1977

A BOTANICAL SURVEY OF CUMING COUNTY: PART I, THE VASCULAR PLANTS

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A botanical survey of the vascular plants of Cuming County, Nebraska, recognizes 4 major vegetation zones and a total of 491 species representing 270 genera and 83 families.

† † †

INTRODUCTION

This is the first systematic botanical survey for a northeastern Nebraska county and the second published county flora survey for Nebraska. The first published botanical survey was that of Urbatsch and Eddy (1973) for Dawes County, Nebraska. Part I of this study presents the vascular flora—Equisetophyta, Polypodiophyta, Pinophyta and Magnoliophyta—of Cuming County. Work is now under way on Part II of the bryophyte flora.

The study of the vascular flora of Cuming County was conducted for the flowering seasons of 1972 through 1974. The objective was to survey and document with plant specimens all known species, native and introduced, that were not under cultivation within the county. In addition to collecting, species' associations and vegetation zones were recorded. Approximately 12 visits were made throughout the flowering season for each of the 3 years. Sixty-three sites were studied; several were sampled throughout the season; and all possible vegetation zones were surveyed.

Four hundred ninety-one species, 7 subspecies or varieties, and 4 hybrids—representing 270 genera and 83 families—were recorded; and 1,000 specimen were collected and are deposited at the Nebraska State Herbarium (NEB). A duplicate set of nearly all species of the author's collections is deposited at the Missouri Botanical Garden (MO).

BOTANICAL HISTORY

The first botanical record from Cuming County was noted by a mixed collection of *Cystopteris fragilis* and *Adiantum pedatum* made by L. Bruner from West Point in July, 1880. Bessey (1890) listed 38 species of grasses from Cuming County exhibited at the 1889 Nebraska State Fair. These grasses were collected by Artman and were examined and listed by H. Webber. None of Artman's collections is contained in the Nebraska State Herbarium. All but 5 of these grasses have been collected by the author. Those grasses not verified by specimen are here excluded from the annotated list. These include: *Bromus ciliatus, Schedonnardus paniculatus, Muhlenbergia cuspidata, Sporobolus asper*, and *Aristida purpurea*.

Collectors and the number of specimen contained in the Nebraska State Herbarium from Cuming County are: L. Bruner (2); H. Webber (2); N. Peterson (1); A. Burke (1); W. Tolstead (5); S. Churchill (1,000). Recently, the University of Kansas, in its survey of the Great Plains, has added a number of collections from Cuming County by H.A. Stephens, some of which are additions to the author's collections and are cited in the annotated list.

LOCATION

Cuming County is in the second tier of counties west of the Missouri River in northeastern Nebraska. With an area of about 570 square miles or 365,440 acres (Nebraska Conservation Needs Committee, 1969), Cuming County is located in that general area known as the "eastern prairie" of the Great Plains and forms a portion of the vast central lowlands in the interior of North America (Raisz, 1957).

GEOLOGY AND SOILS

All of the geologic bedrock of Cuming County is covered by mantlerock (soils and unconsolidated sediments). From west to east, the bedrock forms are: Carlile, Greenhorn-Graneros, and Dakota, all of the Cretaceous period (Elder, 1969). Cuming County is located in that general area known as the "eastern prairie" of the Great Plains and forms a portion of the vast central lowlands in the interior of North America (Raisz, 1957).

Five soil associations have been recognized within the county: Nora-Moody-Judson, Colo-Calco-Kennebec, Moody-Nora-Belfore, Zook-Leshara-Wann, and Thurman-Leisy-Moody associations (DaMoude, 1973). Soil types generally coincide with the major vegetation zones (Fig. 1): silty soils on the uplands (eastern tallgrass prairie); clayey, silty, loam soils on the bottomlands (floodplain prairie and forest); and sandy upland (sandhills prairie).
Vegetation of Cuming County, Nebraska

Figure 1. Vegetation of Cuming County, Nebraska.
TOPOGRAPHY AND DRAINAGE

The maximum topographic relief (highest elevation) in Cuming County is approximately 1600 feet in the western portion and 1100 feet (the minimum) in the eastern portion of the county. The uplands are marked by level-to-rolling plains and the lowlands with minor- and major-level floodplains. The general slope and drainage is to the south and east. The largest drainage systems are the Elkhorn River and its major tributaries: Logan, Cuming, Plum, Rock, and Pebble Creeks (Bentall, et al., 1971).

CLIMATE

The mean annual precipitation based on the period from 1931-1955 for West Point ranged from 24 to 28 inches. The mean temperature ranged from 21 to 79 degrees during the same period. The number of frost-free days based on the period from 1921-1950 at West Point ranged from 159 to 236 days. The mean dates of the last spring frost ranged from 03-21 to 05-02, and from 10-08 to 11-13 for the first fall frost (Stevens, 1959).

PAST AND PRESENT VEGETATION

Since no botanical accounts were ever kept for Cuming County, it is difficult to assess the original vegetation. Compiled data concerning present relict tracts of vegetation zones and their components, plus available early historical accounts, aid in postulating the probable vegetation of Cuming County.

The historical settlement of Cuming County from the period of first settlement in the early 1850's through the mid-1870's is given by Sweet (1876), whose account provides several clues to the original vegetation. Rich floodplain forest and tall grass areas are described for the lowlands, while the uplands were vast areas of prairie. However, there is seldom a year when Sweet does not mention flooding of the Elkhorn River and/or its major tributaries, or the extensive prairie fires on the uplands. Such accounts testify to the natural conditioning that gave the prairie and floodplain their apparent richness before the influence of European man.

The vegetation map (Fig. 1) of Cuming County is a compromise between past and present vegetation. All but the eastern deciduous forest generally conform to the original vegetation. The eastern deciduous forest was probably more extensive than depicted on the map.

Four major vegetation zones can be recognized in Cuming County: floodplain prairie and forest; tallgrass bluestem prairie; sandhills prairie; and eastern deciduous forest. These zones generally conform to the recent vegetation map of Nebraska by Kaul (1975). Only small remnants of the zones are in existence today due to the intense agricultural use of the land in Cuming County. Present land use in Cuming County in percentage of total land acres is: 79% cropland, 14% pasture, 1% range, 2% forest, and 4% miscellaneous—e.g. farmstead, town, road, etc. (Nebraska Conservation Needs Committee, 1969).

As a result of this study, two notable facts concerning the vegetation zones in Cuming County are reported. First, Churchill et al., (1976) reported the eastern-most extension of sandhills vegetation for Nebraska occurring in Cuming County. Second, eastern deciduous forests are native to the Elkhorn River valley area. The question as to whether this eastern deciduous forest vegetation zone in Cuming County is native has been raised by the University of Nebraska Conservation and Survey Division. I think several facts support the contention that the oak woods are native to the region. First, Sweet's account, mentioned previously, states that a lumber mill was in operation at West Point and harvested much of the local cottonwood and oak. Second, much of the oak woods contain "typical" eastern deciduous forest vegetation, e.g., Quercus macrocarpa, Tilia americana, Xanthoxylum americanum, Gymnocladus dioica, Menispermum canadensis, Aquilegia canadensis, Dicentra cucullaria, Sangunaria canadensis, Carex convoluta, Adiantum pedatum, Botrychium virginianum, and Cystopteris fragilis. Third, the common presence of oak seedlings suggests their adaptability to the area of the Elkhorn River bluffs and sandy floodplain. Thus, it must be assumed that many years would be involved in the establishment of such a zone, and therefore, it did not just come into being after the presence of European man.

It is not difficult to assess the future of the relict vegetation tracts in Cuming County. The rich eastern deciduous forest flora contained on the bluffs south of Beemer (Sec. 1, T22N, RSE) is slowly being eroded by the local garbage dump, and the sandhill prairies southwest of Wisner and southeast of West Point are slowly being stabilized through so-called management programs. This study, and especially the collections made which contain labelled location and habitat information, will aid in the assessment of future changes in vegetation zones and components of those zones within the county.

ANNOTATED LIST

The following list is arranged according to Cronquist (1968) as modified by McGregor et al. (1977) for the vascular plant families. Within each of the families, genera and species are arranged alphabetically. Nomenclature generally follows that of McGregor et al. (1977) for the treatment of genera and species. Subspecies and varieties are recognized only if the author considers them distinct enough for recognition.

To conserve space, symbols have been employed for each of the vegetation zones that are given for each taxon. In addition, symbols are used to describe particular habitats in a vegetation zone. For the vegetation zones, those symbols are: tallgrass bluestem prairie (TBP); sandhills prairie (SP); floodplain forest (FF); floodplain prairie (FP); and eastern...
deciduous forest (EDF). For the habitats they are: aquatic (A); marsh (M); meadow (MW); riparian (R); disturbed ground (DG). For the origin of the plants, they are either introduced or adventive, most of which have become naturalized now (I). Taxa with no notation of "(I)" are here considered native to the county.

All taxa listed were collected or verified by the author. Specimens of each taxon are deposited in the Nebraska State Herbarium (NEB) except those indicated are at the University of Kansas (KANU).

ACKNOWLEDGMENTS

Several individuals assisted with the verification or determination of specimens and are gratefully acknowledged: Mr. Robert Albert, Drs. Ole Kolstad, Ronald McGregor, and David Sutherland. Ms. Martha Haack, illustrator for the University of Nebraska State Museum, prepared the fine map illustration. Special thanks are extended to Dr. Greg Anderson for help in the initiation of this study and to Dr. Robert Kaul for support throughout the study. I would like to thank my wife, Katherine, for accompanying and assisting on many of the field trips.

I wish to acknowledge financial support from the Jessie Lee Fund for several summers of field work.

REFERENCES


Raisz, E. 1957. Landforms of the United States (map).


ANOTATED LIST

**EQUISTEOPHYTA**

*Equisetum arvense* L. (FF) Equisetaceae

*E. hyemale* L. (M, R)

**POLYPODIOPHYTA**

*Ophioglossaceae*

*Botrychium virginianum* (L.) Sw. (EDF) Polypodiaceae

*E. laevigatum* A. Br. (SP)

*Adiantum pedatum* L. (EDF) Equisetaceae

*Cystopteris fragilis* (L.) Bernh. (EDF)

**PINOPHYTA**

*Cupressaceae*

*Juniperus virginiana* L. (DG-SP)

**MAGNOLIOPHYTA**

*LILIATAE*

*Alismataceae*

*Alisma plantago-aquatica* L. (M) S. latifolia Willd. (M-FF, R)

*A. subcordatum* Raf. (M) ssp. calycina (Engelm.) Bogn. (R) ssp. brevirostra (Mack. et Bush) Bogn. (M)

*Sagittaria engelmanniana* J. G. Sm. ssp. brevirostra (Mack. et Bush) Bogn. (M)

*Hydrocharitaceae*

*Elodea nuttallii* (Planch.) St. John (A)

*Potamogetonaceae*

*Potamogeton folius* Raf. (A) P. pectinatus L. (A)

*Zannichellia palustris* L. (A)
Juncaceae

Juncus alpinus Vill. (M)  J. interior Wieg. (M, R)
J. balticus Willd. (M)  J. nodosus L. (R)
J. dudleyi Wieg. (M, R)  J. torreyi Cov. (M, R)

Cyperaceae

Carex aggregata Mack. (EDF)  Cyperus acuminatus Torr. et Hook. (R)
C. amphibia Steud.  C. aristatus Rothb. (R)
var. turgida Fern. (EDF)  C. diandrus Torr. (R)
C. bicknellii Britt. (M) (Toled s.n. 20 May 1939; NEB)  C. erythrorhizos Muhl. (R)
C. esculentus L. (D. R. G.)  C. scirpoides C. lanuginosa Michx. (M)
C. brawia Dewey (EDF; FF)  E. obtusa (Willd.) Schult. var. ovata (Roth)
C. brevior (Dewey) Mack. (SP, TBP)  E. macrostachya Britt. (M)
C. comosa Boott. (M)  E. austroirinum Muhl.
C. convoluta Mack. (EDF)  C. segetum L. (F.)
C. cristata Britton. (M)  C. stricta Michx. (M)
C. gramineum Muhl. var. haleana  C. strictum L. (R)
(One) Porter (M)  C. hystrix L. (M)
C. grivida Bailey var. grivida (M)  X C. strictum Torr. (SP)
C. heliothoides Mack. (SP)  Eleocharis acicularis (L.) R. & S. M.
C. hyalinopeltis Steud. (M)  E. echinata (L.) Beauv. (M; SP)
C. laevicola Dewey (M)  E. nutans (L.) Wieg. var. obtusa (Michx.) Biehler
C. lanuginosa Michx. (M)  E. nutans (L.) Wieg. var. obtusa (Michx.) Biehler
E. obtusa (Willd.) Schult. var. ovata (Roth)
C. molesta Mack. (M)  Drapalik et Mohlenbrock (M)
C. meadii Dewey (FP)  Hemicarpha miranda (Vahl.) Pax (R)
C. sprengeli Dewey (EDF)  Scirpus acutus Muhl. (M)
C. stipata Muhl. (M)  S. atrorubens Willd. (M)
C. stricta Lam. (M)  S. fluitans (Torr.) Gray (M)
C. vulpinoidea Michx. (M)  S. pallidus (Britt.) Fern. (M)
S. validis Vahl. (M, R)

Poaceae

Agropyron cristatum (L.) Gaertn. (DG; SP; I)  Cichla annuiflora L. (DF-FP; I)
A. intermedium (Host.) Beauv. (DG; I)  Dactylis glomerata L. (DG-FP; I)
A. repens (L.) Beauv. (DG; I)  Digitaria ischaemum (Schreb.) Scop. (DG-FP; I)
A. smithii Rydb.  D. sanguinalis (L.) Scop. (DG-FP; I)
(GD-FP)  Echinochloa crus-galli (L.) Beauv. (DG; SP)
Agrostis hyemalis (Walt.) B. S. P. (M)  E. muricata (Beauv.) Fern. var. muricata (M)
A. stolonifera L. (M; I)  E. muricata (Beauv.) Fern. var. muricata (M)
(A. alba misspell)  E. muricata (Beauv.) Fern. var. microstachya Wieg. (M)
Elymus canadensis L. (SP, TBP)  E. nutans (L.) Wieg. var. obtusa (Michx.) Biehler
A. pratensis L. (DG-FP; I)  S. fruticosus (L.) Wieg. var. obtusa (Michx.) Biehler
Andropogon gerardi Vitman (FP)  E. virgata (S. Steud. ) (M)
A. hallii Hack. (SP)  Eragrostis ciliaris (All.)
A. scoparius Michx. (TBP, SP)  E. Mosher. (DG; I)
E. hystrix L. (M; I)  Sporobolus cryptandrus (Torr.)
A. gerardii Vitman X A. hallii Hack. (SP)  E. nutans (L.) Wieg. var. obtusa (Michx.) Biehler
Aristida bateanae Engelm. (TBP)  E. nutans (L.) Wieg. var. obtusa (Michx.) Biehler
A. oligantha Michx. (DG-SP)  E. nutans (L.) Wieg. var. obtusa (Michx.) Biehler
Avena sativa L. (DG; I)  E. spectabilis (Pursh) Steud. (SP)
Bouteloua curtipendula (Michx.) Torr. (TBP)  E. trichodes (Nutt.) Wood. (SP)
B. gracilis (H. B. K.) Griffiths (SP)  Festuca obtusa Bieler (FF, EDF)
B. hirta L. (SP)  F. octoflora Wieg. (TBP, SP)
Bromus inermis Leyss. ssp. inermis  F. ovina L. var. rydbergii St. Yoes. (EDF)
(DG; EDF; I)  F. pratensis Huds. (DG-EDF; I)
B. japonicus Thunb. (DG-SP-FP; I)  Glyceria striata (Lam.) Hitchc. (M-FP)
B. tectorum L. (DG; I)  Hordeum jubatum L. (DG; I)
Buchloe dactyloides (Nutt.) Engl. (DG)  H. pusillum Nutt. (DG-FP)
Calamagrostis canadensis (Michx.) Beauv. (M-FP)  Koeleria pyramidata (Lam.) Beauv. (TBP, SP; I)
Calamovilfa longifolia (Hook.) Scribn. (SP)  K. cristata
Cenchrus longispinus (Hack.) Fern. (DG)  Leersia oryzoides (L.) Swartz. (M)
Leptochloa fascicularis (Lam.)  L. virginica Willd. (EDF; FF)
Secale cereale L. (DG; I)
Gray (R)  S. turgida (L.) Beauv. (DG; I)
Muhlenbergia frondosa (Poir.) Fern. (FF)
M. mexicana (L.) Trin. (FF)  S. viridis (L.) Beauv. (DG; I)
Panicum capillare L. (DG)  Sorghastrum nutans (Michx.)
P. dichotomiflorum Michx. (FF)  Nash (FF, TBP) (S. nutans)
P. leibergii (Vasey) Scribn. (TBP, FF)  Spartina pectinata Link. (M)
P. oloschtes Schultes var. scriberianum
(Nash) Fern. (TBP, SP)  Sphenopholis obtusata (Michx.) Scribn.
P. praecoxe Hitchc. et Chase (TBP)  var. obtusata (Michx.) Scribn.
P. virgatum L. (FF, SP)  Phalaris arundinacea L. (M)
S. obtusata (Michx.) Scribn. var.
P. wilcoxianum Vasey (SP)  major (M.) Erdman. (M)
Paspalum setaceum Michx. var. stramineum
(Nash) D. Banks (SP)  Sporobolus cryptandrus (Torr.)
Phalaris arundinacea L. (M)  Gray (SP)
Phleum pratense L. (SP; I)  S. vaginifolius (Torr.)
P. pratensis L. (DG, EDF)  Wood (DG-Sp)
Poa compressa L. (EDF; I)  Stipa spartea Trin. (SP, TBP)
P. pratensis L. (DG, TBP, SP, FP; I?)  Triplasis purpurea (Walt.)
Arabidopsis thaliana L. (M)
Chlamydomonas reinhardtii (TBP)
Arilaeae

Arisaema triphyllum (L.) Schott (EDF)  Chapm. (SP)

Lemmaceae

Lemna minor L. (A)  Spirodea polyrhiza (L.) Schled. (A)

Commelinaceae

Tradescantia bracteata Small (FP)  Commelina communis (L.)
T. occidentalis (Briott.) Smyth. (SP)

Liliaceae

Allium canadense L. var. Polygymnion biflorum (Walt.) Ell. (FF, EDF)
Smilacina stellata (L.) Desf. (FF, EDF)
A. canadense L. var. lavendulare Smilax herbacea L. var. lasioneuron
(Bates) M. Ownbey et Aase (FP) (Hook.) A. DC. (EDF)
Asparagus officinalis L. (DGF-FP; I)  Hooky (SP)
Hypostach hipula (L.) Cov. (FP)  Yucca glauca Nutt. (SP)

Iridaceae

Sisyrinchium campestre Bickn. (FP)

MAGNOLIACEAE

Salsicaceae

Salpiglossis denticulata Marsh var. S. amydalliformis Anderss. (FF, R)
occulentata (Ryd. (FF, MW-FP)
S. exigua Nutt. ssp. interior
Salix alba L. (FF, R; I)  (Rowe) Cronq. (FF, R, M-FP)

Juglandaceae

Juglas nigra L. (EDF)
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<th>Family</th>
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<tr>
<td><em>Androsace occidentalis</em> Pursh (SP)</td>
<td><em>Androsace</em></td>
<td></td>
</tr>
<tr>
<td><em>L. thrysiflora</em> L. (M)</td>
<td><em>L. thrysiflora</em></td>
<td></td>
</tr>
<tr>
<td><em>Oleaceae</em></td>
<td><em>Oleaceae</em></td>
<td></td>
</tr>
<tr>
<td><em>Fraxinus pennsylvanica</em> Marsh var. <em>subintegerrima</em> (Vahl.) Fern. (FF)</td>
<td><em>Fraxinus</em></td>
<td></td>
</tr>
</tbody>
</table>
Apocynaceae

Apocynum cannabinum L. (DG)  A. sibiricum Jacq. (DG)

Asclepiadaceae

A. amplexicaulis Sm. (SP)  A. tuberosa L. ssp. interior
A. arenaria Torr. (SP)  Woods. (SP)
A. incarnata L. (M)  A. verticillata L. (TBP, FP, SP)
A. suillanitii Engl. (FP)  A. viridi/olia Raf. (SP)
A. syriaca Vahl. (DG)

Convulvulaceae

Convolvulus arvensis L. (DG; I)  C. polygonorum Engl. (R)
C. sepium L. (DG)  Ipomoea purpurea (L.) Mey.
Cuscuta cephalantha Engl. (DG)  (DG; I)

Polemoniaceae

Phlox pilosa L. (FP)

Hydrophyllaceae

Ellisia nycteles L. (DG)

Boraginaceae

Hackelia virginiana (L.) I.M. Johnst. (FF)
Lithospermum canescens (Michx.) Lehm. (FP)

Verbenaceae

Phyla lanceolata Michx. (DG)  V. urticifolia L. (MW-FP; FF)
Verbena bracteata Lag. et Rodr. (DG-SP)  V. x illica Moldenke
V. hastata L. (M)  (MW-FP) (V. urticifolia X V. stricta)
V. stricta Vent. (TBP, SP, FP)

Lamiaceae

Agastache nepetoides (L.) O. Ktze. (FF)  Nepeta cataria L. (EDF; I)
Hedeoma hiptoides Pursh (SP)  Physostegia virginiana (L.) Benth. (M)
Leonurus cardiaca L. (M; FF; I)  Prunella vulgaris L. (FF; I)
Lyopus americanus Muhl. (M)  Scutellaria lateriflora L. (M-FP)
L. asper Greene (M)  S. parvula Michx. var. leonardi
L. virginicus L. (M)  (Epl.) Fern. (DG-M)
Mentha arvensis L. (M)  Teucrium canadense L. var. occidentale
Monarda fistulosa L. (MW-FP)  (Gray) McCl. et Epl. (M)

Solanaeae

Physalis heterophylla Nees. (SP)  Solanum americanum Mill. (DG, FF)
P. virginiana Mill. var. virginiana (FP)  S. rostratum Dun. (SP)
P. virginiana Mill. var. sonorae (Torr.) Waterfall (FP) /p. longifolia) -ber 5619; NEB)

Scrophulariaceae

Agalinis tenuifolia (Vahl.) Raf. (R)  Verbesina thapsus L. (DG; I)
Lindernia dubia (L.) Penn. (R)  Veronica peregrina L. var. peregrina
Mimulus ringens L. (M)  (DG-M)
Penstemon albidas Nutt. (SP)  V. peregrina L. var. xalapensis
P. grandiflorus Nutt. (SP)  (H.B.K.) St. John et Warren
Scrophularia lanceolata Pursh (FF)  (DG-M)

Bignoniaceae

Catalpa speciosa Warder (FF; I)

Plantaginaceae

Plantago patagonica Jacq. var. patagonica (SP, TBP, DG)
(P. purshii)

Rubiaceae

Cephalanthus occidentalis L. (M; FF)  G. obtusum Bigel. (FP)
(Webber 5090; NED)
G. trifidum L. (M; FF)

Caprifoliaceae

Sambucus canadensis L. (FF)  Symphoricarpus occidentalis Hook.
(SP, TBP, EDF)

Cucurbitaceae

Echinocystis lobata (Michx.) Greene (DG)

Campanulaceae

Campanula americana L. (FF)  Triodanis perfoliata (L.) Nieuw. (SP)

Lobeliaceae

Lobelia stiphilitica L. (M)

Asteraceae

Achillea millefolium L. ssp. lanulosa (Nutt.) Piper. (TBP)
A. tephrodesifolia L. (DG)

Ambrosia artemisiifolia L. (DG)
A. psilostachya DC. (DG)
A. trifida L. (DG; I)
Antennaria neglecta Greene (SP, TBP)
Artemisia dracunculius L. (DG)
E. rigidus
A. ludoviciana Nutt. var. ludoviciana (SP)
Aster ericoides L. (TBP)
A. novae-angliae L. (EDF)
A. oblongifolius Nutt. (SP)
A. paniculata (Blake) Cronq. (FP)
(Stephens 44729; KANU)
A. pratensis Pursh. var. nebras- kens (Brtt.) Wieg. (M)
A. simplex Willd. var. ramosissimus (T. et G.) Cronq. (M)

Helianthus annuus L. (DG)
B. comosa (Gray) Wieg. (M)
B. frondosa L. (M)
B. vulgaris Greene (M)
Carduus nutans L. (DG; I)

Chrysanthemum leucanthemum L. (DG; I)
Heliopsis helianthoides (L.) Sweet. var. scabra
(Cronq. (M)
Dun. var. squarrosa (TBP)
Haplopappus spinulosus (Pursh)

Syngonium pinnatifolium

H. maximiliana Schrad. (FP)
H. petiolaris Nutt. (SP, FF)
H. rigidus (Cass) Desf. ssp.
rigidus (SP, FF)
H. tuberosus L. (FP)

Helianthus annuus L. (DG)
B. comosa (Gray) Wieg. (M)
B. frondosa L. (M)
B. vulgaris Greene (M)
Carduus nutans L. (DG; I)
Chrysanthemum leucanthemum L. (DG; I)
Heliopsis helianthoides (L.) Sweet. var. scabra
(Cronq. (M)
Dun. var. squarrosa (TBP)
Haplopappus spinulosus (Pursh)

Helianthus annuus L. (DG)
B. comosa (Gray) Wieg. (M)
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Carduus nutans L. (DG; I)

Chrysanthemum leucanthemum L. (DG; I)
Heliopsis helianthoides (L.) Sweet. var. scabra
(Cronq. (M)
Dun. var. squarrosa (TBP)
Haplopappus spinulosus (Pursh)
L. oblongifolia Nutt. (EDP)
  (L. pulchella)
L. serriola L. (FF; I)
  (L. scariola)
Liatris aspera Michx. (TBP)
L. glabra Rydb. (SP)
L. pycnostachya Michx. (FP)
Lygodium junceum (Pursh) D.
  Don. (SP)
Matricaria matricarioides (Less)
  Porter. (DG)
  Ratibida columnifera (Nutt.) Woot. Taraxacum officinale Weber (DG; I)
et Standl. (SP, FP)
  R. pinnata (Vent.) Barnh. (FP)
  Rudbeckia hirta L. (MW-FP)
  R. laciniata L. (M-FF)
  Senecio plattensis Nutt. (SP, TBP) Vernonia baldwinii Torr. var. interior
  Silphium integrifolium Michx. (FP)
  (Small) Schub. (TBP)
S. laciniatum L. (FP)
S. perfoliatum L. (FP)
Solidago canadensis L. var.
  hargeri Fern. (TBP, EDF)
S. canadensis L. var. scabra T.
et G. (MW-FF) (S. altissima)
  S. gigantea Ait. var. serotina (O.
  Kitze.) Cronq. (FP)
  S. graminifolia (L.) Salisb. var.
gymnospermodes (Greene) Croat (SP)
  S. missouriensis Nutt. (SP, TBP)
  S. rigida L. var. rigida
  (SP, TBP)
  S. rigida L. var. humilis
  Porter (SP)
  Taraxacum officinale Weber (DG; I)
  Thelesperma filifolium (Hook.)
  Gray var. intermedium (Rydb.)
  Shinners (SP)
  Tragopogon dubius Scop. (DG; I)
  Vernonia baldwinii Torr. var. interior
  (Small) Schub. (TBP)
  Stephens 44729; KANU)
  V. fasciculata Michx. var.
  fasciculata (FP, DG)
  Xanthium strumarium L. (DG, R; I)