	Euphorbiaceae	prairie sandmat
<i>Chamaesyce serpens</i> (Kunth) Small	Euphorbiaceae	matted sandmat
<i>Chamaesyce stictospora</i> (Engelm.) Small	Euphorbiaceae	slimseed sandmat
<i>Cheilanthes feei</i> T. Moore	Pteridaceae	slender lipfern
<i>Chenopodium berlandieri</i> Moq.	Chenopodiaceae	pitseed goosefoot
<i>Chenopodium glaucum</i> L.	Chenopodiaceae	oakleaf goosefoot
<i>Chenopodium incanum</i> (S. Wats.) Heller var. <i>elatum</i> Crawford	Chenopodiaceae	mealy goosefoot
<i>Chenopodium leptophyllum</i> (Moq.) Nutt. ex S. Wats.	Chenopodiaceae	narrowleaf goosefoot
<i>Chenopodium missouriense</i> Aellen	Chenopodiaceae	Missouri goosefoot
<i>Chenopodium pratericola</i> Rydb.	Chenopodiaceae	desert goosefoot
<i>Chloracantha spinosa</i> (Benth.) Nesom	Asteraceae	spiny chloracantha
<i>Chloris verticillata</i> Nutt.	Poaceae	tumble windmill grass
<i>Chloris virgata</i> Sw.	Poaceae	feather fingergrass
<i>Chrysothamnus pulchellus</i> (Gray) Greene	Asteraceae	southwestern rabbitbrush
<i>Cicuta maculata</i> L. var. <i>maculata</i>	Apiaceae	spotted water hemlock
<i>Cirsium ochrocentrum</i> Gray	Asteraceae	yellowspine thistle
<i>Cirsium undulatum</i> (Nutt.) Spreng.	Asteraceae	wavyleaf thistle
<i>Citrullus lanatus</i> (Thunb.) Matsumura & Nakai	Cucurbitaceae	watermelon
<i>Coelorachis cylindrica</i> (Michx.) Nash	Poaceae	cylinder jointtail grass
<i>Comandra umbellata</i> (L.) Nutt. ssp. <i>pallida</i> (A. DC.) Piehl	Santalaceae	bastard toad-flax
<i>Commelina erecta</i> L.	Commelinaceae	whitemouth dayflower
<i>Convolvulus arvensis</i> L.	Convolvulaceae	field bindweed
<i>Convolvulus equitans</i> Benth.	Convolvulaceae	Texas bindweed

Species	Family	Common Name
<i>Conyza canadensis</i> (L.) Cronq. var. <i>glabrata</i> (Gray) Cronq.	Asteraceae	Canadian horseweed
<i>Conyza ramosissima</i> Cronq.	Asteraceae	dwarf horseweed
<i>Corispermum americanum</i> (Nutt.) Nutt.	Chenopodiaceae	tickseed
<i>Coronilla varia</i> L.	Fabaceae	purple crownvetch
<i>Corydalis aurea</i> Willd.	Fumariaceae	golden corydalis
<i>Coryphantha vivipara</i> (Nutt.) Britt. & Rose	Cactaceae	foxtail pincushion cactus
<i>Croton glandulosus</i> L.	Euphorbiaceae	vente conmigo
<i>Croton texensis</i> (Klotzsch) Muell.-Arg. var. <i>texensis</i>	Euphorbiaceae	Texas croton
<i>Cryptantha cinerea</i> (Greene) Cronq. var. <i>jamesii</i> Cronq.	Boraginaceae	James' cryptantha
<i>Cryptantha minima</i> Rydb.	Boraginaceae	little cryptantha
<i>Cucurbita foetidissima</i> Kunth	Cucurbitaceae	Missouri gourd
<i>Cuscuta cuspidata</i> Engelm.	Cuscutaceae	cuspid dodder
<i>Cycloloma atriplicifolium</i> (Spreng.) Coult.	Chenopodiaceae	winged pigweed
<i>Cymopterus acaulis</i> (Pursh) Raf.	Apiaceae	plains springparsley
<i>Cymopterus montanus</i> Nutt. ex Torr. & Gray	Apiaceae	mountain springparsley
<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Bermudagrass
<i>Cyperus niger</i> Ruiz & Pavón	Cyperaceae	black flatsedge
<i>Cyperus schweinitzii</i> Torr.	Cyperaceae	Schweinitz's flatsedge
<i>Cyperus strigosus</i> L.	Cyperaceae	strawcolored flatsedge
<i>Dalea aurea</i> Nutt. ex Pursh	Fabaceae	golden prairie clover
<i>Dalea candida</i> Michx. ex Willd. var. <i>oligophylla</i> (Torr.) Shinnars	Fabaceae	white prairie clover
<i>Dalea enneandra</i> Nutt.	Fabaceae	nineanther prairie clover
<i>Dalea formosa</i> Torr.	Fabaceae	featherplume
<i>Dalea jamesii</i> (Torr.) Torr. & Gray	Fabaceae	James' prairie clover
<i>Dalea lanata</i> Spreng. var. <i>lanata</i>	Fabaceae	woolly prairie clover
<i>Dalea nana</i> Torr. ex Gray	Fabaceae	dwarf prairie clover
<i>Dalea purpurea</i> Vent. var. <i>arenicola</i> (Wemple) Barneby	Fabaceae	violet prairie clover
<i>Dalea tenuifolia</i> (Gray) Shinnars	Fabaceae	slimleaf prairie clover
<i>Delphinium carolinianum</i> Walt. ssp. <i>virescens</i> (Nutt.) Brooks	Ranunculaceae	Carolina larkspur
<i>Descurainia pinnata</i> (Walt.) Britt. var. <i>ochroleuca</i> (Woot.) Shinnars	Brassicaceae	tansy mustard
<i>Descurainia sophia</i> (L.) Webb ex Prantl	Brassicaceae	herb sophia
<i>Desmanthus cooleyi</i> (Eat.) Trel.	Fabaceae	Cooley's bundleflower
<i>Desmanthus illinoensis</i> (Michx.) MacM. ex B.L. Robins. & Fern.	Fabaceae	prairie mimosa
<i>Desmodium paniculatum</i> (L.) DC.	Fabaceae	peachleaf willow
<i>Dichantherium acuminatum</i> (Sw.) Gould & C.A. Clark	Poaceae	tapered rosette grass
<i>Digitaria sanguinalis</i> (L.) Scop.	Poaceae	hairy crabgrass
<i>Dimorphocarpa candicans</i> (Raf.) Rollins	Brassicaceae	Palmer's spectaclepod
<i>Distichlis spicata</i> (L.) Greene	Poaceae	inland saltgrass
<i>Dyssodia papposa</i> (Vent.) A.S. Hitchc.	Asteraceae	fetid marigold

Species	Family	Common Name
<i>Echinacea angustifolia</i> DC. var. <i>angustifolia</i>	Asteraceae	blacksamson echinacea
<i>Echinocereus reichenbachii</i> (Terscheck ex Walp.) Haage f.	Cactaceae	lace hedgehog cactus
<i>Echinochloa crus-galli</i> (L.) Beauv.	Poaceae	barnyardgrass
<i>Eclipta prostrata</i> (L.) L.	Asteraceae	false daisy
<i>Elaeagnus angustifolia</i> L.	Elaeagnaceae	Russian olive
<i>Eleocharis macrostachya</i> Britt.	Cyperaceae	common spikerush
<i>Eleocharis montevidensis</i> Kunth	Cyperaceae	sand spikerush
<i>Eleocharis rostellata</i> (Torr.) Torr.	Cyperaceae	beaked spikerush
<i>Elymus canadensis</i> L.	Poaceae	Canada wildrye
<i>Elymus elymoides</i> (Raf.) Swezey	Poaceae	squirreltail
<i>Engelmannia peristenia</i> (Raf.) Goodman & Lawson	Asteraceae	Engelmann's daisy
<i>Enneapogon desvauxii</i> Desv. ex Beauv.	Poaceae	nineawn pappusgrass
<i>Ephedra coryi</i> E.L. Reed	Ephedraceae	Cory's jointfir
<i>Ephedra torreyana</i> S. Wats. var. <i>torreyana</i>	Ephedraceae	Torrey's jointfir
<i>Epilobium leptophyllum</i> Raf.	Onagraceae	slickseed fuzzybean
<i>Equisetum laevigatum</i> A. Braun	Equisetaceae	smooth horsetail
<i>Eragrostis barrelieri</i> Daveau	Poaceae	Mediterranean lovegrass
<i>Eragrostis cilianensis</i> (All.) Vign. ex Janchen	Poaceae	stinkgrass
<i>Eragrostis curvula</i> (Schrad.) Nees	Poaceae	weeping lovegrass
<i>Eragrostis secundiflora</i> J. Presl.	Poaceae	red lovegrass
<i>Eragrostis sessilispica</i> Buckl.	Poaceae	tumble lovegrass
<i>Eragrostis spectabilis</i> (Pursh) Steud.	Poaceae	purple lovegrass
<i>Eragrostis trichodes</i> (Nutt.) Wood	Poaceae	sand lovegrass
<i>Erigeron bellidiastrum</i> Nutt. var. <i>robustus</i> Cronq.	Asteraceae	western daisy fleabane
<i>Erigeron colomexicanus</i> A. Nels.	Asteraceae	running fleabane
<i>Erigeron modestus</i> Gray	Asteraceae	plains fleabane
<i>Eriochloa contracta</i> A.S. Hitchc.	Poaceae	prairie cup grass
<i>Eriogonum annuum</i> Nutt.	Polygonaceae	annual buckwheat
<i>Eriogonum jamesii</i> Benth.	Polygonaceae	James' buckwheat
<i>Eriogonum longifolium</i> Nutt.	Polygonaceae	longleaf buckwheat
<i>Erioneuron pilosum</i> (Buckl.) Nash	Poaceae	hairy woollygrass
<i>Erodium cicutarium</i> (L.) L'Hér. ex Ait.	Geraniaceae	redstem stork's bill
<i>Erysimum capitatum</i> (Dougl. ex Hook.) Greene var. <i>capitatum</i>	Brassicaceae	prairie-rocket wallflower
<i>Escobaria missouriensis</i> (Sweet) D.R. Hunt	Cactaceae	plains nipple cactus
<i>Euphorbia davidii</i> Subils	Euphorbiaceae	David's spurge
<i>Euphorbia hexagona</i> Nutt. ex Spreng.	Euphorbiaceae	sixangle spurge
<i>Euphorbia marginata</i> Pursh	Euphorbiaceae	snow on the mountain
<i>Euphorbia spathulata</i> Lam.	Euphorbiaceae	warty spurge
<i>Euphorbia strictior</i> Holz.	Euphorbiaceae	panhandle spurge
<i>Eustoma exaltatum</i> (L.) Salisb. ex G. Don ssp. <i>russellianum</i> (Hook.) Kartesz	Gentianaceae	showy prairie-gentian
<i>Evax prolifera</i> Nutt. ex DC.	Asteraceae	bighead pygmycudweed
<i>Evolvulus nuttallianus</i> J.A. Schultes	Convolvulaceae	shaggy dwarf morning-glory
<i>Fimbristylis puberula</i> (Michx.) Vahl var. <i>interior</i> (Britt.) Kral	Cyperaceae	hairy fimbry

Species	Family	Common Name
<i>Flaveria campestris</i> J.R. Johnston	Asteraceae	alkali yellowtops
<i>Forestiera neomexicana</i> Gray	Oleaceae	New Mexico forestiera
<i>Forestiera pubescens</i> Nutt. var. <i>pubescens</i>	Oleaceae	stretchberry
<i>Fuirena simplex</i> Vahl	Cyperaceae	western umbrella-sedge
<i>Funastrum cynanchoides</i> (Dcne.) Schlechter ssp. <i>cynanchoides</i>	Asclepiadaceae	fringed twinevine
<i>Gaillardia pinnatifida</i> Torr. var. <i>pinnatifida</i>	Asteraceae	red dome blanketflower
<i>Gaillardia pulchella</i> Foug. var. <i>pulchella</i>	Asteraceae	firewheel
<i>Gaura coccinea</i> Nutt. ex Pursh	Onagraceae	scarlet beeblossom
<i>Gaura parviflora</i> Dougl. ex Lehm.	Onagraceae	velvet-leaved gaura
<i>Gaura villosa</i> Torr.	Onagraceae	woolly beeblossom
<i>Gilia rigidula</i> Benth. ssp. <i>acerosa</i> (Gray) Wherry	Polemoniaceae	bluebowls
<i>Glandularia bipinnatifida</i> (Nutt.) Nutt.	Verbenaceae	Dakota mock vervain
<i>Glandularia pumila</i> (Rydb.) Umber	Verbenaceae	pink mock vervain
<i>Gleditsia triacanthos</i> L.	Fabaceae	honeylocust
<i>Glossopetalon</i> ( <i>Forsellesia</i> ) <i>planitierum</i> (Ensign) St. John	Crossosomataceae	plains greasebush
<i>Glycyrrhiza lepidota</i> Pursh	Fabaceae	American licorice
<i>Grindelia ciliata</i> (Nutt.) Spreng.	Asteraceae	false golden-weed
<i>Grindelia nuda</i> Wood var. <i>nuda</i>	Asteraceae	curlytop gumweed
<i>Gutierrezia sarothrae</i> (Pursh) Britt. & Rusby	Asteraceae	broom snakeweed
<i>Gutierrezia sphaerocephala</i> Gray	Asteraceae	roundleaf snakeweed
<i>Haploesthes greggii</i> Gray var. <i>texana</i> (Coul.) I.M. Johnston	Asteraceae	false broomweed
<i>Hedeoma drummondii</i> Benth.	Lamiaceae	Drummond's false pennyroyal
<i>Hedyotis nigricans</i> (Lam.) Fosberg var. <i>nigricans</i>	Rubiaceae	
<i>Helenium autumnale</i> L.	Asteraceae	Riddell's ragwort
<i>Helenium microcephalum</i> DC. var. <i>microcephalum</i>	Asteraceae	
<i>Helianthus annuus</i> L.	Asteraceae	common sunflower
<i>Helianthus maximiliani</i> Schrad.	Asteraceae	Maximilian sunflower
<i>Helianthus petiolaris</i> Nutt.	Asteraceae	prairie sunflower
<i>Heliotropium convolvulaceum</i> (Nutt.) Gray	Boraginaceae	phlox heliotrope
<i>Heliotropium curassavicum</i> L. var. <i>curassavicum</i>	Boraginaceae	salt heliotrope
<i>Hesperostipa comata</i> (Trin. & Rupr.) Barkworth	Poaceae	needle and thread
<i>Heterotheca stenophylla</i> (Gray) Shinnars	Asteraceae	stiffleaf false goldenaster
<i>Heterotheca subaxillaris</i> (Lam.) Britt. & Rusby	Asteraceae	camphorweed
<i>Heterotheca villosa</i> (Pursh) Shinnars var. <i>angustifolia</i> (Rydb.) Semple	Asteraceae	hairy golden aster
<i>Hoffmannseggia glauca</i> (Ortega) Eifert	Fabaceae	Indian rushpea
<i>Hordeum pusillum</i> Nutt.	Poaceae	little barley
<i>Hybanthus verticillatus</i> (Ortega) Baill.	Violaceae	babyslippers
<i>Hymenopappus filifolius</i> Hook. var. <i>cinereus</i> (Rydb.) I.M. Johnston	Asteraceae	fineleaf hymenopappus
<i>Hymenopappus flavescens</i> Gray var. <i>flavescens</i>	Asteraceae	collegeflower
<i>Hymenopappus tenuifolius</i> Pursh	Asteraceae	Chalk Hill hymenopappus
<i>Ipomoea leptophylla</i> Torr.	Convolvulaceae	bush morning-glory

Species	Family	Common Name
<i>Ipomopsis longiflora</i> (Torr.) V. Grant	Polemoniaceae	flaxflowered ipomopsis
<i>Isocoma pluriflora</i> (Torr. & Gray) Greene	Asteraceae	southern goldenbush
<i>Juglans microcarpa</i> Berl.	Juglandaceae	little walnut
<i>Juncus interior</i> Wieg.	Juncaceae	inland rush
<i>Juncus torreyi</i> Coville	Juncaceae	Torrey's rush
<i>Juniperus monosperma</i> (Engelm.) Sarg.	Cupressaceae	oneseed juniper
<i>Kallstroemia parviflora</i> J.B.S. Norton	Zygophyllaceae	warty caltrop
<i>Krameria lanceolata</i> Torr.	Krameriaceae	trailing krameria
<i>Krascheninnikovia lanata</i> (Pursh) A.D.J. Meeuse & Smit	Chenopodiaceae	winterfat
<i>Lactuca ludoviciana</i> (Nutt.) Riddell	Asteraceae	biannual lettuce
<i>Lactuca serriola</i> L.	Asteraceae	prickly lettuce
<i>Lamium amplexicaule</i> L.	Lamiaceae	henbit
<i>Lappula occidentalis</i> (S. Wats.) Greene	Boraginaceae	flatspine stickseed
<i>Lappula occidentalis</i> (S. Wats.) Greene var. <i>occidentalis</i>	Boraginaceae	flatspine stickseed
<i>Leersia oryzoides</i> (L.) Sw.	Poaceae	rice cutgrass
<i>Lemna valdiviana</i> Phil.	Lemnaceae	pale duckweed
<i>Lepidium oblongum</i> Small	Brassicaceae	veiny pepperweed
<i>Lepidium virginicum</i> L.	Brassicaceae	Virginia pepperweed
<i>Leptochloa dubia</i> (Kunth) Nees	Poaceae	green sprangletop
<i>Leptochloa fusca</i> (L.) Kunth ssp. <i>fascicularis</i> (Lam.) N. Snow	Poaceae	saltpond grass
<i>Leptoloma cognatum</i> (J.A. Schultes) Chase	Poaceae	fall witchgrass
<i>Lesquerella gordonii</i> (Gray) S. Wats.	Brassicaceae	Gordon's bladderpod
<i>Lesquerella ovalifolia</i> Rydb. ex Britt.	Brassicaceae	roundleaf bladderpod
<i>Liatris punctata</i> Hook. var. <i>punctata</i>	Asteraceae	dotted blazing star
<i>Linum compactum</i> A. Nels.	Linaceae	flax
<i>Linum pratense</i> (J.B.S. Norton) Small	Linaceae	meadow flax
<i>Linum rigidum</i> Pursh	Linaceae	stiffstem flax
<i>Lithospermum incisum</i> Lehm.	Boraginaceae	narrowleaf stoneseed
<i>Lobelia cardinalis</i> L.	Campanulaceae	cardinalflower
<i>Lolium arundinaceum</i> (Schreb.) S.J. Darbyshire	Poaceae	meadow fescue
<i>Lolium perenne</i> L.	Poaceae	rye grass
<i>Lolium temulentum</i> L.	Poaceae	Darnel ryegrass
<i>Lonicera albiflora</i> Torr. & Gray	Caprifoliaceae	western white honeysuckle
<i>Ludwigia palustris</i> (L.) Ell.	Onagraceae	marsh-purselane
<i>Lycopus americanus</i> Muhl. ex W. Bart.	Lamiaceae	American water horehound
<i>Lygodesmia juncea</i> (Pursh) D. Don ex Hook.	Asteraceae	rush skeletonplant
<i>Machaeranthera pinnatifida</i> (Hook.) Shinners var. <i>glaberrima</i> (Rydb.) B.L. Turner & Hartman	Asteraceae	lacy tansyaster
<i>Machaeranthera pinnatifida</i> (Hook.) Shinners var. <i>pinnatifida</i>	Asteraceae	lacy tansyaster
<i>Machaeranthera tanacetifolia</i> (Kunth) Nees	Asteraceae	tanseyleaf tansyaster
<i>Maclura pomifera</i> (Raf.) Schneid.	Moraceae	osage orange
<i>Medicago minima</i> (L.) L.	Fabaceae	burr medick
<i>Medicago sativa</i> L.	Fabaceae	alfalfa
<i>Melampodium leucanthum</i> Torr. & Gray	Asteraceae	plains blackfoot

Species	Family	Common Name
<i>Melilotus albus</i> Medik.	Fabaceae	white sweet clover
<i>Melilotus officinalis</i> (L.) Lam.	Fabaceae	yellow sweetclover
<i>Mentzelia decapetala</i> (Pursh ex Sims) Urban & Gilg ex Gilg	Loasaceae	tenpetal blazingstar
<i>Mentzelia nuda</i> (Pursh) Torr. & Gray	Loasaceae	bractless blazingstar
<i>Mentzelia oligosperma</i> Nutt. ex Sims	Loasaceae	chickenthiel
<i>Mentzelia reverchonii</i> (Urban & Gilg) H.J. Thompson & Zavortink	Loasaceae	Reverchon's blazingstar
<i>Mimosa borealis</i> Gray	Fabaceae	fragrant mimosa
<i>Mimosa nuttallii</i> (DC.) B.L. Turner	Fabaceae	Nuttall's sensitive-briar
<i>Mimosa rupertiana</i> B.L. Turner	Fabaceae	eastern sensitive plant
<i>Mimulus glabratus</i> Kunth	Scrophulariaceae	round-leaf monkey-flower
<i>Minuartia michauxii</i> (Fenzl) Farw. var. <i>texana</i> (B.L. Robins.) Mattf.	Caryophyllaceae	Texas stitchwort
<i>Mirabilis glabra</i> (S. Wats.) Standl.	Nyctaginaceae	smooth four o'clock
<i>Mirabilis linearis</i> (Pursh) Heimerl var. <i>linearis</i>	Nyctaginaceae	a four-o'clock
<i>Mirabilis linearis</i> (Pursh) Heimerl var. <i>subhispidata</i> (Heimerl) Spellensb.	Nyctaginaceae	a four-o'clock
<i>Mollucella laevis</i> L.	Lamiaceae	
<i>Mollugo verticillata</i> L.	Molluginaceae	green carpetweed
<i>Monarda pectinata</i> Nutt.	Lamiaceae	pony beebalm
<i>Monarda punctata</i> L. var. <i>occidentalis</i> (Epling) Palmer & Steyermark	Lamiaceae	dotted monarda
<i>Monroa squarrosa</i> (Nutt.) Torr.	Poaceae	false buffalograss
<i>Morus alba</i> L.	Moraceae	white mulberry
<i>Muhlenbergia arenicola</i> Buckl.	Poaceae	sand muhly
<i>Muhlenbergia asperifolia</i> (Nees & Meyen ex Trin.) Parodi	Poaceae	scratchgrass
<i>Muhlenbergia torreyi</i> (Kunth) A.S. Hitchc. ex Bush	Poaceae	ring muhly
<i>Myriophyllum spicatum</i> L.	Haloragaceae	spike watermilfoil
<i>Oenothera albicaulis</i> Pursh	Onagraceae	whitest evening-primrose
<i>Oenothera engelmannii</i> (Small) Munz	Onagraceae	Engelmann's evening-primrose
<i>Oenothera jamesii</i> Torr. & Gray	Onagraceae	trumpet evening-primrose
<i>Oenothera macrocarpa</i> Nutt. var. <i>incana</i> (Gray) Reveal	Onagraceae	glade-lily
<i>Oenothera macrocarpa</i> Nutt. var. <i>oklahomensis</i> (J.B.S. Norton) Reveal	Onagraceae	Oklahoma evening-primrose
<i>Opuntia fragilis</i> (Nutt.) Haw.	Cactaceae	brittle pricklypear
<i>Opuntia imbricata</i> (Haw.) DC.	Cactaceae	tree cholla
<i>Opuntia leptocaulis</i> DC.	Cactaceae	pencil cholla
<i>Opuntia macrorhiza</i> Engelm.	Cactaceae	plains prickly-pear
<i>Opuntia phaeacantha</i> Engelm.	Cactaceae	tulip pricklypear
<i>Opuntia polyacantha</i> Haw.	Cactaceae	plains pricklypear
<i>Opuntia</i> sp.	Cactaceae	unidentified pricklypear
<i>Oxytropis lambertii</i> Pursh var. <i>articulata</i> (Greene) Barneby	Fabaceae	purple locoweed

Species	Family	Common Name
<i>Packera plattensis</i> (Nutt) W.A. Weber & A. Löve	Asteraceae	prairie groundsel
<i>Palafoxia sphacelata</i> (Nutt. ex Torr.) Cory	Asteraceae	othake
<i>Panicum capillare</i> L.	Poaceae	witchgrass
<i>Panicum hallii</i> Vasey var. <i>hallii</i>	Poaceae	Hall's panicgrass
<i>Panicum miliaceum</i> L.	Poaceae	broomcorn millet
<i>Panicum obtusum</i> Kunth	Poaceae	vine mesquite
<i>Panicum rigidulum</i> Bosc ex Nees	Poaceae	broadleaf arrowhead
<i>Panicum virgatum</i> L.	Poaceae	switchgrass
<i>Paronychia jamesii</i> Torr. & Gray	Caryophyllaceae	James' nailwort
<i>Parthenocissus vitacea</i> (Knerr) A.S. Hitchc.	Vitaceae	woodbine
<i>Pascopyrum smithii</i> (Rydb.) A. Löve	Poaceae	western wheatgrass
<i>Paspalum setaceum</i> Michx.	Poaceae	thin paspalum
<i>Pediomelum cuspidatum</i> (Pursh) Rydb.	Fabaceae	largebract Indian breadroot
<i>Pediomelum hypogaeum</i> (Nutt. ex Torr. & Gray) Rydb. var. <i>hypogaeum</i>	Fabaceae	subterranean Indian breadroot
<i>Pediomelum linearifolium</i> (Torr. & Gray) J. Grimes	Fabaceae	narrowleaf Indian breadroot
<i>Pellaea atropurpurea</i> (L.) Link	Pteridaceae	purple cliffbrake
<i>Penstemon albidus</i> Nutt.	Scrophulariaceae	white penstemon
<i>Penstemon ambiguus</i> Torr.	Scrophulariaceae	gilia beardtongue
<i>Penstemon fendleri</i> Torr. & Gray	Scrophulariaceae	Fendler's penstemon
<i>Phacelia integrifolia</i> Torr.	Hydrophyllaceae	gypsum phacelia
<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Poaceae	common reed
<i>Physalis hederifolia</i> Gray	Solanaceae	ivyleaf groundcherry
<i>Physalis longifolia</i> Nutt.	Solanaceae	longleaf groundcherry
<i>Pilostyles thurberi</i> Gray	Rafflesiaceae	Thurber's stemsucker
<i>Plantago patagonica</i> Jacq.	Plantaginaceae	woolly plantain
<i>Plantago rhodosperma</i> Dcne.	Plantaginaceae	redseed plantain
<i>Pluchea odorata</i> (L.) Cass. var. <i>odorata</i>	Asteraceae	sweetscent
<i>Poa arida</i> Vasey	Poaceae	plains bluegrass
<i>Polanisia dodecandra</i> (L.) DC. ssp. <i>trachysperma</i> (Torr. & Gray) Iltis	Capparaceae	redwhisker clammyweed
<i>Polygala alba</i> Nutt.	Polygalaceae	white milkwort
<i>Polygonum amphibium</i> L. var. <i>emersum</i> Michx.	Polygonaceae	water knotweed
<i>Polygonum arenastrum</i> Jord. ex Boreau	Polygonaceae	oval-leaf knotweed
<i>Polygonum buxiforme</i> Small	Polygonaceae	box knotweed
<i>Polygonum ramosissimum</i> Michx. var. <i>ramosissimum</i>	Polygonaceae	bushy knotweed
<i>Polypogon monspeliensis</i> (L.) Desf.	Poaceae	annual rabbitsfoot grass
<i>Polypogon viridis</i> (Gouan) Breistr.	Poaceae	beardless rabbitsfoot grass
<i>Pomaria jamesii</i> (Torr. & Gray) Walp.	Fabaceae	James' pomaria
<i>Populus deltoides</i> Bartr. ex Marsh. ssp. <i>monilifera</i> (Ait.) Eckenwalder	Salicaceae	plains cottonwood
<i>Portulaca oleracea</i> L.	Portulacaceae	little hogweed
<i>Portulaca pilosa</i> L.	Portulacaceae	kiss me quick
<i>Potamogeton nodosus</i> Poir.	Potamogetonaceae	longleaf pondweed
<i>Potamogeton pectinatus</i> L.	Potamogetonaceae	sago pondweed

Species	Family	Common Name
<i>Proboscidea louisianica</i> (P. Mill.) Thellung ssp. <i>louisianica</i>	Pedaliaceae	ram's horn
<i>Prosopis glandulosa</i> Torr. var. <i>glandulosa</i>	Fabaceae	honey mesquite
<i>Prunus angustifolia</i> Marsh.	Rosaceae	Chickasaw plum
<i>Prunus virginiana</i> L.	Rosaceae	chokecherry
<i>Psilostrophe tagetina</i> (Nutt.) Greene var. <i>cerifera</i> (A. Nels.) B.L. Turner	Asteraceae	paper daisy
<i>Psoralidium lanceolatum</i> (Pursh) Rydb.	Fabaceae	lemon scurfpea
<i>Psoralidium tenuiflorum</i> (Pursh) Rydb.	Fabaceae	slimflower scurfpea
<i>Ptelea trifoliata</i> L.	Rutaceae	common hoptree
<i>Puccinellia fasciculata</i> (Torr.) Bickn.	Poaceae	salt marsh goosegrass
<i>Pycnanthemum tenuifolium</i> Schrad.	Lamiaceae	narrowleaf mountainmint
<i>Pyrrhopappus grandiflorus</i> (Nutt.) Nutt.	Asteraceae	tuberous desert-chicory
<i>Quincula lobata</i> (Torr.) Raf.	Solanaceae	Chinese lantern
<i>Ranunculus aquatilis</i> L. var. <i>diffusus</i> Withering	Ranunculaceae	northeastern white water-crowfoot
<i>Ranunculus sceleratus</i> L.	Ranunculaceae	cursed buttercup
<i>Ratibida columnifera</i> (Nutt.) Woot. & Standl.	Asteraceae	upright prairie coneflower
<i>Rayjacksonia annua</i> (Rydb.) R.L. Hartman & M.A. Lane	Asteraceae	viscid tansyaster
<i>Rhus aromatica</i> Ait. var. <i>pilosissima</i> (Engelm.) Shinnars	Anacardiaceae	fragrant sumac
<i>Rhus microphylla</i> Engelm. ex Gray	Anacardiaceae	littleleaf sumac
<i>Ribes aureum</i> Pursh var. <i>villosum</i> DC.	Grossulariaceae	buffalo currant
<i>Robinia pseudoacacia</i> L.	Fabaceae	black locust
<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek	Brassicaceae	watercress
<i>Rosa arkansana</i> Porter	Rosaceae	prairie rose
<i>Rosa woodsii</i> Lindl.	Rosaceae	Woods' rose
<i>Rumex altissimus</i> Wood	Polygonaceae	pale dock
<i>Rumex crispus</i> L.	Polygonaceae	curly dock
<i>Rumex stenophyllus</i> Ledeb.	Polygonaceae	narrow-leaf dock
<i>Sagittaria latifolia</i> Willd.	Alismataceae	thin paspalum
<i>Salix amygdaloides</i> Anderss.	Salicaceae	peachleaf willow
<i>Salix exigua</i> Nutt. var. <i>sericans</i> (Nees) Dorn	Salicaceae	narrowleaf willow
<i>Salix interior</i> Rowlee	Salicaceae	sandbar willow
<i>Salix nigra</i> Marsh.	Salicaceae	black willow
<i>Salsola collina</i> Pallas	Chenopodiaceae	slender Russian thistle
<i>Salsola tragus</i> L.	Chenopodiaceae	prickly Russian thistle
<i>Salvia reflexa</i> Hornem.	Lamiaceae	lanceleaf sage
<i>Samolus valerandi</i> L. ssp. <i>parviflorus</i> (Raf.) Hultén	Primulaceae	seaside brookweed
<i>Sapindus saponaria</i> L. var. <i>drummondii</i> (Hook. & Arn.) L. Benson	Sapindaceae	western soapberry
<i>Schedonnardus paniculatus</i> (Nutt.) Trel.	Poaceae	tumblegrass
<i>Schizachyrium scoparium</i> (Michx.) Nash var. <i>scoparium</i>	Poaceae	little bluestem
<i>Schoenoplectus acutus</i> (Muhl. ex Bigelow) A. & D. Löve var. <i>acutus</i>	Cyperaceae	hardstem bulrush

Species	Family	Common Name
<i>Schoenoplectus maritimus</i> (L.) Lye	Cyperaceae	cosmopolitan bulrush
<i>Schoenoplectus pungens</i> (Vahl) Pallas var. <i>longispicatus</i> (Britt.) S.G. Sm.	Cyperaceae	common threesquare
<i>Schoenoplectus tabernaemontani</i> (K.C. Gmel.) Pallas	Cyperaceae	softstem bulrush
<i>Scorzonera laciniata</i> L.	Asteraceae	cutleaf vipergrass
<i>Scutellaria resinosa</i> Torr.	Lamiaceae	sticky skullcap
<i>Senecio flaccidus</i> Less. var. <i>flaccidus</i>	Asteraceae	threadleaf ragwort
<i>Senecio riddellii</i> Torr. & Gray	Asteraceae	Riddell's ragwort
<i>Setaria leucopila</i> (Scribn. & Merr.) K. Schum.	Poaceae	streambed bristlegrass
<i>Setaria parviflora</i> (Poir.) Kerguelen	Poaceae	marsh bristlegrass
<i>Setaria pumila</i> (Poir.) Roemer & J.A. Schultes ssp. <i>pallidifusca</i> (Schumacher) B.K. Simon	Poaceae	yellow bristlegrass
<i>Sisyrinchium montanum</i> Greene	Iridaceae	strict blue-eyed grass
<i>Solanum elaeagnifolium</i> Cav.	Solanaceae	silverleaf nightshade
<i>Solanum rostratum</i> Dunal	Solanaceae	buffalobur nightshade
<i>Solidago altissima</i> L. var. <i>gilvocanescens</i> (Rydb.) Semple	Asteraceae	a goldenrod
<i>Solidago gigantea</i> Ait.	Asteraceae	giant goldenrod
<i>Solidago petiolaris</i> Ait.	Asteraceae	downy ragged goldenrod
<i>Sonchus asper</i> (L.) Hill	Asteraceae	spiny sowthistle
<i>Sophora nuttalliana</i> B.L. Turner	Fabaceae	silky sophora
<i>Sorghastrum nutans</i> (L.) Nash	Poaceae	Indiangrass
<i>Sorghum halepense</i> (L.) Pers.	Poaceae	Johnsongrass
<i>Sphaeralcea angustifolia</i> (Cav.) G. Don	Malvaceae	copper globemallow
<i>Sphaeralcea coccinea</i> (Nutt.) Rydb.	Malvaceae	scarlet globemallow
<i>Sphenopholis obtusata</i> (Michx.) Scribn.	Poaceae	prairie wedgescale
<i>Sporobolus airoides</i> (Torr.) Torr.	Poaceae	alkali sacaton
<i>Sporobolus coromandelianus</i> (Retz.) Kunth	Poaceae	Madagascar dropseed
<i>Sporobolus cryptandrus</i> (Torr.) Gray	Poaceae	sand dropseed
<i>Sporobolus giganteus</i> Nash	Poaceae	giant dropseed
<i>Sporobolus texanus</i> Vasey	Poaceae	Texas dropseed
<i>Sporobolus vaginiflorus</i> (Torr. ex Gray) Wood	Poaceae	poverty dropseed
<i>Stenosiphon linifolius</i> (Nutt. ex James) Heynh.	Onagraceae	false gaura
<i>Stephanomeria pauciflora</i> (Torr.) A. Nels.	Asteraceae	brownplume wirelettuce
<i>Stillingia sylvatica</i> Garden ex L.	Euphorbiaceae	queen's-delight
<i>Strophostyles helvula</i> (L.) Ell.	Fabaceae	trailing wild bean
<i>Strophostyles leiosperma</i> (Torr. & Gray) Piper	Fabaceae	slickseed fuzzybean
<i>Suaeda calceoliformis</i> (Hook.) Moq.	Chenopodiaceae	Pursh seepweed
<i>Suckleya suckleyana</i> (Torr.) Rydb.	Chenopodiaceae	poison suckleya
<i>Symphotrichum divaricatum</i> (Nutt.) Nesom	Asteraceae	southern annual saltmarsh aster
<i>Symphotrichum expansum</i> (Poepp. ex Spreng.) Nesom	Asteraceae	southwestern annual saltmarsh aster
<i>Symphotrichum falcatum</i> (Lindl.) Nesom var. <i>commutatum</i> (Torr. & Gray) Nesom	Asteraceae	white prairie aster
<i>Symphotrichum fendleri</i> (Gray) Nesom	Asteraceae	Fendler's aster
<i>Tamarix chinensis</i> Lour.	Tamaricaceae	flvestamen tamarisk

Species	Family	Common Name
<i>Tamarix ramosissima</i> Ledeb.	Tamaricaceae	saltcedar
<i>Taraxacum officinale</i> G.H. Weber ex Wiggers	Asteraceae	common dandelion
<i>Tetranneuris acaulis</i> (Pursh) Greene	Asteraceae	stemless four-nerve daisy
<i>Tetranneuris scaposa</i> (DC.) Greene var. <i>scaposa</i>	Asteraceae	stemmy four-nerve daisy
<i>Teucrium canadense</i> L. var. <i>occidentale</i> (Gray) McClintock & Epling	Lamiaceae	western germander
<i>Teucrium laciniatum</i> Torr.	Lamiaceae	lacy germander
<i>Thelesperma filifolium</i> (Hook.) Gray var. <i>intermedium</i> (Rydb.) Shinnars	Asteraceae	stiff greenthread
<i>Thelesperma megapotamicum</i> (Spreng.) Kuntze	Asteraceae	Hopi tea greenthread
<i>Thuja occidentalis</i> L.	Cupressaceae	arborvitae
<i>Tidestromia lanuginosa</i> (Nutt.) Standl.	Amaranthaceae	woolly tidestromia
<i>Townsendia texensis</i> Larsen	Asteraceae	Texas Townsend daisy
<i>Toxicodendron rydbergii</i> (Small ex Rydb.) Greene	Anacardiaceae	poison ivy
<i>Tradescantia occidentalis</i> (Britt.) Smyth var. <i>occidentalis</i>	Commelinaceae	prairie spiderwort
<i>Tragia ramosa</i> Torr.	Euphorbiaceae	branched noseburn
<i>Tragopogon dubius</i> Scop.	Asteraceae	yellow salsify
<i>Tribulus terrestris</i> L.	Zygophyllaceae	puncturevine
<i>Tridens albescens</i> (Vasey) Woot. & Standl.	Poaceae	white tridens
<i>Tridens flavus</i> (L.) A.S. Hitchc.	Poaceae	purpletop tridens
<i>Tridens muticus</i> (Torr.) Nash var. <i>elongatus</i> (Buckl.) Shinnars	Poaceae	slim tridens
<i>Triplasis purpurea</i> (Walt.) Chapman	Poaceae	purple sandgrass
<i>Tripsacum dactyloides</i> (L.) L.	Poaceae	eastern gamagrass
<i>Typha domingensis</i> Pers.	Typhaceae	southern cattail
<i>Ulmus americana</i> L.	Ulmaceae	American elm
<i>Ulmus pumila</i> L.	Ulmaceae	Siberian elm
<i>Verbena bracteata</i> Lag. & Rodr.	Verbenaceae	large-bract vervain
<i>Verbena hastata</i> L. var. <i>scabra</i> Moldenke	Verbenaceae	swamp verbena
<i>Vernonia baldwinii</i> Torr. ssp. <i>interior</i> (Small) Faust	Asteraceae	interior ironweed
<i>Vernonia marginata</i> (Torr.) Raf.	Asteraceae	plains ironweed
<i>Veronica anagallis-aquatica</i> L.	Scrophulariaceae	water speedwell
<i>Vitis acerifolia</i> Raf.	Vitaceae	mapleleaf grape
<i>Vulpia octoflora</i> (Walt.) Rydb.	Poaceae	sixweeks fescue
<i>Xanthium strumarium</i> L. var. <i>canadense</i> (P. Mill.) Torr. & Gray	Asteraceae	Canada cocklebur
<i>Yucca glauca</i> Nutt. var. <i>glauca</i>	Agavaceae	soapweed yucca
<i>Zannichellia palustris</i> L.	Zannichelliaceae	horned pondweed
<i>Zinnia grandiflora</i> Nutt.	Asteraceae	Rocky Mountain zinnia

## APPENDIX 10: Non-native species (including waifs and persistent cultivars).

Forty-seven non-native species (non North American) are known to be naturalized or to occur as waifs within the park area. Some of these are problematic invaders (category I below) that cover large areas with great amounts of biomass and significantly displace native species in the LAMR area. Other non-native species are known to be invasive and noxious in other regions but apparently have not become problematic in undisturbed habitats of the Texas panhandle (category II below). Still others (category III below) are known to be invasive but apparently are restricted to disturbed habitats – these probably are not destined to become damaging weeds in the LAMR area, although such a prediction is speculative.

### I – Highly invasive: significantly displacing native species (10)

*Tamarix ramosissimus* Extremely common in wet places.

*Salsola tragus* Extremely common in many habitats.

*Salsola collina* Common in many habitats but less common than *Salsola tragus*.

*Bassia scoparia* Extremely common in many habitats.

*Bromus japonicus* Extremely common in sandy habitats.

*Bothriochloa ischaemum* var. *songarica* Extremely common along roadsides.

*Cynodon dactylon* Common in disturbed habitats and lakeshore.

*Ulmus pumila* Common in some areas.

*Melilotus officinalis* Common in many habitats.

*Melilotus albus* Common in many habitats.

### II – Invasive and potentially problematic (8)

*Tamarix chinensis* Uncommon, compared to *Tamarix ramosissimus*.

*Elaeagnus angustifolia* Few trees seen but numerous seedlings and saplings observed.

*Medicago sativa* Uncommon within the park but abundant on roadsides of peripheral areas.

*Scorzonera laciniata* Uncommon.

*Sorghum halepense* Uncommon in park but abundant in peripheral areas.

*Myriophyllum spicatum* Scattered around lake edge, potentially damaging in shallow water.

*Echinochloa crus-galli* Common in moist to wet habitats.

*Eragrostis curvula* Scattered but relatively common in sandy sites.

### III – Invasive but probably not potentially problematic (29)

*Erodium cicutarium* Common in lawns and nearby roadsides.

*Amaranthus blitoides* Uncommon.

*Amaranthus retroflexus* Uncommon.

*Polypogon monspeliensis* Common locally.

*Sonchus asper* Common.

*Tragopogon dubius* Common in a few areas, mostly along roadsides and other disturbed areas.

*Taraxacum officinale* Common but displacing little native vegetation.

*Lactuca serriola* Scattered but relatively common.

*Tribulus terrestris* Common but displacing little native vegetation.

*Descurainia sophia* Common in disturbed sites.

*Convolvulus arvensis* Common along roadsides and disturbed sites.

*Eragrostis barrelieri* Common in disturbed sites.

*Eragrostis cilianensis* Common in disturbed sites.

*Chenopodium glaucum* Common around lake shore.

*Corispermum hyssopifolium* Common in sandy, disturbed sites.

*Polygonum arenastrum* Common around lake shore and other disturbed sites.

*Lolium temulentum* Uncommon.

*Setaria pumila* Uncommon.  
*Lolium perenne* Common along sandy roadsides.  
*Bromus catharticus* Common along sandy roadsides and disturbed sites.  
*Bromus inermis* Uncommon.  
*Agrostis gigantea* Uncommon.  
*Panicum miliaceum* Uncommon.  
*Medicago minima* Uncommon.  
*Coronilla varia* Rare, perhaps a waif.  
*Citrullus lanatus* Rare, probably a waif.  
*Mollucella laevis* Rare, probably a waif.  
*Sorghum almum* Rare, a waif.