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Transactions of the Nebraska Academy of Sciences and Affiliated Societies. 189.
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THE VASCULAR FLORA AND PLANT COMMUNITIES OF SEWARD COUNTY, NEBRASKA

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A recent botanical survey of Seward County in southeastern Nebraska recognizes ten representative plant communities including four major vegetation zones (tall-grass prairie, eastern deciduous forest, floodplain woodland and lowland [floodplain] prairie), and a total of 599 species of vascular plants representing 324 genera in 95 families. Three hundred seventy-five species were not previously reported for the county. Although the study area includes an interesting topographic and perhaps physiographic boundary formed by the terminal moraine of the Kansan glaciation, no evidence supporting an analogous floristic boundary was found.

† † †

INTRODUCTION

The foremost objective of this study was to compile as complete a list as possible of all species of seed-bearing plants and ferns, native and introduced, that were not under cultivation within Seward County, Nebraska, and to document these with voucher specimens. In addition, the habitat of each species was observed and recorded, with information about habit, provenance, and frequency of occurrence, to gain a better understanding of the distribution of each plant in its environment and of the overall character of the flora. From this information, the plant communities or species associations occurring in the county were described. Furthermore, it is hoped that the study will provide incentive for further floristic and ecological studies in this area.

This is the first published botanical survey of a southeastern Nebraska county, and only the third published county flora survey for the state, the others being that of Urbatsch and Eddy (1973) for Dawes County in northwestern Nebraska, and Churchill (1977) for Cuming County in northeastern Nebraska. My study was conducted over the flowering seasons of 1983–1988. About 100 sites throughout the county, representing all

possible vegetation zones, were studied, and a dozen were sampled throughout the growing season. In addition, surveys of the herbaria of the University of Nebraska–Lincoln (*NEB*); Concordia Teachers College, Seward; and the Seward Senior High School were undertaken, and information from several collections at the herbarium of the University of Kansas (*KANU*), Lawrence, is included. A total of 599 species and 12 subspecies or varieties, representing 324 genera in 95 families, is reported, along with four plants new to the State (*Arabidopsis thaliana*, *Fumaria vaillantii*, *Leonurus sibiricus*, and *Potentilla argentea*). Several rare species and noteworthy range extensions are reported, including *Acorus calamus*, *Agrimonia pubescens*, *Carya cordiformis*, *Cassia marilandica*, *Clematis terniflora*, *Cryptotaenia canadensis*, *Delphinium tricornis*, *Echinodorus rostratus*, *Elymus virginicus* var. *glabriflorus*, *Erechtites hieracifolia*, *Habenaria leucophaea*, *Haplopappus ciliatus*, *Leonurus marrubiastrum*, *Lespedeza cuneata*, *Mentha spicata*, *Penstemon cobaea*, *Pilea fontana*, and *Rorippa austriaca*. Many of these are accounted for in detail in Sutherland and Kaul (1986), Rolfsmeier et al. (1987), and Rolfsmeier et al. (1988). All voucher specimens from this study are deposited at the University of Nebraska–Lincoln Herbarium (*NEB*) unless otherwise noted.

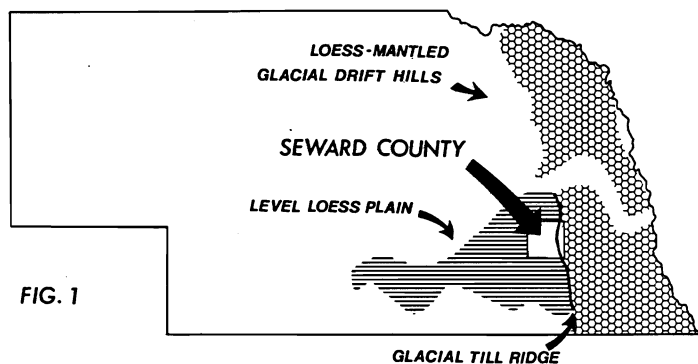
The earliest known botanical records from Seward County are several collections now in *NEB* made by Samuel Aughey in the fall of 1873; two (*Agalinis aspera* and *Mirabilis* cf. *albida*) have never been recollected in the county. The earliest published record of plants in the county was that of H. J. Webber (1890), which indicated 22 species based on Aughey's specimens and his own collections. N. F. Petersen (1923) noted 12 species, including four not published by Webber, based on material in *NEB* at that time. The flora was sporadically collected for the next 65 years, the most active collectors being, chronologically,

W. Tolstead, W. Kiener, R. J. Lemaire, R. Koch, and S. Churchill. Two hundred thirty-six species, including most of those cited by Webber and Petersen, were mapped for the county in Great Plains Flora Association (1977), representing the most complete record of vascular plants available prior to this study.

LOCATION AND SIZE

Seward County is in southeastern Nebraska, in the third tier of counties north of the Kansas border, and in the third tier west of the Missouri River (Fig. 1). It is bordered on the south by Saline County, on the west by York County, by Butler County to the north, and by Lancaster County to the east. The county is approximately 38.6 km (24 miles) square, with a total area of 148,262 ha (366,080 acres) (Quandt, 1974).

Physiographically, the county is situated in the vast "Interior Plains" of central North America at the transition between the Central Lowlands of the east and the Great Plains, this vaguely-defined boundary being formed in part by the Big Blue River (Fenneman, 1931).



GEOLOGY AND SOILS

The uppermost bedrock in Seward County consists of rocks of the Cretaceous Age underlain by limestone and shale of the Permian and Pennsylvanian. Bedrock of the early Cretaceous consists of interbedded shales and sandstone of the Dakota group, which underly the entire county. In the northwestern and south central portions, the Dakota is immediately overlain by rocks of the later Cretaceous, namely Graneros Shale and Greenhorn Limestone, which are in turn overlain by Carlisle Shale to a lesser extent. Large valleys were apparently formed through erosion prior to the Ice Age, resulting in a rolling topography of large hills in which the upper Cretaceous bedrock is found. These features, however, have scarcely affected the present terrain of the county (Goll, 1961).

The advent of continental glaciers during the Pleistocene Epoch had a much more profound effect upon Seward County's present topography. The east-central portion of the county was covered by the earliest (Nebraskan) glaciation, and the entire county was covered by the maximum advance of the succeeding glaciation (Kansan). The final advance of the Kansan covered the eastern one-fifth of the county and resulted in formation of drift hills in this area. The terrain from this portion of the county west to the Blue River consists of glacial till overlain by Loveland loams and Peoria loess. West of the Blue River, the material above the bedrock is primarily glacial outwash (Pleistocene sand and gravel), also covered by loam and loess. The exact sequence of sedimentary deposition during the melting of the glaciers, which is quite complicated and not fully understood, is hypothesized by Goll (1961) and Wayne (1981).

Six major soil associations are recognized in the county, coinciding approximately with the major vegetation zones: Pawnee-Sharpsburg and Burchard-Steinauer soils (silt and loam, mantled by loess and glacial till) are associated with upland tall-grass prairie and oak woodland in the extreme eastern portion; Hastings-Wymore (silty soil covered by loess) occurs in the moderately rolling prairie between the glacial moraine and the Blue River; Hastings-Fillmore-Butler (silty, loess-mantled soil) is found in the high, nearly level plain in the western half; and Hastings-Geary and Hobbs-Hall silty soils comprise most of the river and creek bottoms and floodplains (Quandt, 1974).

TOPOGRAPHY AND DRAINAGE

The highest elevation in Seward County is 445 m near the northwest corner of the county; the lowest is 378 m along the south branch of Middle Creek northeast of Pleasant Dale, giving a total relief of 67 m. The landscape slopes generally to the southeast, the uplands consisting of somewhat steep to moderately rolling drift hills in the east, and high, nearly level loess plains in the west half of the county (Fig. 1 [adapted after Dreeszen, 1973]). Lowlands, consisting of bottomlands and stream terraces associated with floodplain of the Blue River and its tributaries, separate the two landscape types, and are also interspersed throughout the uplands elsewhere in the county.

The glacial till ridge in the eastern part of the county is the major stream divide. Streams west of this divide flow eastward and southward into the Blue River; those to the east continue eastward, eventually draining into Salt Creek in Lancaster County; and those between the moraine and the Blue River flow to the south and west (Fig. 2). Most of the county is well drained, except portions of the level loess plains in the west-central part, where several large seasonal marshes and basins are found. Two large, natural rainwater basins are north of Utica; these appear to have been formed by wind erosion during the late Pleistocene or more recently (Goll, 1961).

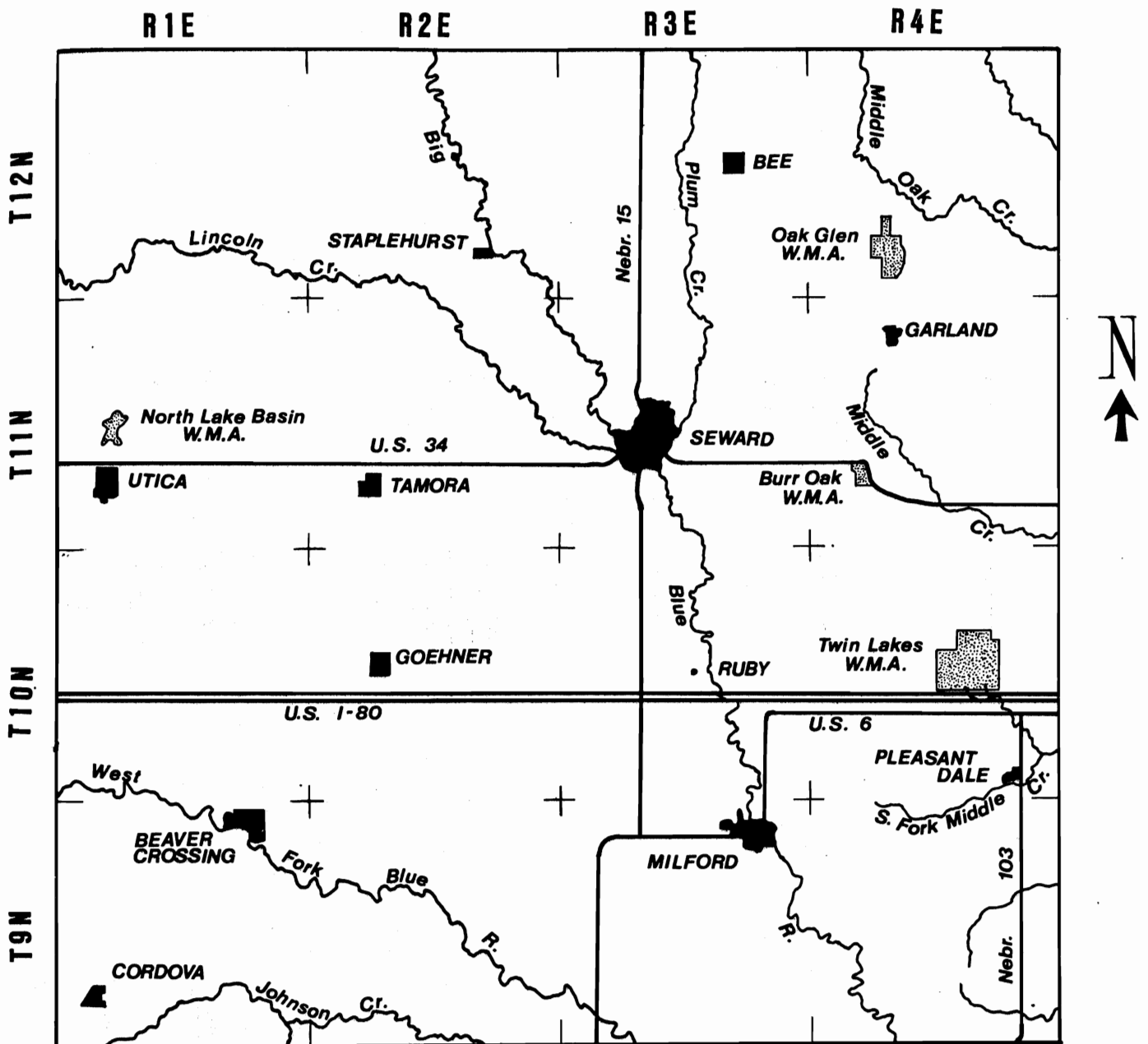


FIG. 2 POLITICAL MAP OF SEWARD COUNTY, NEBR.
WITH FREQUENTED COLLECTING SITES

CLIMATE

Seward County, and Nebraska as a whole, are typified as having a continental climate, characterized by warm summers punctuated by intermittent thundershowers, and cold, dry winters (U.S. Department of Commerce, 1963). The long-term mean temperature reported for Seward from 1891 to 1960 was 11.1° C, and the mean annual precipitation for this same period was 68.20 cm (Goll, 1961). Table I provides average monthly temperatures and precipitation totals for Seward.

The average dates of the last 0-degree frost in Spring and the first in Fall are 30 April and 12 October, giving a frost-free growing season of 164 days.

TABLE I. Mean monthly temperature and precipitation at Seward, 1934–1980*

	Temperature (°C)	Precipitation (cm)
January	– 5.4	1.75
February	– 2.3	2.26
March	3.5	4.11
April	11.1	6.50
May	16.9	9.45
June	22.4	11.20
July	25.6	7.75
August	24.2	8.41
September	18.9	7.24
October	12.9	4.57
November	4.0	2.74
December	– 2.1	1.85
Annual mean	10.8	67.84

*Compiled from climatological summaries (U.S. Dept. of Commerce, 1963 and 1980)

PLANT COMMUNITIES

The native plant communities of Seward County can be divided into three broad categories: wetlands, prairie, and woodlands. Each of these vegetation zones has a considerable amount of species diversity influenced by such factors as slope, drainage, soil type, water level, and degree of disturbance. This variability is taken into account by delineating these vegetational types into more specific, workable associations based on species composition. Since many species occur along gradual environmental gradients, the boundaries of these habitat associations are not always well-defined (particularly in the wetlands category), and a single species may be common in several communities.

Ten representative plant communities are described here, based upon dominant species and other associated plants. These

include four major “vegetation zones” (tall-grass prairie, floodplain prairie/meadow, eastern deciduous forest, and floodplain woodland) that once covered major portions of the county, as indicated by the vegetation map (Fig. 3). These zones generally coincide with those indicated by the vegetation map of Nebraska (Kaul, 1975).

Wetland communities

Aquatic community

The aquatic habitat includes vegetation of standing water that remains throughout the growing season, such as lakes and ponds, and consists of rooted or free-floating, submersed and floating-leaved plants. The most common are the submersed, rooted plants, such as pondweeds (*Najas guadalupensis*, *Potamogeton foliosus*, *P. nodosus*, *P. pectinatus*, *P. pusillus*, and *Zannichellia palustris*) and the submersed, free-floating *Ceratophyllum demersum*. Free-floating, non-submersed plants such as the duckweeds (*Lemna minor*, *L. perpusilla*, *Spirodela polyrhiza*, and *Wolffia columbiana*) are often abundant, particularly in still water of quiet bays. In addition, some normally emergent plants may grow submersed, where they remain sterile; *Echinodorus rostratus*, which produces linear submersed leaves and large, heart-shaped floating leaves in deep water, is a good example of this.

Seepage community

The seepage area is permanent wetland associated with spring beds or ponds in wooded areas or prairie ravines. It is characterized by saturated, springy soil and cold, clear, often running water. Several aquatic species, particularly *Lemna minor* and *Potamogeton foliosus*, may be present here, along with several hydrophytic herbs that are unique to this community in the county, such as *Cyperus strigosus*, *Glyceria striata*, *Pilea fontana*, and *Veronica catenata*. A number of plants that are encountered occasionally along the margins of ponds and marshes may occur more commonly in the seepage habitat: *Carex stipata*, *Cicuta maculata*, *Epilobium coloratum*, *Equisetum arvense*, *Lobelia siphilitica*, *Lysimachia ciliata*, *Mimulus ringens*, *Penthorum sedoides*, and *Sagittaria latifolia*.

Marsh/riparian community

This habitat consists of seasonally flooded streambanks, temporary ponds, and somewhat saturated flatlands that contain standing water for part of the growing season. This is a rather broad designation that could perhaps be better treated as separate associations based on more specific vegetational and hydrologic characteristics; however, it is treated here as a single entity because of a general similarity in overall species composition.

The array of species is highly dependent on the water level and frequency of flooding, and different dominant species may form distinct zones representing various degrees of succession, the species makeup of each being determined by underlying

environmental conditions (Mitsch and Gosselink, 1986). A few aquatic plants are likely to occur in marshes that remain saturated through much of the growing season, but emergent hydrophytes are the most common constituents of this community.

Freshly-exposed mud at the edge of ponds and shallow marshes often abounds with annual emergents. The most common are *Alopecurus carolinianus*, *Ammannia coccinea*, *Bidens cernua*, *Cyperus erythrorhizos*, *C. odoratus*, *Eleocharis obtusa*, *Lindernia dubia*, *Myosurus minimus*, *Ranunculus sceleratus*, and *Sagittaria calycina*. Perennial emergent herbs may also be found here, but are more common in shallow water or on less freshly-exposed mud farther from the shore. This group is dominated by a number of monocot species, including *Agrostis hyemalis*, *Alisma triviale*, *Eleocharis erythropoda*, *E. macrostachya*, *Leersia oryzoides*, *Sagittaria brevirostra*, *S. latifolia*, *Scirpus validus*, *S. pallidus*, and *Sparganium eurycarpum*. A number of dicot herbs are often scattered through this zone as well, such as *Asclepias incarnata*, *Lycopus americanus*, *Mentha arvensis*, *Polygonum hydropiper*, *P. amphibium*, *P. lapathifolium*, *P. punctatum*, *Rorippa palustris*, *Rumex stenophyllus*, *Scutellaria lateriflora*, and others.

Areas along marshes and particularly shorelines that have been free of substantial flooding for several years are likely to be invaded by aggressive perennial species that push out competitors almost completely. The most common are *Phalaris arundinacea*, *Typha angustifolia*, *T. latifolia*, and *Salix exigua*. *Lythrum salicaria*, a very aggressive, recently-introduced wetland invader that is becoming a major weed in some parts of the state, is known from just outside the county at Branched Oak Lake in northwestern Lancaster County (Sutherland and Kaul, 1986), but has not yet been found in Seward County.

Prairie communities

Tall-grass prairie community

The tall-grass prairie is an upland community dominated by the warm-season grass *Andropogon gerardii*, which in drier uplands and hilltops may be occasionally codominant with *Andropogon scoparius* or *Sporobolus heterolepis*. Other major grasses in this community include *Agropyron smithii*, *Bouteloua curtipendula*, *Dichanthelium oligosanthes*, *Elymus canadensis*, *Koeleria pyramidata*, *Panicum virgatum*, *Sorghastrum nutans*, and *Stipa spartea*. Other grass-like plants (sedges and rushes) which are sometimes common in the prairie include *Carex brevior*, *C. graviora*, *C. meadii*, and *Juncus interior*. *Equisetum laevigatum*, which may appear grass-like, is the only pteridophyte common to prairies in the county.

Other species associated with tall-grass prairie in the county include a number of important leguminous plants, the most common of which are *Amorpha canescens*, *Dalea candida*, *D. purpurea*, *Desmodium illinoense*, *Lespedeza capitata*, *Psoralea argophylla*, and *P. tenuiflora*.

Forb species from a variety of families occur throughout the year in the tall-grass prairie, and the major forb constituents appear to vary throughout the growing season. In the spring (late March through May), *Antennaria neglecta*, *Astragalus crassicarpus*, *Comandra umbellata*, *Lithospermum incisum*, *Lomatium foeniculaceum*, *Oxalis violacea*, *Senecio plattensis*, *Sisyrinchium campestre*, and *Viola pedatifida* may be commonly found in flower in various upland prairies in the county. In early to mid-summer (June–July), most of the aforementioned legume species may be found in full bloom, along with a variety of other forbs such as *Allium canadense*, *Asclepias viridiflora*, *Astragalus canadensis*, *Cacalia plantaginea*, *Calystegia macounii*, *Delphinium virescens*, *Echinacea angustifolia*, *Erigeron strigosus*, *Lactuca ludoviciana*, *Linum sulcatum*, *Penstemon grandiflorus*, *Physalis heterophylla*, *P. virginiana*, *Potentilla arguta*, and *Rudbeckia hirta*. Late summer and fall forbs (those that may begin to flower in July, but reach a flowering peak in August and September) are predominately composites. Goldenrods are usually the most common wildflowers in the tall-grass prairie uplands of Seward County at this time of the year; the most common species are *Solidago canadensis*, *S. gigantea*, *S. missouriensis*, *S. rigida*, and *S. speciosa*. Other common composite species include *Ambrosia psilostachya*, *Artemisia ludoviciana*, *Aster ericoides*, *Cirsium flodmanii*, *Helianthus rigidus*, *Heliopsis helianthoides*, *Hieracium longipilum*, *Kuhnia eupatorioides*, and *Liatris punctata*. Non-composite forbs are not as floriferous at this time of the year, but *Salvia azurea* is commonly found. Others, such as *Desmodium canadense*, *Gaura longiflora*, *Gentiana puberulenta*, and *Lotus purshianus*, may be locally common.

In addition to herbaceous forbs, several woody species may be found in the prairie, particularly when a site has been free of fire for a number of years. *Juniperus virginiana* is the only native tree found commonly in many prairies, particularly in areas where grazing is frequent. *Rhus glabra* is usually the most common shrub, often forming a broad transition zone between prairie and adjacent woodlands. *Symphoricarpos occidentalis* and *S. orbiculatus* are other common constituents of this zone of shrubby plants. Several shrub-like plants are also found in the prairie proper — *Amorpha canescens*, *Ceanothus herbaceus*, and *Rosa arkansana* — though they rarely attain the size of their transition zone counterparts. *Toxicodendron radicans* is an example of a woody vine found in prairies bordering woodlands, but it occasionally assumes a more upright habit in this community.

Disturbed areas in prairies, such as gopher mounds, exposed ridgetops, and cowpaths, tend to have a flora somewhat distinct from their surroundings, and form a somewhat separate community within this habitat. Annual and biennial “fugitive species” make up the bulk of this vegetation, which includes more-or-less weedy species such as *Cassia chamaecrista*, *Conyza canadensis*, *Euphorbia dentata*, *E. maculata*, *E. nutans*, *Lepidium*

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Woody vines are best represented in the oak woodland community and occasionally make up the greater part of the ground cover. *Parthenocissus vitacea* is particularly abundant, along with *Celastrus scandens*, *Menispermum canadense*, *Smilax hispida*, and *Toxicodendron radicans*.

Grasses and sedges are not major components of the woodland floor vegetation. *Carex cf. aggregata*, *C. amphibola*, *C. blanda*, *Elymus villosus*, *Festuca obtusa*, and *Muhlenbergia mexicana* are a few of the more common of this group, but none is ever found in particular abundance.

The forb flora of the eastern deciduous forest, on the other hand, is quite rich and diverse. In the early spring, *Dicentra cucullaria* and *Erythronium albidum* occasionally form an extensive ground cover on deep woodland slopes. *Arisaema triphyllum*, *Osmorhiza longistylis*, *Polygonatum biflorum*, *Smilacina stellata*, and *Viola sororia* are other frequently-found constituents of the spring woodland flora. Late spring to early summer brings a peak in flowering plants in the oak woodland. Along with most of the shrubs and vines, a number of herbaceous species, including *Botrychium virginianum*, *Cryptotaenia canadensis*, *Desmodium glutinosum*, *Galium circaezans*, *Phryma leptostachya*, *Sanicula canadensis*, *S. gregaria*, *Silene stellata*, *Smilax herbacea*, *Teucrium canadense* var. *canadense*, *Thalictrum dasycarpum* and *Triosteum perfoliatum* may be found in flower at this time. In the late summer and fall, the understory flora becomes relatively sparse, with a few sturdy herbaceous forbs such as *Agastache nepetoides*, *Agrimonia pubescens*, *Campanula americana*, *Laportea canadensis*, *Scrophularia marilandica* and *Verbesina alternifolia* present, along with more delicate annuals such as *Acalypha rhomboidea*, *Amphicarpaea bracteata*, and *Chenopodium standleyanum*.

Floodplain forest community

Floodplain woodlands occur in poorly drained lowlands along streams and creeks throughout the county, and are subject to seasonal flooding. The dominant trees in this community include *Acer negundo*, *Acer saccharinum*, *Celtis occidentalis*, *Fraxinus pennsylvanica*; occasional stands of *Gleditsia triacanthos*, *Juglans nigra*, *Ulmus americana*, and the introduced *Morus alba* are also present. In particularly low, disturbed places closer to the water's edge, *Populus deltoides*, *Salix amygdaloides*, and *S. exigua* may be common or even dominant. Other typical woody vegetation includes shrubby plants such as *Euonymus atropurpureus*, *Prunus virginiana*, *Ribes missouriense*, and *Sambucus canadensis*, along with vines such as *Parthenocissus vitacea* and *Vitis riparia*.

Grasses and sedges are far better represented in this community than in the previous one. In some floodplain forests, *Leersia virginica* forms a thick and extensive ground cover. Other frequent species include *Carex amphibola*, *C. blanda*, *C. davisii*, *Cinna arundinacea*, *Elymus virginicus* var. *virginicus*, *Muhlenbergia bushii*, *Muhlenbergia frondosa*, and *Muhlenbergia racemosa*.

As floodplain forests are characterized by a great degree of disturbance, much of the understory forb flora is typified by weedy annual and biennial species of shaded places, such as *Acalypha rhomboidea*, *A. virginica*, *Chenopodium gigantospermum*, *Hackelia virginiana*, *Pilea pumila*, *Ranunculus abortivus*, and *Sicyos angulatus*. Perennial, non-weedy herbs are well-represented in this community too, and include *Eupatorium rugosum*, *Leonurus cardiaca*, *Rudbeckia laciniata*, *Teucrium canadense* var. *canadense*, *Verbena urticifolia* and *Viola pratincola*. *Urtica dioica* is a very aggressive weedy perennial that often forms large colonies in this habitat.

The floras of the floodplain and eastern deciduous forests frequently intergrade. Patches of oak often occur on high bluffs above floodplain woodland along the Blue River and its west fork, particularly in sites associated with glacial till. In other better-drained riparian woodlands, oak and hickory may be absent, yet many of the oak understory components are present. Additionally, the bottomlands of oak woodland often contain a flora typical of less-disturbed riparian woodlands. If a particular plant is found frequently in both habitats, it is included in oak forest (OF) in Table II if it is most frequently encountered on upland banks or slopes, or in floodplain forest (FF) if it is usually found in more mesic bottoms.

“Man-made” habitats (disturbed ground)

“Disturbed ground” includes all areas in which the ground cover has been primarily affected by human activity. This is an extremely broad designation including roadside ditches, lawns, gardens, abandoned fields, feedlots, pastures, overgrazed rangeland, thickets, shelterbelts, waste areas, and the like.

Many plants typical of prairie habitats occur commonly in these areas, particularly in roadside ditches that bordered prairies at one time. In many cases, the adjacent prairie may have been destroyed or become overgrazed, and these ditches are the only clue as to what the native vegetation in the area was like. In cases such as this, a species occurring in a relatively undisturbed roadside ditch is recorded as a member of the natural habitat from which it originated. All other species of disturbed places are designated by “DG” in the annotated list.

The ground cover of most disturbed habitats is typically seeded grasses such as *Agropyron intermedium* or *Bromus inermis* and/or a bevy of native and introduced, annual and perennial grasses and “weeds.” The range of vegetation types and species common to each type of disturbance is extensive and therefore, aside from the following category, no attempt has been made to provide more than a general description of this community, which presently characterizes the vast majority of the land in Seward County.

Prairie restorations

Three small (several-hectare) prairie re-seedings are known in the county (SE ¼ S34, T11N R3E; NW ¼ S8, T10N R4E; and NW ¼ S22, T10N R4E). The first two are on private land and are approximately 30 years old. The forb flora of the two is very similar, and has spread to a limited degree outside the bounds of these restorations. The third is at the Twin Lakes Wildlife Management Area and is apparently younger, with a more limited array of forb species.

Some species known infrequently elsewhere in the county, such as *Desmodium canadense*, *Lotus purshianus*, and *Rudbeckia hirta*, are common in some of the restorations. Other species are found here that are native to the Great Plains, but are not known to occur naturally in the county. *Baptisia lactea*, *Eryngium yuccifolium*, *Helianthus mollis*, *Liatris pycnostachya*, and *Penstemon digitalis* and are among the most conspicuous examples. The two older restorations appear to be wildflower-rich native prairie remnants upon first glance, but a closer examination reveals large populations of cultivated legumes such as *Lotus corniculatus* and *Trifolium pratense*. Nevertheless, because the species of these tracts are likely to persist and even spread, and could be mistaken for relicts by those not familiar with the flora of the county, they are afforded a separate category here.

ASSESSING THE VEGETATION

Because no botanical records have been kept for Seward County, the original flora is not easily determined. A few old collections have given a very sketchy picture of what flora was here before the advent of European settlers, but the record is far from complete. The vegetation map (Fig. 3, page 111) is an attempt to present the flora of the county as it was prior to the arrival of the early settlers, and is based on the remaining natural flora and on accounts by the early surveyors from about 1850 (on microfilm at the Nebraska State Historical Society). The modern flora of this map differs from the original flora in that the zone of floodplain woodland was probably less extensive and the oak woodlands were probably more widespread. The surveyors' reports indicate that certain stretches of the Blue River and its tributaries were at one time virtually treeless. Most of this area is bordered by floodplain woodland today, due no doubt to the absence of prairie fires in recent times. A large amount of lumbering apparently occurred in the oak woodlands in the county, particularly those near Garland, from which firewood was taken for use at the salt works in Lincoln one hundred years ago (Olney, 1887). Despite this, much of the original woodland remains intact, though the ratio of oak to hickory is presently much greater than the 3:1 suggested by Weaver (1965) for typical, undisturbed oak-hickory woodlands. A small area of uncut gallery forest is known from S28, T12N R4E. Several old-growth hickories are found nearby.

As noted earlier, the vast majority of the native vegetation in Seward County, particularly the prairies, has disappeared as a result of agriculture. The Nebraska Conservation Needs Committee (1969) reported 14,859 ha, or about 10% of the county, was in native grass (rangeland) in 1967, but over 12,000 of these were noted as having a plant composition "in need of improvement." Only about 12% of the native grassland in the county was reported as undisturbed or grazed in accordance with good range management practices. The inventory also reported 2436 ha (ca 1.6% of the county) in woodland, about a third of which was grazed. All in all, representative stands of native vegetation in Seward County, as in much of southeastern Nebraska, are few and far between.

The majority of the remaining native stands of grassland and oak forest in the county are located in the loess hills east of the glacial moraine, where the topography often makes farming unsuitable. Virtually all native prairie in the relatively flat loess plain west of the Blue River has been annihilated. Consequently, most of the habitat descriptions and the species list in this paper are compiled from collections of the eastern half of the county.

Though few data are available for the western half of Seward County, it is assumed that the prairie that existed there was not appreciably different in species composition from the prairie remnants in the eastern part. A small prairie remnant in S17, T11N R2E is being studied, and so far no species that are unknown in the eastern half of the county have been found. Because few suitable relicts have been located west of the Blue River, no indices of similarity have yet been calculated to compare the flora of these two halves, though sampling is currently being carried out in several prairies in hope of resolving this problem. Edaphic differences may be responsible for a few differences observed in the flora of the two halves, such as the presence of (*Buchloë dactyloides*), a species of western phytogeographic affinity, in only the west half of the county, where it is apparently native and was probably quite extensive at one time. Two prairie remnants just over the county line in southeastern York County have a forb composition similar to that of several prairies in eastern Seward County.

The wetland flora of the western half of county, on the other hand, is far better represented than in the county as a whole. Collections from marshes and other wetlands throughout the county indicate a stronger separation between east and west than is evident in the prairie flora, though this may be due to topographic rather than biogeographic factors.

East of the Blue River, the wetland flora is basically riparian, and its components are those described in the marsh/riparian section of this paper. Most of these plants are also present in two marshes studied near Goehner and Utica, in addition to a number of species not present in the eastern wetlands. This may be due to the fact that extensive marshland is found only in the most poorly drained parts of the county (i.e., in the western half), and many wetland habitats in the eastern half are man-made and

relatively young. The additional species in the western half include *Bacopa rotundifolia*, *Elatine triandra*, *Eleocharis acicularis*, *Heteranthera limosa*, *Marsilea vestita*, *Sagittaria graminea*, *Stachys palustris*, and *Teucrium canadense* var. *boreale*. Additionally, several collections made from the Utica site in the early 1950's document that *Sagittaria rigida* and *Utricularia vulgaris* were once components of this flora. Despite this, there is no conclusive evidence that supports a natural west-east phytogeographic separation of the wetland flora, even though some of these species (*Marsilea vestita*, *Sagittaria graminea*) appear nearly restricted in range in Nebraska to marshes of the loess plain region.

Lacking substantial specimen evidence for the west half of the county, it is difficult to determine whether a floristic boundary exists that is analogous to the physiographic boundary proposed by Fenneman (1931), but it is likely that there is not. It is not difficult, however, to assess the future of native vegetation tracts in Seward County. Several sites have been destroyed since the beginning of this study, and others continue to lose species due to poor management. The county's spraying program has caused some roadside prairie refugia to disappear. Attempts have been made to preserve some habitats; the State Game and Parks Commission has purchased a large tract of oak woodland north of Garland and a portion of the Utica rainwater basins within the last five years (Fig. 2). Despite these efforts, the native flora is disappearing. It is hoped that this paper will serve as a record of the vegetation of Seward County as it once existed, and will assist in future studies of the changes in the vegetation zones of this area and their components.

THE VASCULAR FLORA OF SEWARD COUNTY, NEBRASKA

The following list (Table II) contains all species of vascular plants occurring in Seward County, except for cultivated species that do not escape or reproduce significantly in the wild. Plants are arranged alphabetically by family and species, and are grouped according to division. Nomenclature conforms to Great Plains Flora Association (1986), referred to as "*Flora GP*" from here on. Subspecies and varieties are included where these entities are considered distinct by the author.

Along with the species name, information concerning collection status, habit, provenance, flowering phenology, habitats, and abundance within the habitat is included. To conserve space, a series of symbols has been employed for each of these categories. Categories and their symbols are explained below:

Name

When available, common names are included after the Latin name for each species in the list, and are taken from the Great Plains Flora Association (1977) [*"Atlas"*], *Flora GP*, and other regional keys. If a plant in the list appears under a different name than that given in the *Atlas*, the *Atlas* synonym is provided in parentheses.

Collection Status (S)

- 1 Species reported for Seward County in the *Atlas* and re-collected by the author.
- 2 Species not reported for Seward County, but collected by author and specimen deposited at *NEB*.
- 3 Species reported in the *Atlas*, not recollected by author.
- 4 Species not reported for Seward County in the *Atlas*, or reported under an erroneous name, collected by someone other than the author.

Habit (H)

- | | |
|------------------|--------------|
| A Annual herb | T Tree |
| B Biennial herb | S Shrub |
| P Perennial herb | V Woody Vine |

Provenance (P)

- | | |
|----------|--------------|
| N Native | I Introduced |
|----------|--------------|

Flowering phenology (Fl)

This is represented by two numbers, indicating months in which the plant begins to flower (or bear reproductive structures in the case of non-flowering plants) and ends flowering. The months of February through September are represented by the numerals 2-9; October is "0" and November "1", hence "71" is interpreted as "plant flowering July through November." Anthesis data is from the *Flora GP* and other regional floras, and is modified, when possible, to fit local field observations.

Habitat (Hbtat)

- | | |
|-----------------------|-----------------------------------|
| AQ Aquatic | FM Floodplain Prairie and Meadow |
| SA Seepage Area | OF Eastern Deciduous (Oak) Forest |
| MR Marsh/Riparian | FF Floodplain Forest |
| TP Tall-grass Prairie | DG Disturbed Ground |
| SP Sandy Prairie | PR Prairie Restoration |

Abundance (ab)

This follows the primary habitat designation in the list, and indicates the frequency of occurrence for this plant in this particular habitat.

- c Common, relatively abundant in most of the appropriate sites in the county.
- o Occasional, may be locally common in some sites, but not all sites in the county.
- i Infrequent, known to occur sporadically at a few sites in the county, or rarely encountered in the study but possibly more widespread and overlooked.
- r Rare, known only from one or two stations in the county and likely not much more widespread.

Other habitats in which a plant is frequently found are included after the primary habitat in the list. If habitat data was not provided for a plant of status 3 or 4, the most likely habitat is given, followed by a question mark.

TABLE II. Vascular flora of Seward County, Nebraska

	S	H	Pr	Fl	Hbtat/ab		S	H	Pr	Fl	Hbtat/ab
DIVISION SPHENOPHYTA											
EQUISETACEAE (Horsetail Family)											
<i>Equisetum arvense</i> L., field horsetail	1	P	N	4	SAo, MR						
<i>Equisetum hyemale</i> L., common scouring rush	2	P	N	40	MRi						
<i>Equisetum laevigatum</i> A. Br., smooth scouring rush	2	P	N	58	TPc, FM, DG						
DIVISION PTERIDOPHYTA											
MARSILEACEAE (Pepperwort Family)											
<i>Marsilea vestita</i> Hook. & Grev., western water clover	2	P	N	80	MRr						
OPHIOGLOSSACEAE (Adders's-tongue Family)											
<i>Botrychium virginianum</i> (L.) Sw., rattlesnake fern	2	P	N	46	OFO						
POLYPODIACEAE (True Fern Family)											
<i>Cystopteris fragilis</i> (L.) Bernh., fragile fern	1	P	N	69	OFR						
SALVINIACEAE (Water Fern Family)											
<i>Azolla mexicana</i> Presl, mosquito fern	3	A	N	71	MRr						
DIVISION PINOPHYTA											
CUPRESSACEAE (Cypress Family)											
<i>Juniperus virginiana</i> L., eastern red cedar	2	T	N	45	TPo, DG						
DIVISION MAGNOLIOPHYTA											
ACERACEAE (Maple Family)											
<i>Acer negundo</i> L., box elder	2	T	N	45	FFc						
<i>Acer saccharinum</i> L., silver maple	1	T	N	24	FFo						
ALISMACEAE (Water-plantain Family)											
<i>Alisma</i> cf. <i>subcordatum</i> Raf., water plantain	3	P	N	69	MRr						
<i>Alisma triviale</i> Pursh, water plantain (<i>A. plantago-aquatica</i>)	2	P	N	69	MRo						
<i>Echinodorus rostratus</i> (Nutt.) Engelm., burhead	2	A	N	70	MRi						
<i>Sagittaria brevirostra</i> Mack. & Bush (<i>S. engelmanniana</i>), arrowhead	1	P	N	69	MRc						
<i>Sagittaria calycina</i> Engelm. (<i>S. montevidensis</i> , <i>misapplied</i>), arrowhead	1	A	N	50	MRo						
<i>Sagittaria graminea</i> Michx.	1	P	N	69	MRi						
<i>Sagittaria latifolia</i> Willd., arrowhead	2	P	N	69	SAo, MR						
<i>Sagittaria rigida</i> Pursh	3	P	N	69	MRr						
AMARANTHACEAE (Pigweed Family)											
<i>Amaranthus albus</i> L., tumbleweed	1	A	N	60	DGi						
<i>Amaranthus graecizans</i> L., prostrate pigweed	2	A	N	70	DGo						
<i>Amaranthus hybridus</i> L., slender pigweed	3	A	I	60	DGi						
<i>Amaranthus retroflexus</i> L., rough pigweed	2	A	N	70	DGc						
<i>Amaranthus rudis</i> Sauer, water hemp	1	A	N	60	DGc, MR						
ANACARDIACEAE (Cashew Family)											
<i>Rhus glabra</i> L., smooth sumac	2	S	N	56	TPo						
<i>Toxicodendron radicans</i> (L.) O. Ktze. ssp. <i>negundo</i> (Greene) Gillis, poison ivy	2	V	N	5	OFC, DG, TP						
<i>Toxicodendron rydbergii</i> (Small) Greene	2	S	N	56	TPi						
APIACEAE (Parsley Family)											
<i>Cicuta maculata</i> L., water hemlock	2	P	N	70	SAi						
<i>Conium maculatum</i> L., poison hemlock	2	B	I	57	DGo, OF						
<i>Cryptotaenia canadensis</i> (L.) DC., honewort	2	P	N	57	OFO						
<i>Daucus carota</i> L., wild carrot, Queen Anne's lace	2	B	I	58	DGi						
<i>Eryngium yuccifolium</i> Michx., button snakeroot	2	P	I	70	PRo						
<i>Lomatium foeniculaceum</i> (Nutt.) Coult. & Rose var. <i>daucifolium</i> (T. & G.) Cronq., wild parsley	2	P	N	35	TPo						
<i>Osmorhiza longistylis</i> (Torr.) DC. var. <i>longistylis</i> , anise root	2	P	N	46	OFR						
<i>Osmorhiza longistylis</i> (Torr.) DC. var. <i>villicaulis</i> Fern., anise root	2	P	N	46	OFO, FF						
<i>Pastinaca sativa</i> L., parsnip	2	B	I	57	DGi						
<i>Sanicula canadensis</i> L.	1	B	N	57	OFC, FF, DG						
<i>Sanicula gregaria</i> Bickn., black snakeroot	2	P	N	57	OFO						
APOCYNACEAE (Dogbane Family)											
<i>Apocynum cannabinum</i> L. (including <i>A. sibiricum</i>), hemp dogbane	2	P	N	68	DGc, FM, TP						
ARACEAE (Arum Family)											
<i>Acorus calamus</i> L., sweet flag, calamus	2	P	I	58	MRr						
<i>Arisaema triphyllum</i> (L.) Schott, Jack-in-the-pulpit	1	P	N	46	OFO						
ASCLEPIADACEAE (Milkweed Family)											
<i>Asclepias incarnata</i> L., swamp milkweed	1	P	N	69	FMo, MR						
<i>Asclepias lanuginosa</i> Nutt., woolly milkweed	2	P	N	57	TPr						
<i>Asclepias stenophylla</i> A. Gray, narrow-leaved milkweed	2	P	N	68	TPi						
<i>Asclepias sullivantii</i> Engelm., smooth milkweed	2	P	N	68	FMo, TP, DG						
<i>Asclepias syriaca</i> L., common milkweed	1	P	N	58	DCc, TP						
<i>Asclepias tuberosa</i> L. ssp. <i>interior</i> Woods., butterfly milkweed	1	P	N	68	TPi						
<i>Asclepias verticillata</i> L., whorled milkweed	2	P	N	68	TPc						
<i>Asclepias viridiflora</i> Raf., green milkweed	2	P	N	68	TPo						

TABLE II—(Continued from page 100)

	S	H	Pr	F1	Hbtat/ab		S	H	Pr	F1	Hbtat/ab
ASTERACEAE (Sunflower Family)											
<i>Achillea millefolium</i> L., yarrow	2	P	N	56	DGo, TP	<i>Coreopsis tinctoria</i> Nutt., plains coreopsis	1	A	N	69	DGo, MR
<i>Ambrosia artemisiifolia</i> L., common ragweed	1	A	N	70	DGc	<i>Dyssodia papposa</i> (Vent.) Hitche., fetid marigold	1	A	N	79	DGo
<i>Ambrosia psilostachya</i> DC., western ragweed	1	P	N	70	TPc	<i>Echinacea angustifolia</i> DC., purple coneflower	1	P	N	67	TPo
<i>Ambrosia trifida</i> L., giant ragweed	1	A	N	80	DGc	<i>Eclipta prostrata</i> (L.) L. (<i>E. alba</i>), yerba-de-tajo	2	A	N	80	MRi
<i>Antennaria neglecta</i> Greene, field pussytoes	1	P	N	35	TPo	<i>Erechtites hieracifolia</i> (L.) Raf. ex DC., burnweed	2	A	N	80	FMo, FF
<i>Arctium minus</i> , Bernh., burdock	2	B	I	79	DGo	<i>Erigeron annuus</i> (L.) Pers., annual fleabane	2	A	N	58	DGo, TP
<i>Artemisia dracunculus</i> L., silky wormwood	2	P	N	89	TPi	<i>Erigeron philadelphicus</i> L., Philadelphia fleabane	2	B	N	57	FMi
<i>Artemisia ludoviciana</i> Nutt. var. <i>ludoviciana</i> , white sage	1	P	N	80	TPc	<i>Erigeron strigosus</i> Muhl. ex Willd., daisy fleabane	2	A	N	58	TPc, DG
<i>Artemisia ludoviciana</i> Nutt. var. <i>mexicana</i> (Willd.) Fern., white sage	2	P	I?	80	TPi, PR	<i>Eupatorium altissimum</i> L., tall joe-pye-weed	2	P	N	89	DGi
<i>Aster ericoides</i> L., heath aster	1	P	N	90	TPc	<i>Eupatorium rugosum</i> Houtt., white snakeroot	1	P	N	79	FFc
<i>Aster hesperius</i> Gray, panicled aster	1	P	N	80	TPr	<i>Gnaphalium obtusifolium</i> L., fragrant cudweed	2	A	N	70	TPr, DG
<i>Aster oblongifolius</i> Nutt., aromatic aster	2	P	N	90	TPo	<i>Grindelia squarrosa</i> (Pursh) Dun. var. <i>squarrosa</i> , gumweed	1	B	N	70	DGo
<i>Aster sericeus</i> Vent., silky aster	2	P	N	90	TPi	<i>Haplopappus ciliatus</i> (Nutt.) DC., goldenweed	2	A	I?	80	DGr
<i>Aster simplex</i> Willd. var. <i>ramosissimus</i> (T. & G.) Cronq., panicled aster	1	P	N	80	TPi	<i>Helenum autumnale</i> L., sneezeweed	4	P	N	80	FM?
<i>Aster simplex</i> Willd. var. <i>simplex</i> , panicled aster	1	P	N	80	DGc, TP, FM	<i>Helianthus annuus</i> L., common sunflower	2	A	N	79	DGc
<i>Bidens cernua</i> L., nodding beggar-ticks	1	A	N	80	MRo, SA, FF	<i>Helianthus grosseserratus</i> Martens, sawtooth sunflower	2	P	N	70	FMo, TP, DG
<i>Bidens comosa</i> (A. Gray) Wiegand, begger-ticks	2	A	N	80	MRi	<i>Helianthus maximiliani</i> Schrad., Maximilian sunflower	2	P	N	80	FMo, TP, DG
<i>Bidens</i> cf. <i>connata</i> Muhl. ex Willd., sticktight	3	A	N	90	MRr	<i>Helianthus mollis</i> Lam., ashy sunflower	2	P	I	70	PRo
<i>Bidens frondosa</i> L., beggar-ticks	1	A	N	80	MRo	<i>Helianthus rigidus</i> (Cass.) Desf., ssp. <i>rigidus</i> , stiff sunflower	2	P	N	79	TPc
<i>Bidens vulgata</i> Greene, beggar-ticks	1	A	N	80	MRo, FF	<i>Helianthus tuberosus</i> L., Jerusalem artichoke	1	P	N	80	FMo, DG
<i>Boltonia asteroides</i> (L.) L'Her. var. <i>latisquama</i> (A. Gray) Cronq., boltonia	1	P	N	80	DGi	<i>Heliopsis helianthoides</i> (L.) Sweet var. <i>scabra</i> (Dun.) Fern., ox-eye	1	P	N	70	TPo
<i>Cacalia plantaginea</i> (Raf.) Shinners (<i>C. tuberosa</i>), Indian plantain	1	P	N	68	TPo, FM	<i>Hieracium longipilum</i> Torr., longhair hawkweed	2	P	N	79	TPo
<i>Carduus nutans</i> L., musk thistle	1	B	I	57	DGc	<i>Iva annua</i> L., marsh elder	1	A	N	80	FMr
<i>Centaurea cyanus</i> L., bachelor's button	4	A	I	58	DGr	<i>Kuhnia eupatorioides</i> L. var. <i>corymbulosa</i> T. & G., false boneset	1	P	N	79	TPc
<i>Chrysanthemum leucanthemum</i> L., ox-eye daisy	2	P	I	57	DGi	<i>Lactuca canadensis</i> L., wild lettuce	2	B	N	79	DGo, FF
<i>Cichorium intybus</i> L., chicory	2	P	I	60	DGo	<i>Lactuca ludoviciana</i> (Nutt.) Ridd., western wild lettuce	1	B	N	69	TPo
<i>Cirsium altissimum</i> (L.) Spreng., tall thistle	1	B	N	89	DGo, TP, FF	<i>Lactuca oblongifolia</i> Nutt., blue lettuce	2	P	N	69	DGi
<i>Cirsium arvense</i> (L.) Scop., Canada thistle	2	P	I	57	DGr	<i>Lactuca serriola</i> L., prickly lettuce	1	A	I	69	DGc
<i>Cirsium flodmanii</i> (Rybd.) Arthur, Flodman's thistle	1	P	N	79	TPo	<i>Liatris aspera</i> Michx., rough gayfeather	1	P	N	80	TPo
<i>Cirsium undulatum</i> (Nutt.) Spreng., wavyleaf thistle	1	P	N	67	TPi	<i>Liatris punctata</i> Hook., dotted gayfeather	1	P	N	70	TPc, SP
<i>Cirsium vulgare</i> (Savi) Ten., bull thistle	2	B	I	79	DGo, OF	<i>Liatris pycnostachya</i> Michx., tall blazing star	2	P	I	79	PRo
<i>Conyza canadensis</i> (L.) Cronq., horseweed	1	A	N	69	DGc, TP						
<i>Conyza ramosissima</i> Cronq., spreading fleabane	2	A	N	69	DGi						

ASTERACEAE (Sunflower Family)—(Continued on page 102)

TABLE II—(Continued from page 101)

	S	H	Pr	Fl	Hbtab/ab		S	H	Pr	Fl	Hbtab/ab
ASTERACEAE (Sunflower Family)—(Continued)						BIGNONIACEAE (Bignonia Family)					
<i>Liatris squarrosa</i> (L.) Michx.						<i>Catalpa speciosa</i> Warder, catalpa	2	T	I	57	FFi
var. <i>glabrata</i> (Rydb.) Gaiser, gayfeather	2	P	I	79	PRr	BORAGINACEAE (Borage Family)					
<i>Matricaria matricarioides</i> (Less.) Porter, pineapple weed	2	A	I	47	DGi	<i>Echium vulgare</i> L., blueweed	2	B	I	68	DGi
<i>Microseris cuspidata</i> (Pursh) Sch.-Bip., false dandelion	2	P	N	45	TPi	<i>Hackelia virginiana</i> (L.) I. M. Johnst., stickseed	2	B	N	69	FFc, DG, OF
<i>Prenanthes aspera</i> Michx., white rattlesnake root	1	P	N	80	TPi	<i>Lithospermum incisum</i> Lehm., fringed pucon	1	P	N	45	TPo
<i>Ratibida columnifera</i> (Nutt.) Woot. & Standl., prairie coneflower	2	P	N	69	DGi, TP, PR	<i>Onosmodium molle</i> Michx var. <i>occidentale</i> (Mack.) Jonst., false gromwell	2	P	N	67	TPi
<i>Ratibida pinnata</i> (Vent.) Barnh., grayhead prairie coneflower	4	P	I?	69	DGr	BRASSICACEAE (Mustard Family)					
<i>Rudbeckia hirta</i> L., black-eyed susan	2	B	N	59	TPo, PR	<i>Arabidopsis thaliana</i> (L.) Heynh., mouse-ear cress	2	A	I	46	DGr
<i>Rudbeckia laciniata</i> L., goldenglow	1	P	N	79	FFi	<i>Arabis hirsuta</i> (L.) Scop. var. <i>pyncocarpa</i> (Hopkins) Rollins, rock cress	2	B	N	57	TPo
<i>Rudbeckia triloba</i> L., brown-eyed susan	2	P	I?	70	DGi	<i>Barbarea vulgaris</i> R. Br., winter cress	2	B	I	46	DGi, FM
<i>Senecio plattensis</i> Nutt., prairie ragwort	1	B	N	46	TPo	<i>Brassica kaber</i> (DC.) Wheeler, charlock	4	A	I	57	DGr
<i>Silphium integrifolium</i> Michx. var. <i>laeve</i> T. & G. (<i>S. speciosum</i>), rosinweed	1	P	N	69	DGo, TP, FM	<i>Camelina microcarpa</i> Andr. ex DC., smallseed falseflax	2	A	I	46	DGr
<i>Silphium laciniatum</i> L., compass plant	2	P	N	69	DGr, PR	<i>Capsella bursa-pastoris</i> (L.) Medic., shepherd's purse	1	A	I	30	DGc
<i>Silphium perfoliatum</i> L., cup plant	2	P	N	89	FMi	<i>Cardaria chalepensis</i> (L.) Handel-Mazzetti, lens-padded hoary cress	2	P	I	48	DGi
<i>Solidago canadensis</i> L. var. <i>gilvocanescens</i> Rydb., Canada goldenrod	1	P	N	89	TPi	<i>Cardaria draba</i> (L.) Desv., hoary cress	1	P	I	48	DGo
<i>Solidago canadensis</i> L. var. <i>hargerii</i> Fern., Canada goldenrod	1	P	N	89	TPi	<i>Chorispora tenella</i> (Pall.) DC., blue mustard	2	A	I	46	DGi
<i>Solidago canadensis</i> L. var. <i>scabra</i> T. & G., Canada goldenrod	1	P	N	89	TPc	<i>Descurainia pinnata</i> (Walt.) Britt. ssp. <i>brachycarpa</i> (Richards.) Detling, tansy mustard	1	A	N	38	DGo
<i>Solidago gigantea</i> Ait., late goldenrod	1	P	N	80	FMo, TP	<i>Descurainia sophia</i> (L.) Webb, flixweed	2	A	I	57	DGi
<i>Solidago missouriensis</i> Nutt., Missouri goldenrod	1	P	N	80	TPc	<i>Draba reptans</i> (Lam.) Fern., white whitlowort	2	A	N	35	TPo
<i>Solidago mollis</i> Bartl., soft goldenrod	2	P	N	80	TPr	<i>Erysimum repandum</i> L., bushy wallflower	1	A	I	57	DGo
<i>Solidago nemoralis</i> Ait., gray goldenrod	2	P	N	80	TPi	<i>Hesperis matronalis</i> L., dame's rocket	2	P	I	58	DGo
<i>Solidago rigida</i> L. var. <i>rigida</i> , rigid goldenrod	1	P	N	80	TPo	<i>Lepidium densiflorum</i> Schrud., peppergrass	2	A	N	36	DGc
<i>Solidago speciosa</i> Nutt. var. <i>rigidiuscula</i> T. & G., showy goldenrod	2	P	N	80	TPo	<i>Lepidium virginicum</i> L., peppergrass	2	A	N	60	TPi
<i>Sonchus asper</i> (L.) Hill, prickly sow thistle	2	A	I	59	DGo	<i>Rorippa austriaca</i> (Crantz) Bess., Austrian field cress	2	P	I	59	MRr
<i>Taraxacum laevigatum</i> (Willd.) DC., red-seeded dandelion	2	P	I	40	DGi	<i>Rorippa palustris</i> (L.) Bess. ssp. <i>glabra</i> (Schulz) Stuckey var. <i>fernaldiana</i> (Butt. & Abbe) Stuckey, bog yellow cress	1	A	N	50	MRc
<i>Taraxacum officinale</i> Weber, dandelion	1	P	I	40	DGc	<i>Rorippa sessiliflora</i> (Nutt.) Hitc., yellow cress	1	A	N	50	MRi
<i>Tragopogon dubius</i> Scop., goat's beard	2	B	I	57	DGc	<i>Rorippa sinuata</i> (Nutt.) Hitc., spreading yellow cress	1	P	N	48	MRo, DG
<i>Verbesina alternifolia</i> (L.) Britt., wingstem	2	P	N	80	OFi	<i>Sisymbrium loeselii</i> L., tall hedge mustard	2	A	I	58	DGo
<i>Vernonia baldwinii</i> Torr. ssp. <i>interior</i> (Small) Faust, western ironweed	1	P	N	79	DGo	<i>Thlaspi arvense</i> L., field penny cress	1	A	I	46	DGc
<i>Vernonia fasciculata</i> Michx. ssp. <i>fasciculata</i> , ironweed	1	P	N	70	FMo						
<i>Xanthium strumarium</i> L., cocklebur	1	A	I	70	DGo						

TABLE II—(Continued from page 102)

	S	H	Pr	Fl	Hbtat/ab		S	H	Pr	Fl	Hbtat/ab
CACTACEAE (Cactus Family)						CERATOPHYLLACEAE (Hornwort Family)					
<i>Opuntia macrorhiza</i> Engelm., prickly pear	2	P	N	56	TPr	<i>Ceratophyllum demersum</i> L., hornwort	1	P	N	59	AQi
CAESALPINIACEAE (Caesalpinia Family)						CHENOPODIACEAE (Goosefoot Family)					
<i>Cassia chamaecrista</i> L. (<i>C. fasciculata</i>), showy partridge pea	1	A	N	60	DGo, TP	<i>Atriplex subspicata</i> (Nutt.) Rydb., spearscale	2	A	N	69	DGr
<i>Cassia marilandica</i> L., Maryland senna	2	P	N	79	TPr	<i>Chenopodium berlandieri</i> Moq., pitseed goosefoot	2	A	N	80	TPc, DG
<i>Gleditsia triacanthos</i> L., honey locust	2	T	N	46	FFo, OF	<i>Chenopodium gigantospermum</i> Aellen (<i>C. hybridum</i> , misapplied), maple-leaved goosefoot	1	A	N	79	FFc, OF
CAMPANULACEAE (Bellflower Family)						<i>Chenopodium missouriense</i> Aellen	1	A	N	90	DGo
<i>Campanula americana</i> L., tall bellflower	2	A	N	69	OFo, FF	<i>Chenopodium pratericola</i> Rybd. (<i>C. desiccatum</i> , misapplied), narrow-leaved goosefoot	2	A	N	79	DGo
<i>Lobelia siphilitica</i> L., blue cardinal flower	2	P	N	80	SAi, MR	<i>Chenopodium standleyanum</i> Aellen	2	A	N	79	OFo, FF
<i>Triodanis leptocarpa</i> (Nutt.) Nieuw.	1	A	N	56	TPi	<i>Chenopodium cf. strictum</i> Roth	2	A	I?	89	DGi
<i>Triodanis perfoliata</i> (L.) Nieuw., Venus' looking glass	1	A	N	57	TPo, SP	<i>Kochia scoparia</i> (L.) Schrad., summer cypress	1	A	I	70	DGc
CANNABACEAE (Hemp Family)						<i>Monolepis nuttalliana</i> (R. & S.) Greene, poverty weed	2	A	N	49	DGr
<i>Cannabis sativa</i> L., hemp, marijuana	1	A	I	70	DGo	<i>Salsola iberica</i> Senn. & Pau, Russian thistle	2	A	I	80	DGr
<i>Humulus lupulus</i> L. var. <i>pubescens</i> E. Small, hops	2	P	N	79	DGr	CLUSIACEAE (St. John's-wort Family)					
CAPPARACEAE (Caper Family)						<i>Hypericum perforatum</i> L., St. John's wort	2	P	I	68	DGo, TP
<i>Polanisia dodecandra</i> (L.) DC. ssp. <i>trachysperma</i> (T. & G.) Iltis, clammy weed	2	A	I?	50	DGr	COMMELINACEAE (Spiderwort Family)					
CAPRIFOLIACEAE (Honeysuckle Family)						<i>Commelina communis</i> L., dayflower	2	A	I	79	DGi
<i>Sambucus canadensis</i> L., common elderberry	1	S	N	58	FMo, FF, TP	<i>Tradescantia bracteata</i> Small, spiderwort	2	P	N	57	FMo
<i>Symphoricarpos occidentalis</i> Hook., wolfberry	1	S	N	67	OFc, TP	CONVOLVULACEAE (Morning Glory Family)					
<i>Symphoricarpos orbiculatus</i> Moench, coralberry, buckbrush	1	S	N	78	TPo	<i>Calystegia macounii</i> (Greene) Brummitt (<i>Convolvulus sepium</i> , in part)	2	P	N	56	TPo, DG
<i>Triosteum perfoliatum</i> L., horse gentian	2	P	N	67	OFi	<i>Calystegia sepium</i> (L.) Br. ssp. <i>angulata</i> Brummitt (<i>Convolvulus sepium</i> , in part), hedge bindweed	2	P	N	68	DGo, FM
CARYOPHYLLACEAE (Pink Family)						<i>Convolvulus arvensis</i> L., field bindweed	1	P	I	68	DGc
<i>Arenaria serpyllifolia</i> L., thyme-leaved sandwort	2	A	I	46	DGr	<i>Ipomoea hederacea</i> Jacq., ivyleaf morning glory	3	A	I	60	DGi
<i>Cerastium vulgatum</i> L., mouse-ear chickweed	2	P	I	46	DGi	<i>Ipomoea purpurea</i> (L.) Roth, common morning glory	2	A	I	60	DGi
<i>Dianthus armeria</i> L., Deptford pink	2	A	I	57	SPi, DG	CORNACEAE (Dogwood Family)					
<i>Holosteum umbellatum</i> L., jagged chickweed	2	A	I	45	DGi	<i>Cornus drummondii</i> C. A. Mey., gray dogwood	1	S	N	47	DGo, OF, FM
<i>Saponaria officinalis</i> L., bouncing bet	2	P	I	69	DGo	CRASSULACEAE (Stonecrop Family)					
<i>Silene antirrhina</i> L., sleepy catchfly	2	A	N	58	TPo, DG	<i>Penthorum sedoides</i> L., ditch stonecrop	2	P	N	79	MRi, SA
<i>Silene pratensis</i> (Rafn.) Godr. & Gren. (<i>Lychnis alba</i>), white campion	2	P	I	59	DGr	CUCURBITACEAE (Cucumber Family)					
<i>Silene stellata</i> (L.) Ait. f., starry campion	2	P	N	68	OFi	<i>Echinocystis lobata</i> (Michx.) T. & G., mock cucumber	2	A	N	60	FMo
<i>Stellaria media</i> (L.) Cyt., common chickweed	1	A	I	30	DGc	<i>Sicyos angulatus</i> L., bur cucumber	1	A	N	59	FFc, OF
CELASTRACEAE (Staff Tree Family)						CUCURBITACEAE (Cucumber Family)					
<i>Celastrus scandens</i> L., American bittersweet	1	V	N	57	OFo	CUCURBITACEAE (Cucumber Family)					
<i>Euonymus atropurpureus</i> Jacq., wahoo, burning bush	2	S	N	57	FFi, OF	CUCURBITACEAE (Cucumber Family)					

TABLE II—(Continued from page 103)

	S	H	Pr	Fl	Hbtat/ab		S	H	Pr	Fl	Hbtat/ab	
CUSCUTACEAE (Dodder Family)												
<i>Cuscuta glomerata</i> Choisy, cluster dodder	2	A	N	79	FMi							
<i>Cuscuta polygonorum</i> Engelm., smartweed dodder	2	A	N	60	MRi							
CYPERACEAE (Sedge Family)												
<i>Carex cf. aggregata</i> Mack., glomerate sedge	2	P	N	56	Ofo							
<i>Carex amphibola</i> Steud. var. <i>turgida</i> Fern.	2	P	N	47	FFc, OF							
<i>Carex atherodes</i> Spreng., slough sedge	3	P	N	57	MRr							
<i>Carex bicknellii</i> Britt., Bicknell's sedge	2	P	N	47	TPo							
<i>Carex blanda</i> Dew., woodland sedge	1	P	N	47	Ofo, FF							
<i>Carex brevior</i> (Dew.) Mack. ex Lunell, fescue sedge	1	P	N	56	TPc, FM							
<i>Carex cephalophora</i> Willd. var. <i>cephalophora</i> , woodbank sedge	2	P	N	58	TPo							
<i>Carex cristatella</i> Britt.	2	P	N	57	FMo							
<i>Carex davisii</i> Schwein. & Torr., Davis' sedge	2	P	N	57	FFo							
<i>Carex eleocharis</i> Bailey, needleleaf sedge	2	P	N	46	SPr							
<i>Carex gravida</i> Bailey var. <i>gravida</i>	2	P	N	57	TPc							
<i>Carex gravida</i> Bailey var. <i>lunelliana</i> (Mack.) Herm.	2	P	N	57	TPo, FM							
<i>Carex heliophila</i> Mack.	1	P	N	46	TPi, SP							
<i>Carex laeviconica</i> Dew., smoothcone sedge	1	P	N	57	FMo							
<i>Carex lanuginosa</i> Michx., woolly sedge	1	P	N	57	FMo							
<i>Carex meadii</i> Dew., Mead's sedge	1	P	N	46	TPc							
<i>Carex molesta</i> Mack.	1	P	N	57	FMo							
<i>Carex praegracilis</i> W. Boott.	2	P	N	46	SPo							
<i>Carex stipata</i> Muhl. ex Willd., saw-beak sedge	2	P	N	57	SAo							
<i>Carex stricta</i> Lam.	2	P	N	57	FMo							
<i>Carex tribuloides</i> Wahl.	2	P	N	58	FMi							
<i>Carex vulpinoidea</i> Michx., fox sedge	1	P	N	57	FMc							
<i>Cyperus erythrorhizos</i> Muhl.	1	A	N	80	MRo							
<i>Cyperus esculentus</i> L., yellow nutsedge	1	P	N	60	DGo, MR							
<i>Cyperus lupulinus</i> (Spreng.) Marcks. ssp. <i>lupulinus</i> (<i>C. filiculmis</i>), fern flatsedge	2	P	N	60	TPi, DG							
<i>Cyperus odoratus</i> L. (<i>C. ferruginescens</i>)	1	A	N	80	MRc, DG							
<i>Cyperus schweinitzii</i> Torr.	2	P	N	60	SPo							
<i>Cyperus strigosus</i> L., false nutgrass	2	P	N	60	SAi							
<i>Eleocharis acicularis</i> (L.) R. & S., hairgrass	1	P	N	70	MRi							
<i>Eleocharis erythropoda</i> Steud.	1	P	N	69	MRc							
<i>Eleocharis macrostachya</i> Britt., spike rush	2	P	N	58	MRo							
<i>Eleocharis obtusa</i> (Willd.) J. A. Schult. var. <i>ovata</i> (Roth) Drapalik & Mohlenbrock	1	A	N	50	MRo							
<i>Scirpus fluviatilis</i> (Torr.) Gray, river bulrush	1	P	N	59	FMi							
<i>Scirpus cf. georgianus</i> Harper	2	P	N	68	MRi							
<i>Scirpus heterochaetus</i> Chase, slender bulrush	2	P	N	69	MRr							
CYPERACEAE (Sedge Family)—(Continued)												
<i>Scirpus pallidus</i> (Britt.) Fern. (<i>S. atrovirens</i> var. <i>pallidus</i>), darkgreen bulrush	1	P	N	69	MRc, FM, SA							
<i>Scirpus pungens</i> Vahl (<i>S. americanus</i> , misapplied)	2	P	N	69	FMi							
<i>Scirpus validus</i> Vahl, soft-stem bulrush	1	P	N	69	MRc							
ELAEAGNACEAE (Oleaster Family)												
<i>Elaeagnus angustifolia</i> L., Russian olive	2	T	I	56	DGo							
ELATINACEAE (Waterwort Family)												
<i>Elatine triandra</i> Schkuhr, waterwort	1	A	N	68	MRr							
EUPHORBIACEAE (Spurge Family)												
<i>Acalypha rhomboidea</i> Raf., rhombic copperleaf	2	A	N	70	OFc, FF, DG							
<i>Acalypha virginica</i> L., three-seeded mercury	2	A	N	70	FFi, DG							
<i>Croton capitatus</i> Michx., woolly croton	1	A	N	70	TPi, DG							
<i>Euphorbia cyathophora</i> Murray, fire-on-the-mountain	1	A	N	69	FFi, OF							
<i>Euphorbia cyparissias</i> L., cypress spurge	4	P	I	69	DGi							
<i>Euphorbia dentata</i> Michx., toothed spurge	2	A	N	50	DGo, TP							
<i>Euphorbia glyptosperma</i> Engelm.	1	A	N	50	TPo, DG							
<i>Euphorbia maculata</i> L., prostrate spurge	1	A	N	60	DGc, TP							
<i>Euphorbia marginata</i> Pursh, snow-on-the-mountain	1	A	N	60	DGo							
<i>Euphorbia nutans</i> Lag.	2	A	N	50	DGc							
<i>Euphorbia prostrata</i> Ait.	2	A	N?	60	DGi							
<i>Euphorbia</i> × <i>pseudovirgata</i> (Schur) Soo (<i>E. podperae</i>), leafy spurge	2	P	I	57	DGi							
<i>Euphorbia serpens</i> H.B.K., round-leaved spurge	4	A	N	70	DGi							
<i>Euphorbia spathulata</i> Lam.	2	A	N	56	FMr							
<i>Euphorbia stictospora</i> Engelm., mat spurge	2	A	N	60	TPr							
FABACEAE (Bean Family)												
<i>Amorpha canescens</i> Pursh, leadplant	2	S	N	58	TPc							
<i>Amorpha fruticosa</i> L., false indigo	1	S	N	56	FMo							
<i>Amphicarpaea bracteata</i> (L.) Fern., hog peanut	2	A	N	80	OFc, FF							
<i>Astragalus canadensis</i> L., Canada milk-vetch	2	P	N	68	TPo							
<i>Astragalus crassicaerpus</i> Nutt. var. <i>crassicaerpus</i> , ground plum	1	P	N	36	TPo							
<i>Astragalus plattenis</i> Nutt. ex T. & G., Platte milk-vetch	2	P	N	47	TPi							
<i>Baptisia bracteata</i> Muhl. ex Ell. var. <i>glabrescens</i> (Larisey) Isely (<i>B. leucophaea</i>)	1	P	N	46	TPo							
<i>Baptisia lactea</i> (Raf.) Thieret (<i>B. leucantha</i>), wild indigo	2	P	I	57	PRo							
<i>Coronilla varia</i> L., crown vetch	2	P	I	58	DGi							

TABLE II—(Continued from page 104)

	S	H	Pr	Fl	Hbtat/ab
FABACEAE (Bean Family)—(Continued)					
<i>Dalea candida</i> Michx. ex Willd. var. <i>candida</i> (<i>Petalostemon candidum</i>), white prairie clover	2	P	N	58	TPo
<i>Dales leporina</i> (Ait.) Bullock	1	A	N	79	DGr
<i>Dalea purpurea</i> Vent. var. <i>purpurea</i> (<i>Petalostemon purpureum</i>), purple prairie clover	2	P	N	58	TPo
<i>Desmodium canadense</i> (L.) DC., Canada tickclover	1	P	N	79	TPo, PR
<i>Desmodium canescens</i> (L.) DC., hoary tickclover	1	P	N	79	TPi
<i>Desmodium glutinosum</i> (Muhl. ex Willd.) Wood, large-flowered tickclover	2	P	N	68	Ofo
<i>Desmodium illinoense</i> A. Gray, Illinois tickclover	1	P	N	69	TPo
<i>Glycyrrhiza lepidota</i> Pursh, wild licorice	2	P	N	58	FMo
<i>Lespedeza capitata</i> Michx., round-headed bush clover	2	P	N	68	TPo, SP
<i>Lespedeza cuneata</i> (Dumont) G. Don, sericea lespedeza	2	P	I	70	TPr
<i>Lespedeza stipulacea</i> Maxim., Korean lespedeza	2	A	I	70	DGi
<i>Lotus corniculatus</i> L., bird's-foot trefoil	1	P	I	59	DGo, PR
<i>Lotus purshianus</i> Clem. & Clem., prairie trefoil	2	A	N	70	TPi, PR
<i>Medicago lupulina</i> L., black medic	2	A	I	41	DGo
<i>Medicago sativa</i> L., alfalfa	2	P	I	59	DGo
<i>Melilotus albus</i> Medic., white sweet clover	2	A	I	50	DGo
<i>Melilotus officinalis</i> (L.) Pall., yellow sweet clover	2	A	I	50	DGc
<i>Oxytropis lambertii</i> Pursh, purple locoweed	2	P	N	58	TPi
<i>Psoralea argophylla</i> Pursh, silverleaf scurf pea	1	P	N	69	TPo
<i>Psoralea esculenta</i> Pursh, breadroot scurf pea	1	P	N	57	TPi
<i>Psoralea tenuiflora</i> Pursh var. <i>floribunda</i> (Nutt.) Rybd., wild alfalfa, many-flowered scurf pea	1	P	N	57	TPo
<i>Robinia pseudo-acacia</i> L., black locust	2	T	I	56	OFi
<i>Strophostyles helvula</i> (L.) Ell., wild bean	3	A	N	60	MR?
<i>Strophostyles leiosperma</i> (T. & G.) Piper, smoothseed wild bean	2	A	N	50	DGi
<i>Trifolium hybridum</i> L., alsike clover	1	P	I	50	FMr
<i>Trifolium pratense</i> L., red clover	2	P	I	59	DGc
<i>Trifolium repens</i> L., white clover	2	P	I	50	DGc
<i>Vicia americana</i> Muhl. ex Willd. var. <i>minor</i> Hook., American vetch	2	P	N	57	TPi
<i>Vicia villosa</i> Roth, hairy vetch	2	A	I	59	DGc
FAGACEAE (Oak Family)					
<i>Quercus macrocarpa</i> Michx., bur oak	1	T	N	45	OFC

	S	H	Pr	Fl	Hbtat/ab
FUMARIACEAE (Fumitory Family)					
<i>Corydalis micrantha</i> (Engelm.) A. Gray ssp. <i>micrantha</i> , slender fumewort	2	A	N	45	DGi, FF
<i>Dicentra cucullaria</i> L., dutchman's breeches	2	P	N	34	Ofo
<i>Fumaria vaillantii</i> Lois (<i>F. officinalis</i> , misapplied), fumitory	4	A	I	56	DGr
GENTIANACEAE (Gentian Family)					
<i>Eustoma grandiflorum</i> (Raf.) Shinners, prairie gentian	4	A	N	79	TPr
<i>Gentiana puberulenta</i> Pringle, downy gentian	1	P	N	90	TPi
GERANIACEAE (Geranium Family)					
<i>Geranium carolinianum</i> L., Carolina cranesbill	2	A	I	59	DGr
GROSSULARIACEAE (Currant Family)					
<i>Ribes missouriense</i> Nutt., Missouri gooseberry	2	S	N	45	OFC, FF, DG
HYDROPHYLLACEAE (Waterleaf Family)					
<i>Ellisea nycetelea</i> (L.) L., waterpod	1	A	N	57	DGc, FF
IRIDACEAE (Iris Family)					
<i>Iris pseudacorus</i> L., yellow iris	1	P	I	57	MRr
<i>Sisyrinchium campestre</i> Bickn., white-eyed grass	2	P	N	46	TPc
JUGLANDACEAE (Walnut Family)					
<i>Carya cordiformis</i> (Wang.) K. Koch, bitternut hickory	2	T	N	5	OFi
<i>Juglans nigra</i> L., black walnut	2	T	N	45	Ofo, FF
JUNCACEAE (Rush Family)					
<i>Juncus balticus</i> Willd., Baltic rush	2	P	N	68	FMi
<i>Juncus dudleyi</i> Wieg.	2	P	N	59	MRi
<i>Juncus interior</i> Wieg., inland rush	1	P	N	58	TPo, FM, MR
<i>Juncus torreyi</i> Cov.	2	P	N	60	FMc, MR
LAMIACEAE (Mint Family)					
<i>Agastache nepetoides</i> (L.) O. Ktze., catnip giant hyssop	2	P	N	79	OFi
<i>Dracocephalum parviflorum</i> Nutt., dragonhead	4	A	N	79	DGr
<i>Glecoma hederacea</i> L., ground ivy	2	P	I	46	DGi
<i>Hedeoma hispida</i> Pursh, false pennyroyal	2	A	N	57	TPo
<i>Lamium amplexicaule</i> L., henbit	2	A	I	35	DGo
<i>Lamium purpureum</i> L., purple dead nettle	4	A	I	45	DGr
<i>Leonurus cardiaca</i> L., motherwort	2	P	I	59	FFo
<i>Leonurus marrubiastrum</i> L.	4	B	I	68	FMr
<i>Leonurus sibiricus</i> L.	2	B	I	68	FFi
<i>Lycopus americanus</i> Muhl. ex Bart., American bugleweed	2	P	N	79	MRo
<i>Lycopus asper</i> Greene, rough bugleweed	2	P	N	79	MRr
<i>Mentha arvensis</i> L., field mint	2	P	N	79	MRo

TABLE II—(Continued from page 105)

	S	H	Pr	Fl	Hbtat/ab		S	H	Pr	Fl	Hbtat/ab
LAMIACEAE (Mint Family)—(Continued)						MALVACEAE (Mallow Family)					
<i>Mentha spicata</i> L., spearmint	4	P	I	79	DGr	<i>Abutilon theophrasti</i>					
<i>Monarda fistulosa</i> L.						Medic., buttonweed	1	A	I	60	DGo
var. <i>fistulosa</i> , wild bergamot	2	P	N	68	DGi, TP, OF	<i>Callirhoe alcaeoides</i> (Michx.)					
<i>Nepeta cataria</i> L., catnip	1	P	I	60	DGc	A. Gray, pink poppy mallow	2	P	N	48	TPi, FM
<i>Physotegia virginiana</i> (L.)						<i>Callirhoe involucrata</i> (T. & G.)					
Benth., Virginia lionsheart	4	P	N	79	FMr	A. Gray, purple poppy mallow	2	P	N	48	TPi
<i>Prunella vulgaris</i> L., self-heal	2	P	N	60	MRI	<i>Hibiscus trionum</i> L., Venice mallow	1	A	I	68	DGo
<i>Salvia azurea</i> Lam.						<i>Malva neglecta</i> Wallr.,					
(<i>S. pitcheri</i>), Pitcher's sage	1	P	N	70	TPo	common mallow	2	A	I	40	DGc
<i>Salvia nemorosa</i> L., (<i>S.</i>						<i>Malva rotundifolia</i> L.,					
<i>sylvestris</i> , misapplied), sage	1	P	I	68	DGr	common mallow	3	A	I	51	DGi
<i>Salvia reflexa</i> Hornem.,											
lance-leaved sage	2	A	N	60	DGi	MENISPERMACEAE (Moonseed Family)					
<i>Scutellaria lateriflora</i> L.,						<i>Menispermum canadense</i> L.,					
blue skullcap	2	P	N	79	MRI	moonseed	2	V	N	56	OFc
<i>Scutellaria parvula</i> Michx.						MIMOSACEAE (Mimosa Family)					
var. <i>leonardii</i> (Epl.) Fern.,						<i>Desmanthus illinoensis</i> (Michx.)					
small skullcap	2	P	N	46	TPi	MacM., Illinois bundleflower	2	P	N	68	FMi, TP
<i>Stachys palustris</i> L. ssp.						MOLLUGINACEAE (Carpetweed Family)					
<i>pilosa</i> (Nutt.) Epling,						<i>Mollugo verticillata</i> L., carpetweed	2	A	I	69	DGo
marsh betony	2	P	N	68	MRI	MORACEAE (Mulberry Family)					
<i>Stachys tenuifolia</i> Willd.	2	P	N	70	FFi	<i>Maclura pomifera</i> (Raf.)					
<i>Teucrium canadense</i> L. var. <i>boreale</i>						Schneid., Osage orange	2	T	I	5	DGi
(Bickn.) Shinnery (<i>T. c.</i> var.						<i>Morus alba</i> L., white mulberry	1	T	I	45	DGo, FF
<i>occidentale</i>), wood sage	1	P	N	79	MRI, DG	NAJADACEAE (Naiad Family)					
<i>Teucrium canadense</i> L. var.						<i>Najas guadalupensis</i> (Spreng.)					
<i>canadense</i> (<i>T. c.</i> var.						Magnus, naiad	2	A	N	69	AQo
<i>virginicum</i>), wood sage	2	P	N	68	FFc, OF, FM	NYCTAGINACEAE (Four-o'clock Family)					
LEMNACEAE (Duckweed Family)						<i>Mirabilis</i> cf. <i>albida</i> (Walt.)					
<i>Lemna minor</i> L., duckweed	2	P	N		AQc	Heimerl., white four-o'clock	4	P	N	50	TP?
<i>Lemna perpusilla</i> Torr., duckweed	1	P	N	80	AQo	<i>Mirabilis hirsuta</i> (Pursh)					
<i>Spirodela polyrrhiza</i> (L.) Schleid.	2	P	N		AQo	MacM., hairy four-o'clock	4	P	N	50	TPr
<i>Wolffia columbiana</i> Karst.	2	P	N	67	AQi	<i>Mirabilis nyctaginea</i> (Michx.)					
LENTIBULARIACEAE (Bladderwort Family)						MacM., wild four-o'clock	2	P	N	50	DGc
<i>Utricularia vulgaris</i> L.,						OLEACEAE (Olive Family)					
common bladderwort	3	P	N	68	AQR	<i>Fraxinus pennsylvanica</i> Marsh.,					
LILIACEAE (Lily Family)						green ash	1	T	N	45	FFc, OF
<i>Allium canadense</i> L.						ONAGRACEAE (Evening Primrose Family)					
var. <i>canadense</i> , wild onion	2	P	N	47	FMo, DG	<i>Calylophus serrulatus</i> (Nutt.)					
<i>Allium canadense</i> L.						Raven, yellow evening primrose	2	P	N	59	SPo, TP
var. <i>lavandulare</i> (Bates)						<i>Epilobium coloratum</i> Biehler,					
M. Ownbey, wild onion	2	P	N	57	TPo, FM, SP	purple willow herb	2	P	N	80	SAi
<i>Asparagus officinalis</i> L., asparagus	2	P	I	59	DGi	<i>Gaura longiflora</i> Spach,					
<i>Erythronium albidum</i> Nutt., trout lily	2	P	N	34	OFO	large-flowered gaura	2	A	N	70	TPi
<i>Polygonatum biflorum</i> (Walt.)						<i>Gaura parviflora</i> Dougl.,					
Ell., Solomon's seal	2	P	N	47	OFO, DG, FF	velvety gaura	2	A	N	50	DGo, TP
<i>Smilacina stellata</i> (L.) Desf.,						<i>Oenothera laciniata</i> Hill,					
false Solomon's seal	1	P	N	56	OFO, FF	cut-leaved evening primrose	2	A	N	40	SPc
LINACEAE (Flax Family)						<i>Oenothera villosa</i> Thunb.,					
<i>Linum sulcatum</i> Ridd., yellow flax	2	A	N	59	TPo	common evening primrose	2	B	N	70	DGc, TP
LYTHRACEAE (Loosestrife Family)						ORCHIDACEAE (Orchid Family)					
<i>Ammannia auriculata</i> Willd.	3	A	N	70	MRr	<i>Habenaria leucophaea</i> (Nutt.)					
<i>Ammannia coccinea</i> Rottb.	2	A	N	70	MRo	A. Gray, prairie fringed orchid	2	P	N	67	TPr
<i>Lythrum alatum</i> Pursh											
var. <i>alatum</i> (<i>L. dactotatum</i>),											
winged loosestrife	2	P	N	69	FMi						

TABLE II—(Continued from page 106)

	S	H	Pr	Fl	Hbtat/ab
OXALIDACEAE (Wood Sorrel Family)					
<i>Oxalis dillenii</i> Jacq., gray-green wood sorrel	1	P	N	31	DGc, TP
<i>Oxalis stricta</i> L., yellow wood sorrel	2	P	N	40	DGo, OF, FF
<i>Oxalis violacea</i> L., violet wood sorrel	2	P	N	46	TPo
PLANTAGINACEAE (Plantain Family)					
<i>Plantago lanceolata</i> L., English plantain	2	P	I	50	DGi
<i>Plantago major</i> L., common plantain	2	P	I	51	DGo
<i>Plantago patagonica</i> Jacq., var. <i>patagonica</i>	2	A	N	58	SPc, TP
<i>Plantago rugelii</i> Dcne.	2	P	N	51	DGo, FF, OF
<i>Plantago virginica</i> L., pale-seeded plantain	2	A	N	56	TPi
POACEAE (Grass Family)					
<i>Aegilops cylindrica</i> Host, jointed goatgrass	2	A	I	56	DGr
<i>Agropyron cristatum</i> (L.) Gaertn., crested wheatgrass	2	P	I	68	DGr
<i>Agropyron intermedium</i> (Host) Beauv., intermediate wheatgrass	2	P	I	69	DGo
<i>Agropyron repens</i> (L.) Beauv., quackgrass	2	P	I	58	DGi, FM
<i>Agropyron smithii</i> Rydb., western wheatgrass	1	P	N	59	TPo
<i>Agrostis hyemalis</i> (Walt.) B.S.P., ticklegrass	1	P	N	47	MRo
<i>Agrostis stolonifera</i> L., redtop	2	P	I	68	FMo
<i>Alopecurus carolinianus</i> Walt., Carolina foxtail	2	A	N	57	MRo
<i>Alopecurus pratensis</i> L., meadow foxtail	2	P	I	68	FMi, DG
<i>Andropogon gerardii</i> Vitman, big bluestem	1	P	N	70	TPc
<i>Andropogon scoparius</i> Michx., little bluestem	2	P	N	70	TPc
<i>Aristida basiramea</i> Engelm. ex Vasey var. <i>basiramea</i> , forktip three-awn	2	A	N	79	SPc
<i>Aristida oligantha</i> Michx., prairie three-awn	1	A	N	80	TPo, DG
<i>Aristida purpurea</i> Nutt. var. <i>robusta</i> (Merrill) A. Holmgren & N. Holmgren (<i>A. longisetata</i>), red three-awn	4	P	N	79	TPr
<i>Bouteloua curtipendula</i> (Michx.) Torr., sideoats grama	1	P	N	68	TPo
<i>Bouteloua gracilis</i> (H.B.K.) Lag. ex Griffiths, blue grama	1	P	N	68	TPi, SP
<i>Bouteloua hirsuta</i> Lag., hairy grama	1	P	N	70	TPi
<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i> , smooth brome	1	P	I	57	DGc, TP
<i>Bromus japonicus</i> Thunb. ex Murr., Japanese brome	2	A	I	57	DGo, TP
<i>Bromus secalinus</i> L., cheat	3	A	I	57	DGi
<i>Bromus tectorum</i> L., downy brome	2	A	I	56	DGc
<i>Buchloë dactyloides</i> (Nutt.) Engelm., buffalo grass	2	P	N	46	TPi

	S	H	Pr	Fl	Hbtat/ab
POACEAE (Grass Family)—(Continued)					
<i>Cenchrus longispinus</i> (Hack.) Fern., field sandbur	1	A	N	79	DGo
<i>Chloris verticillata</i> Nutt., windmill grass	2	P	N	59	DGi, TP
<i>Cinna arundinacea</i> L., woodreed	2	P	N	79	FFi
<i>Dactylis glomerata</i> L., orchard grass	2	P	I	50	DGo
<i>Dichanthelium acuminatum</i> (Sw.) Gould & Clark var. <i>villosum</i> (A. Gray) Gould & Clark (<i>Panicum praecocius</i>)	2	P	N	56	TPo
<i>Dichanthelium leibergii</i> (Vasey) Freckmann (<i>Panicum leibergii</i>)	2	P	N	56	TPi
<i>Dichanthelium oligosanthes</i> (Schult.) Gould var. <i>scribnerianum</i> (Nash) Gould (<i>Panicum oligosanthes</i>)	2	P	N	46	TPo, SP
<i>Dichanthelium wilcoxianum</i> (Vasey) Freckmann (<i>Panicum wilcoxianum</i>), Wilcox panicum	2	P	N	56	TPi
<i>Digitaria ciliaris</i> (Retz.) Koel., southern crabgrass	2	A	I	70	DGi
<i>Digitaria ischaemum</i> (Schreb. ex Schweigg.) Schreb. ex Muhl., smooth crabgrass	2	A	I	80	DGi
<i>Digitaria sanguinalis</i> (L.) Scop., giant crabgrass	1	A	I	80	DGc
<i>Echinochloa crusgalli</i> (L.) Beauv., barnyard grass	2	A	I	69	MRo
<i>Echinochloa muricata</i> (Beauv.) Fern. var. <i>microstachya</i> Wieg., barnyard grass	1	A	N	60	DGc
<i>Echinochloa muricata</i> (Beauv.) Fern. var. <i>muricata</i> , barnyard grass	2	A	N	60	DGi, MR
<i>Eleusine indica</i> (L.) Gaertn., goosegrass	2	A	I	70	DGi
<i>Elymus canadensis</i> L., Canada wildrye	1	P	N	68	TPo
<i>Elymus villosus</i> Muhl. ex Willd., slender wildrye	1	P	N	57	OFi
<i>Elymus virginicus</i> L. var. <i>glabriflorus</i> (Vasey) Bush	2	P	N	67	FFr
<i>Elymus virginicus</i> L. var. <i>virginicus</i> , Virginia wild rye	1	P	N	56	FFc, DG
<i>Eragrostis cilianensis</i> (All.) E. Mosher, stinkgrass	1	A	I	70	DGc
<i>Eragrostis hypnoides</i> (Lam.) B.S.P., teal lovegrass	1	A	N	70	MRr
<i>Eragrostis minor</i> Host, little lovegrass	2	A	I	68	DGr
<i>Eragrostis pectinacea</i> (Michx.) Nees, Carolina lovegrass	1	A	N	60	DGo
<i>Eragrostis spectabilis</i> (Pursh) Steud., purple lovegrass	1	P	N	80	DGo, TP
<i>Eragrostis trichodes</i> (Nutt.) Wood, sand lovegrass	2	P	N	70	SPo
<i>Eriochloa contracta</i> Hitchc., prairie cupgrass	2	A	N	70	DGi
<i>Festuca arundinacea</i> Schreb., tall fescue	2	P	I	50	DGo, FM
<i>Festuca obtusa</i> Biehler, nodding fescue	2	P	N	68	OFo

TABLE II—(Continued from page 107)

	S	H	Pr	Fl	Hbtat/ab		S	H	Pr	Fl	Hbtat/ab
POACEAE (Grass Family)—(Continued)						POACEAE (Grass Family)—(Continued)					
<i>Festuca octoflora</i> Walt., sixweeks fescue	2	A	N	46	SPc, TP	<i>Sporobolus cryptandrus</i> (Torr.) A. Gray, sand dropseed	2	P	N	79	TPi
<i>Glyceria striata</i> (Lam.) Hitchc., foul mannagrass	2	P	N	57	SAo	<i>Sporobolus heterolepis</i> (A. Gray) A. Gray, prairie dropseed	2	P	N	70	TPo
<i>Hordeum jubatum</i> L., foxtail barley	2	P	N	68	DGc	<i>Sporobolus neglectus</i> Nash (<i>S. vaginiflorus</i> var. <i>neglectus</i>), poverty grass	2	A	N	80	DGi
<i>Hordeum pusillum</i> Nutt., little barley	1	A	N	56	DGo	<i>Sporobolus vaginiflorus</i> (Torr.) Wood, poverty grass	2	A	N	90	SPi, DG
<i>Koeleria pyramidata</i> (Lam.) Beauv., junegrass	1	P	N	58	TPo	<i>Stipa spartea</i> Trin., porcupine grass	1	P	N	67	TPo
<i>Leersia oryzoides</i> (L.) Sw., rice cutgrass	1	P	N	70	MRc, SA	<i>Tridens flavus</i> (L.) Hitchc., purpletop	1	P	N	80	DGi, TP
<i>Leersia virginica</i> Willd., whitegrass	1	P	N	60	FFc	POLEMONIACEAE (Polemonium Family)					
<i>Leptochloa fascicularis</i> (Lam.) A. Gray, sprangletop	1	A	N	70	MRo, DG	<i>Phlox divaricata</i> L. ssp. <i>laphamii</i> (Wood) Wherry, blue phlox	4	P	I	46	DGi
<i>Leptoloma cognatum</i> (Schult.) Chase, fall witchgrass	2	P	N	50	SPc, TP	POLYGALACEAE (Milkwort Family)					
<i>Lolium perenne</i> L. var. <i>aristatum</i> Willd., ryegrass	2	P	I	57	DGi	<i>Polygala verticillata</i> L., whorled milkwort	2	A	N	50	MRr
<i>Lolium perenne</i> L. var. <i>perenne</i>	2	P	I	47	DGi	POLYGONACEAE (Buckwheat Family)					
<i>Muhlenbergia bushii</i> R. Pohl	2	P	N	80	FFo	<i>Polygonum achoreum</i> Blake, knotweed	2	A	I	79	DGo
<i>Muhlenbergia cuspidata</i> (Torr.) Rydb., plains muhly	2	P	N	60	TPi	<i>Polygonum amphibium</i> L. var. <i>emersum</i> Michx. (<i>P. coccineum</i>), swamp smartweed	1	P	N	79	MRo, FM, DG
<i>Muhlenbergia frondosa</i> (Poir.) Fern., wirestem muhly	2	P	N	71	FFc, DG	<i>Polygonum arenastrum</i> Jord. ex Bor., knotweed	1	A	I	60	DGc
<i>Muhlenbergia mexicana</i> (L.) Trin., wirestem muhly	2	P	N	80	OFi	<i>Polygonum bicorne</i> Raf., pink smartweed	1	A	N	70	DGc, MR
<i>Muhlenbergia racemosa</i> (Michx.) B.S.P., marsh muhly	1	P	N	70	FFo, MR	<i>Polygonum convolvulus</i> L., black bindweed	2	A	I	69	DGo
<i>Muhlenbergia schreberi</i> J.F Gmel., nimblewill	2	P	N	80	DGo, OF	<i>Polygonum hydropiper</i> L., water pepper	2	A	I	80	MRo
<i>Panicum capillare</i> L., witchgrass	1	A	N	70	DGc	<i>Polygonum lapathifolium</i> L., nodding willow weed	1	A	N	70	MRc, DG
<i>Panicum dichotomiflorum</i> Michx., fall panicum	1	A	N	70	DGo	<i>Polygonum pensylvanicum</i> L., Pennsylvania smartweed	1	A	N	70	DGc, MR
<i>Panicum virgatum</i> L., switchgrass	1	P	N	79	TPc	<i>Polygonum persicaria</i> L., lady's thumb	2	A	I	70	MRo, DG
<i>Paspalum setaceum</i> Michx. var. <i>stramineum</i> (Nash) D. Banks	2	P	N	59	TPi, FM	<i>Polygonum punctatum</i> Ell., water smartweed	1	P	N	70	MRo, SA
<i>Phalaris arundinacea</i> L., reed canary grass	1	P	N	57	MRc, FM	<i>Polygonum ramosissimum</i> Michx., knotweed	2	A	N	79	DGo, MR, TP
<i>Phleum pratense</i> L., timothy	1	P	I	67	DGi	<i>Polygonum scandens</i> L., false buckwheat	1	P	N	60	DGo
<i>Poa annua</i> L., annual bluegrass	2	A	I	40	DGi	<i>Polygonum virginianum</i> L.	2	P	N	89	FFi
<i>Poa compressa</i> L., Canada bluegrass	2	P	I	68	TPi	<i>Rumex acetosella</i> L., sheep sorrel	2	P	I	48	SPc, DG
<i>Poa palustris</i> L., fowl bluegrass	2	P	I	58	OFr	<i>Rumex altissimus</i> Wood., pale dock	2	P	N	47	MRc, DG
<i>Poa pratensis</i> L., Kentucky bluegrass	1	P	I?	58	DGc, TP, FM, SP	<i>Rumex crispus</i> L., curly dock	2	P	I	47	DGc, MR
<i>Schedonnardus paniculatus</i> (Nutt.) Trel., tumblegrass	2	P	N	68	DGi, TP	<i>Rumex stenophyllus</i> Ledeb.	2	P	I	58	MRi
<i>Setaria faberi</i> Herrm., Chinese foxtail	2	A	I	70	DGi	PONTEDERIACEAE (Pickerel-weed Family)					
<i>Setaria glauca</i> (L.) Beauv., yellow foxtail	1	A	I	79	DGc	<i>Heteranthera limosa</i> (Sw.) Willd., mud plantain	1	P	N	50	MRo
<i>Setaria verticillata</i> (L.) Beauv., bristly foxtail	4	A	I	79	DGr	PORTULACACEAE (Purslane Family)					
<i>Setaria viridis</i> (L.) Beauv., green foxtail	2	A	I	79	DGc	<i>Portulaca oleracea</i> L., common purslane	1	A	I	51	DGo
<i>Sorghastrum nutans</i> (L.) Nash (<i>S. avenaceum</i>), Indian grass	1	P	N	80	TPo, SP						
<i>Spartina pectinata</i> Link, prairie cordgrass	1	P	N	79	FMc						
<i>Sphenopholis obtusata</i> (Michx.) Scribn. var. <i>obtusata</i> , prairie wedgegrass	2	P	N	58	TPo, MR						
<i>Sporobolus asper</i> (Michx.) Kunth var. <i>asper</i> , tall dropseed	2	P	N	80	TPi, DG						

TABLE II—(Continued from page 108)

	S	H	Pr	Fl	Hbtat/ab
POTAMOGETONACEAE (Pondweed Family)					
<i>Potamogeton foliosus</i> Raf., leafy pondweed	2	P	N	68	AQc
<i>Potamogeton nodosus</i> Poir., longleaf pondweed	2	P	N	60	AQc
<i>Potamogeton pectinatus</i> L., sago pondweed	2	P	N	69	AQo
<i>Potamogeton pusillus</i> L. var. <i>pusillus</i>	2	P	N	60	AQo
PRIMULACEAE (Primrose Family)					
<i>Androsace occidentalis</i> Pursh, western rock jasmine	1	A	N	36	DGo, TP
<i>Lysimachia ciliata</i> L., fringed loosestrife	2	P	N	68	SAI, MR
RANUNCULACEAE (Buttercup Family)					
<i>Anemone canadensis</i> L., meadow anemone	2	P	N	57	DGr
<i>Anemone cylindrica</i> A. Gray, candle anemone	1	P	N	67	TPo, OF
<i>Aquilegia canadensis</i> L., wild columbine	4	P	I?	46	OFr
<i>Clematis terniflora</i> DC.	2	P	I	80	DGr
<i>Clematis virginiana</i> L., virgin's bower	1	P	N	78	DGo, FF
<i>Delphinium ajacis</i> L., rocket larkspur	2	A	I	78	DGi
<i>Delphinium tricorne</i> Michx., dwarf larkspur	4	P	N	46	OFr
<i>Delphinium virescens</i> Nutt., prairie larkspur	2	P	N	56	TPo, SP
<i>Myosurus minimus</i> L., mouse-tail	2	A	N	35	MRo
<i>Ranunculus abortivus</i> L., early wood buttercup	1	B	N	46	FFo, OF
<i>Ranunculus sceleratus</i> L., cursed crowfoot	1	A	N	59	MRo
<i>Thalictrum dasycarpum</i> Fisch. & Ave-Lall., purple meadow rue	1	P	N	67	OFo, FF, DG
RHAMNACEAE (Buckthorn Family)					
<i>Ceanothus herbaceus</i> Raf. var. <i>pubescens</i> (T. & G.) Shinnery, New Jersey tea	2	S	N	48	TPo
<i>Rhamnus cathartica</i> L., common buckthorn	2	S	I	56	DGi
ROSACEAE (Rose Family)					
<i>Agrimonia pubescens</i> Wallr., downy agrimony	2	P	N	78	OFi
<i>Fragaria virginiana</i> Duchn., wild strawberry	1	P	N	36	TPo, OF
<i>Geum canadense</i> Jacq., white avens	1	P	N	50	DGo
<i>Potentilla argentea</i> L., silvery cinquefoil	2	P	I	68	DGr
<i>Potentilla arguta</i> Pursh, tall cinquefoil	2	P	N	68	TPo
<i>Potentilla norvegica</i> L., Norwegian cinquefoil	1	B	N	59	DGo, MR
<i>Potentilla recta</i> L., sulphur cinquefoil	2	P	I	57	DGo
<i>Potentilla rivalis</i> Nutt., brook cinquefoil	2	A	N	50	MRi
<i>Prunus americana</i> Marsh., wild plum	1	S	N	45	DGo, TP, FM
<i>Prunus virginiana</i> L., choke cherry	1	S	N	45	FFo, DG, FM
<i>Rosa arkansana</i> Porter, prairie wild rose	2	S	N	57	TPo, DG

	S	H	Pr	Fl	Hbtat/ab
ROSACEAE (Rose Family)—(Continued)					
<i>Rosa multiflora</i> Thunb., multiflora rose	2	S	I	56	DGi, TP, OF
<i>Rubus occidentalis</i> L., black raspberry	2	S	N	46	OFo
RUBIACEAE (Madder Family)					
<i>Galium aparine</i> L., catchweed bedstraw	1	A	N	58	DGc, FF, OF
<i>Galium circaezans</i> Michx., woods bedstraw	1	P	N	57	OFc
<i>Galium triflorum</i> Michx., sweet-scented bedstraw	2	P	N	59	OFo, SA
<i>Hedyotis nigricans</i> (Lam.) Fosb., narrowleaf bluet	3	P	N	50	TPr
RUTACEAE (Citrus Family)					
<i>Zanthoxylum americanum</i> P. Mill., prickly ash	2	S	N	45	OFc
SALICACEAE (Willow Family)					
<i>Populus deltoides</i> Marsh. ssp. <i>monolifera</i> (Ait.) Eckenw., cottonwood	2	T	N	36	FFo, DG
<i>Salix amygdaloides</i> Anderss., peachleaf willow	2	T	N	5	FFo, MR
<i>Salix exigua</i> Nutt. ssp. <i>interior</i> (Rowlee) Cronq., sandbar willow, coyote willow	2	S	N	56	MRc, FF
SANTALACEAE (Sandalwood Family)					
<i>Comandra umbellata</i> (L.) Nutt. ssp. <i>umbellata</i> , bastard toadflax	2	P	N	47	TPo
SCROPHULARIACEAE (Figwort Family)					
<i>Agalinis aspera</i> (Dougl. ex Benth.) Britt., gerardia	3	A	N	89	TP?
<i>Bacopa rotundifolia</i> (Michx.) Wettst., water hyssop	2	P	N	79	MRi
<i>Linaria vulgaris</i> Hill, butter-and-eggs	2	P	I	68	DGr
<i>Lindernia dubia</i> (L.) Penn., false pimpernel	2	A	N	78	MRo
<i>Mimulus ringens</i> L., Allegheny monkey-flower	1	P	N	79	MRi
<i>Penstemon cobaea</i> Nutt., cobaea penstemon	2	P	N	46	TPi
<i>Penstemon digitalis</i> Nutt. ex Sims, smooth beardtongue	2	P	I	47	PRc
<i>Penstemon grandiflorus</i> Nutt., large beardtongue	2	P	N	47	TPo
<i>Scrophularia marilandica</i> L., Maryland figwort	1	P	N	89	OFi
<i>Verbascum blattaria</i> L., moth mullein	2	B	I	68	DGi
<i>Verbascum thapsus</i> L., common mullein	2	B	I	67	DGc
<i>Veronica agrestis</i> L., field speedwell	2	A	I	38	DGo
<i>Veronica arvensis</i> L., corn speedwell	2	A	I	46	DGc, TP
<i>Veronica catenata</i> Penn. var. <i>catenata</i>	2	P	N	68	SAi
<i>Veronica peregrina</i> L. var. <i>peregrina</i> , purslane speedwell	2	A	N	48	FFo
<i>Veronica peregrina</i> L. var. <i>xalapensis</i> (H.B.K.) St. John & Warren, purslane speedwell	1	A	N	48	DGo, MR, FF

TABLE II—(Continued from page 109)

	S	H	Pr	Fl	Hbtat/ab		S	H	Pr	Fl	Hbtat/ab
SIMAROUBACEAE (Quassia Family)											
<i>Ailanthus altissima</i> (P. Mill.) Swingle, tree of heaven	2	T	I	56	DGr						
SMILACACEAE (Catbriar Family)											
<i>Smilax herbacea</i> L. var. <i>lasioneuron</i> (Small) Rydb., carrion flower	1	P	N	57	Ofo						
<i>Smilax hispida</i> Muhl., bristly greenbriar	1	V	N	56	Ofo, FF, DG						
SOLANACEAE (Nightshade Family)											
<i>Datura stramonium</i> L., Jimson weed	2	A	N	79	DGi						
<i>Physalis heterophylla</i> Nees, clammy groundcherry	1	P	N	50	TPo, SP						
<i>Physalis longifolia</i> Nutt. (<i>P.</i> <i>virginiana</i> var. <i>sonarae</i>), common ground cherry	1	P	N	59	DGc, TP						
<i>Physalis virginiana</i> P. Mill., ground cherry	1	P	N	59	TPo						
<i>Solanum carolinense</i> L., horse nettle	1	P	N	59	DGo						
<i>Solanum prycanthum</i> Dun. ex DC. (<i>S.</i> <i>americanum</i>), black nightshade	2	A	N	50	DGc, FF						
<i>Solanum rostratum</i> Dun., buffalo bur	2	A	N	50	DGo						
SPARGANIACEAE (Bur-reed Family)											
<i>Sparganium eurycarpum</i> Engelm., bur-reed	2	P	N	68	MRi						
TYPHACEAE (Cat-tail Family)											
<i>Typha angustifolia</i> L., narrowleaf cat- tail	2	P	N	57	MRi						
<i>Typha latifolia</i> L., common cat-tail	1	P	N	57	MRC						
ULMACEAE (Elm Family)											
<i>Celtis occidentalis</i> L., hackberry	1	T	N	45	FFc, OF, DG						
<i>Ulmus americana</i> L., American elm	1	T	N	35	FFo, OF, DG						
<i>Ulmus pumila</i> L., Siberian elm	2	T	I	3	DGo						
<i>Ulmus rubra</i> Muhl., red elm, slippery elm	2	T	N	35	Ofo, FF, DG						
URTICACEAE (Nettle Family)											
<i>Laportea canadensis</i> (L.) Wedd., wood nettle	2	P	N	79	Ofo						
<i>Parietaria pennsylvanica</i> Muhl. ex Willd., Pennsylvania pellitory	2	A	N	59	DGc, OF, FF						
URTICACEAE (Nettle Family)—(Continued)											
<i>Pilea fontana</i> (Lunell) Rydb., clearweed	2	A	N	79	SAr						
<i>Pilea pumila</i> (L.) A. Gray, clearweed	2	A	N	79	FFo, OF, SA						
<i>Urtica dioica</i> L. ssp. <i>gracilis</i> (Ait.) Seland., stinging nettle	1	P	N	69	FFc, OF						
VERBENACEAE (Vervain Family)											
<i>Lippia lanceolata</i> (Michx.) Greene, northern fog fruit	2	P	N	59	MRi						
<i>Phryma leptostachya</i> L., lopseed	2	P	N	69	Ofo						
<i>Verbena bipinnatifida</i> Nutt., Dakota vervain	2	P	N	50	TPi						
<i>Verbena bracteata</i> Lag. & Rodr., prostrate vervain	2	A	N	40	DGc						
<i>Verbena canadensis</i> (L.) Britt., rose vervain	2	P	I?	30	DGr						
<i>Verbena hastata</i> L., blue vervain	2	P	N	60	FMo						
<i>Verbena stricta</i> Vent., hoary vervain	2	P	N	59	DGo, TP						
<i>Verbena urticifolia</i> L., white vervain	1	P	N	60	FFo, FM, OF						
VIOLACEAE (Violet Family)											
<i>Viola pedatifida</i> G. Don, prairie violet	1	P	N	46	TPc						
<i>Viola pratensis</i> Greene, meadow violet	1	P	N	36	FFc, FM, DG, TP						
<i>Viola rafinesquii</i> Greene, Johnny jump-up	2	A	N	37	TPr						
<i>Viola sororia</i> Willd., downy blue violet	1	P	N	46	OFC, FF						
VITACEAE (Grape Family)											
<i>Parthenocissus vitacea</i> (Knerr) Hitchc., woodbine	2	V	N	57	OFC, FF, DG						
<i>Vitis riparia</i> Michx., riverbank grape	1	V	N	79	FFo						
ZANNICHELLIACEAE (Horned Pondweed Family)											
<i>Zannichellia palustris</i> L., horned pondweed	2	P	N	61	AQi						
ZYGOPHYLLACEAE (Caltrop Family)											
<i>Tribulus terrestris</i> L., puncture vine	2	A	I	50	DGo						

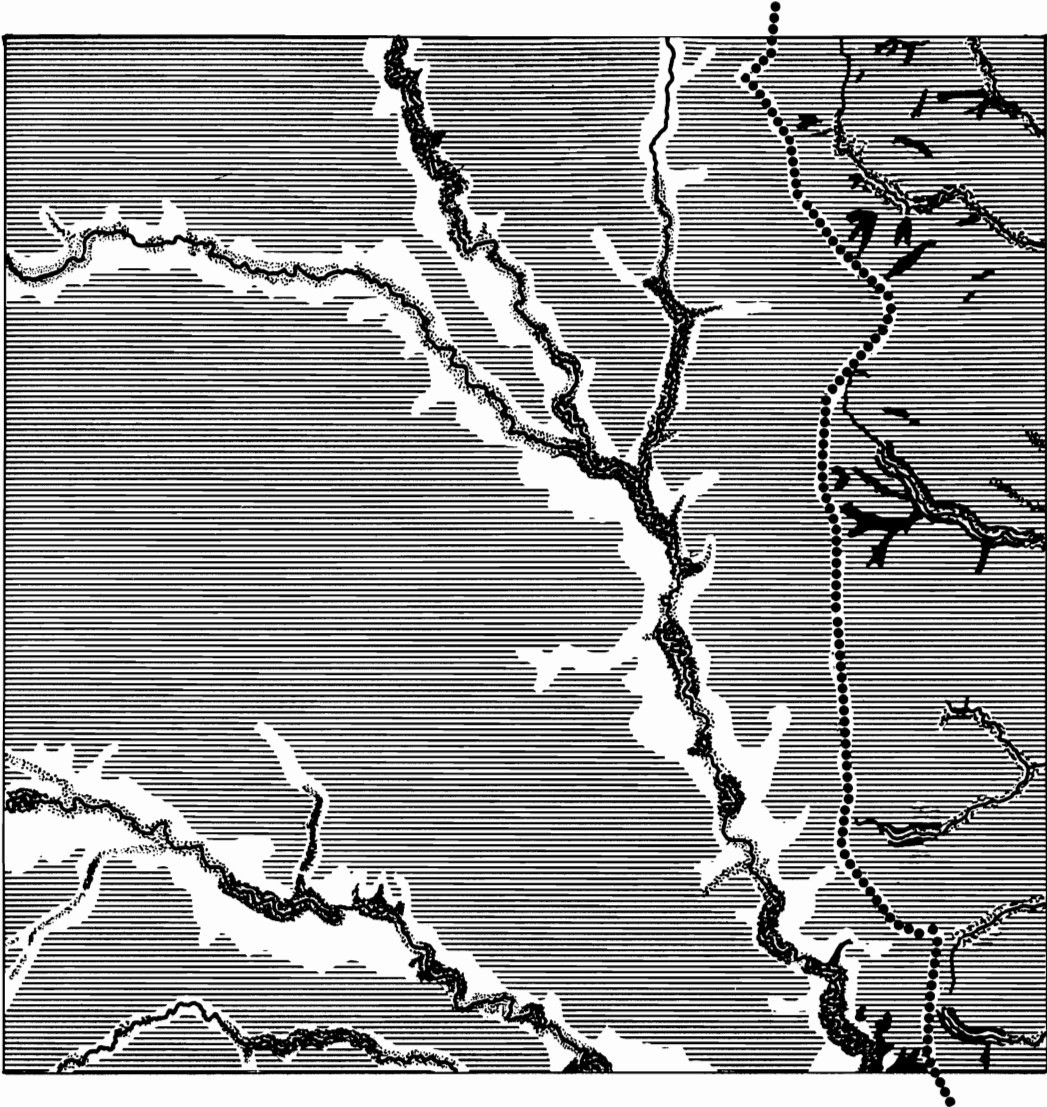

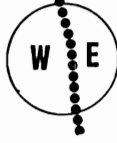



FIG. 3 *Vegetation Map of Seward County, Nebraska*

-  TALL-GRASS PRAIRIE
 -  FLOODPLAIN PRAIRIE AND MEADOW
 -  EASTERN DECIDUOUS FOREST
 -  FLOODPLAIN FOREST
 -  FLOODPLAIN FOREST WITH SCATTERED OAK
- 

GLACIAL TILL RIDGE
W: LOESS PLAINS
E: LOESS DRIFT HILLS
- N



TEXT—(Continued from page 99)

**Species reported in Atlas, not collected by author
(collection status = 3)**

Agalinis aspera (Aughey s.n., 28 August 1873, NEB); *Alisma* cf. *subcordatum* (Kiener 25992, NEB); *Amaranthus hybridus* (Meyer 43, NEB); *Ammannia auriculata* (Kiener 25994; G. Imig 35, NEB); *Azolla mexicana* (Tolstead 41586, NEB); *Bidens connata* (Weedon 6197, NEB); *Carex atherodes* (Kiener 29918, NEB); *Hedyotis nigricans* (Magrath and Hays 5620, KANU); *Ipomoea hederacea* (Koch 4282, NEB); 60241, KANU); *Malva rotundifolia* (Stephens 58487, KANU); *Sagittaria rigida* (Kiener 24086, 25988, NEB); *Strophostyles helvula* (Aughey s.n., 28 August 1873, NEB); *Utricularia vulgaris* (Kiener 23950, NEB).

**Species new to Seward County, not collected by author
(collection status = 4)**

Aquilegia canadensis (Warner 62, NEB); *Aristida purpurea* (Brandhorst s.n., August 1958, Concordia); *Brassica kaber* (Schmersal 12, NEB); *Centaurea cyanus* (Groathaus 39, Concordia); *Delphinium tricornis* (Dede 68110, Concordia); *Dra-
cocephalum parviflorum* (Groathaus 44, Concordia); *Euphorbia cyparissias* (Gundell 16, Concordia); *Euphorbia serpens* (Hafer 49, NEB); *Eustoma grandiflorum* (Landon 14, NEB); *Fumaria vaillantii* (Gundell 15, Concordia); *Helenium autumnale* (Tolstead 9754, NEB); *Lamium purpureum* (Keller 140, NEB); *Leonurus marrubiastrum* (Varner 28, Ringler 69, NEB); *Mentha spicata* (Barry 61, NEB); *Mirabilis albida* (Aughey s.n., 28 August 1873, NEB); *Mirabilis hirsuta* (Keller 296, NEB); *Phlox divaricata* ssp. *laphamii* (Wolters 88-37, Concordia); *Phy-
sostegia virginiana* (Hackbart 12, NEB); *Ratibida pinnata* (Held 140, Concordia); *Setaria verticillata* (Keller 51, NEB).

Excluded species

The following species were reported from Seward County in the Atlas, but were based upon misidentifications or lack known voucher specimens: *Aster praealtus* Poir. var. *praealtus*, *Carduus acanthoides* L., *Chenopodium album* L., *Elodea canadensis* Michx., *Lechea mucronata* Raf., *Mirabilis linearis* (Pursh) Heimerl., *Oenothera biennis* L., *Phaseolus polystachios* (L.) B.S.P., *Prunus serotina* Ehrh., *Rumex orbiculatus* A. Gray, *Sagittaria cuneata* Sheld., *Sorghum halepense* (L.) Pers.

Additionally, specimens of the four following species of grasses collected by C. T. Brandhorst (moist fertile roadside, Seward County, August 1942) are in the Concordia College Herbarium but are of doubtful provenance in the county: *Agrostis scabra* Willd.; *Sitanion hystrix* (Nutt.) J. G. Sm. var. *brevifolium* (J. G. Sm.) C. L. Hitchc.; *Sporobolus airoides* (Torr.) Torr.; *Stipa viridula* Trin.

In addition, *Anemone caroliniana*, *Nasturtium officinale*, and *Spiranthes cernua* have been seen but not collected in the county by a reliable observer. The following species are known from surrounding counties (some very close to the county line) and continuing field work is likely to reveal their presence in Seward County: *Carex hystericina*, *Cerastium brachypodium*, *Che-
nopodium album*, *Cyperus acuminatus*, *Cyperus aristatus*, *Erythronium mesochoreum*, *Euthamia gymnospermoides*, *Lap-
pula echinata*, *Lithospermum arvense*, *Lycopus virginicus*, *Mir-
abilis linearis*, *Polygonum erectum*, *Potamogeton crispus*, *Ro-
tala ramosior*, *Sorghum halepense*, *Typha domingensis*.

Campsis radicans (L.) Seem., *Populus alba* L., and *Rhus ty-
phina* L. have been introduced as ornamentals and have spread vegetatively. They do not reproduce by seed here and are not included in Table II.

Major floristic representation

Table III shows the ten families with the largest number of species in Seward County.

TABLE III. Ten largest families in terms of diversity

Family	Genera	Species	Total Entities
ASTERACEAE	47	90	94
POACEAE	42	88	91
FABACEAE	18	38	38
CYPERACEAE	4	37	38
LAMIACEAE	16	25	26
BRASSICACEAE	12	19	19
POLYGONACEAE	2	17	17
SCROPHULARIACEAE	9	15	16
EUPHORBIACEAE	3	15	15
ROSACEAE	7	13	13

ACKNOWLEDGEMENTS

The following people contributed data and advice and are gratefully acknowledged: Ralph Brooks, Joe Gubanyi, Robert Kaul, Jon Keller, Jim Landon, Clarence Mertens, Anne Warner, and numerous student collectors at Concordia College and Seward Senior High School. David Sutherland identified several difficult grasses.

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