

VASCULAR PLANTS OF THE THREE  
CENTRAL TEXAS COUNTIES  
OF BROWN, COMANCHE,  
AND HAMILTON

By

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## PREFACE

The author became interested in the vascular plants of Central Texas after making a few casual collections from flood plains of the Leon River in Hamilton County in 1964. After completing his masters degree in 1966 at Texas Technological College, he was employed by Howard Payne College in Brownwood, Texas. During the fall of that year, the author became interested in the vegetation of the surrounding area and began an extensive collecting program. This led to a preliminary study (Stanford, 1967) of the vegetation of Brown County, sponsored by the National Science Foundation Research Participation Program at Oklahoma State University under the direction of Dr. U. T. Waterfall.

Since August of 1966, the author has collected and examined over 6500 sheets of plants from the research area. These sheets are deposited in the herbarium of Oklahoma State University with many duplicates distributed from there. The author has also examined appropriate specimens from the herbaria of the University of Texas, and Howard Payne College.

Standard herbarium procedures were employed through the use of appropriate monographic treatises, revisions, and other taxonomic literature in the Oklahoma State

University Library and the personal library of Dr. Waterfall.

The arrangement of the compilatory list of taxa in Chapter VI follows the Engler-Prantl system for families, as used in the Keys to the Flora of Oklahoma, ed. 4, (Waterfall, 1969). Genera and subordinate taxa are then arranged alphabetically within the families. Each subgeneric taxon is followed by synonyms, if any; general habitat; normal flowering dates; number of sheets examined; and the counties from which the collections were made. The author has supplemented his own collection by examining student collections and those of other workers, notably V. L. Cory and William L. McCart. These specimens are cited in the usual way by the collector's last name and collection number following the county from which the collection was made.

Because of the central location of the study area, bordering between the humid eastern and dry western regions of the state, many range extensions have been made. These distributional records are listed in Chapter V along with several additional taxa of special interest.

The author extends his appreciation to each of the members of his committee for his interest and time. He is especially grateful to the chairman, Dr. Waterfall, for his counsel and encouragement throughout this investigation, in addition to the use of his personal library and card index of taxonomic literature.

A special note of appreciation is expressed to Professor Charles Stewart of the Howard Payne College Art Department for his assistance in preparing several of the maps used in this investigation.

He also extends appreciation to the employees of the Soil Conservation Service for their assistance in procuring soil maps and furnishing the prints for several illustrations.

In addition, the author wishes to thank Professor Jim Blassingame of South Plains College for his continued interest and companionship during many collecting trips into the research area over the past five years.

Finally, the author wishes to express appreciation to his wife, Gilda, and sons, David and Steven, for their encouragement and sacrifice during the preparation of this dissertation.

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## CHAPTER I

### PHYSICAL FEATURES

#### Location and Area

The three counties included in this study are situated near the geographical center of Texas (Figure 1). Brown County is the westernmost county with Meridian  $99^{\circ}$  west longitude traversing the county thirteen miles east of its western boundary. Hamilton County, the eastern limit of the research area extends four miles east of Meridian  $97^{\circ} 50'$  west longitude at its eastern and southern boundary. Comanche County extends one mile north of Parallel  $32^{\circ} 15'$  north latitude and the southern limits are along the Colorado River in Brown County, approximately four and one half miles south of Parallel  $31^{\circ} 30'$  north latitude.

There are approximately 2,770 square miles of land in the three counties with Comanche County being the largest and Hamilton County the smallest.

#### Geology

(Hill, 1901; Eargle, 1960; Terriere, 1960;  
Stafford, 1960; Fisher & Rodda, 1966)

The portion of Central Texas included in this study consists principally of Lower Cretaceous with

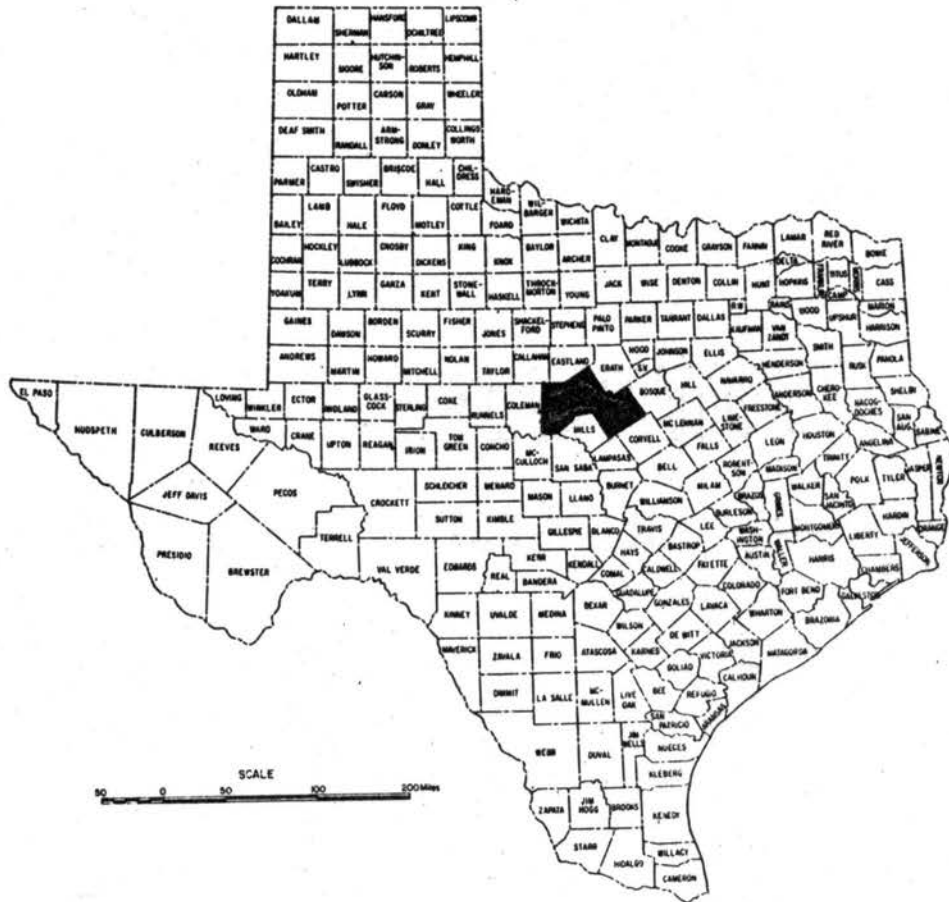


Figure 1. Location map. Research area, black.

Pennsylvanian and Permian rocks outcropping in the western two-thirds of Brown County.

The main Central Texas representative of the Cretaceous forms essentially the western boundary of the Grand Prairie (Figure 2). This feature is called the Lampasas Cut Plain and is described as the modified northern continuation of the Edwards Plateau. In Texas, this feature extends south from the Red River, following an irregular line through Cooke, Wise, Parker, Hood, Erath, Comanche, Brown, Mills, San Saba, Lampasas, and Burnet Counties.

This vast plain is scored into many valleys by drainages arising near the western edge of the Grand Prairie. These valleys are cut below the old level of the plain and expose older and older formations.

The outcropping Cretaceous formations (Figure 3) consist of the Travis Peak, Twin Mountain, Glen Rose, Paluxy, Fredericksburg, and Antlers formations.

The Travis Peak consists chiefly of conglomerates, sands, and limestones. This formation extends along the western edge of the Grand Prairie in Brown County. Outliers of Travis Peak occur in the Pennsylvanian to the west and south in the county.

The Twin Mountain is chiefly sand with some strata consisting of clay or conglomerates. This extensive formation lies in north-central Brown County and central and southern Comanche County along the broad drainage of the Leon and Sabana Rivers.

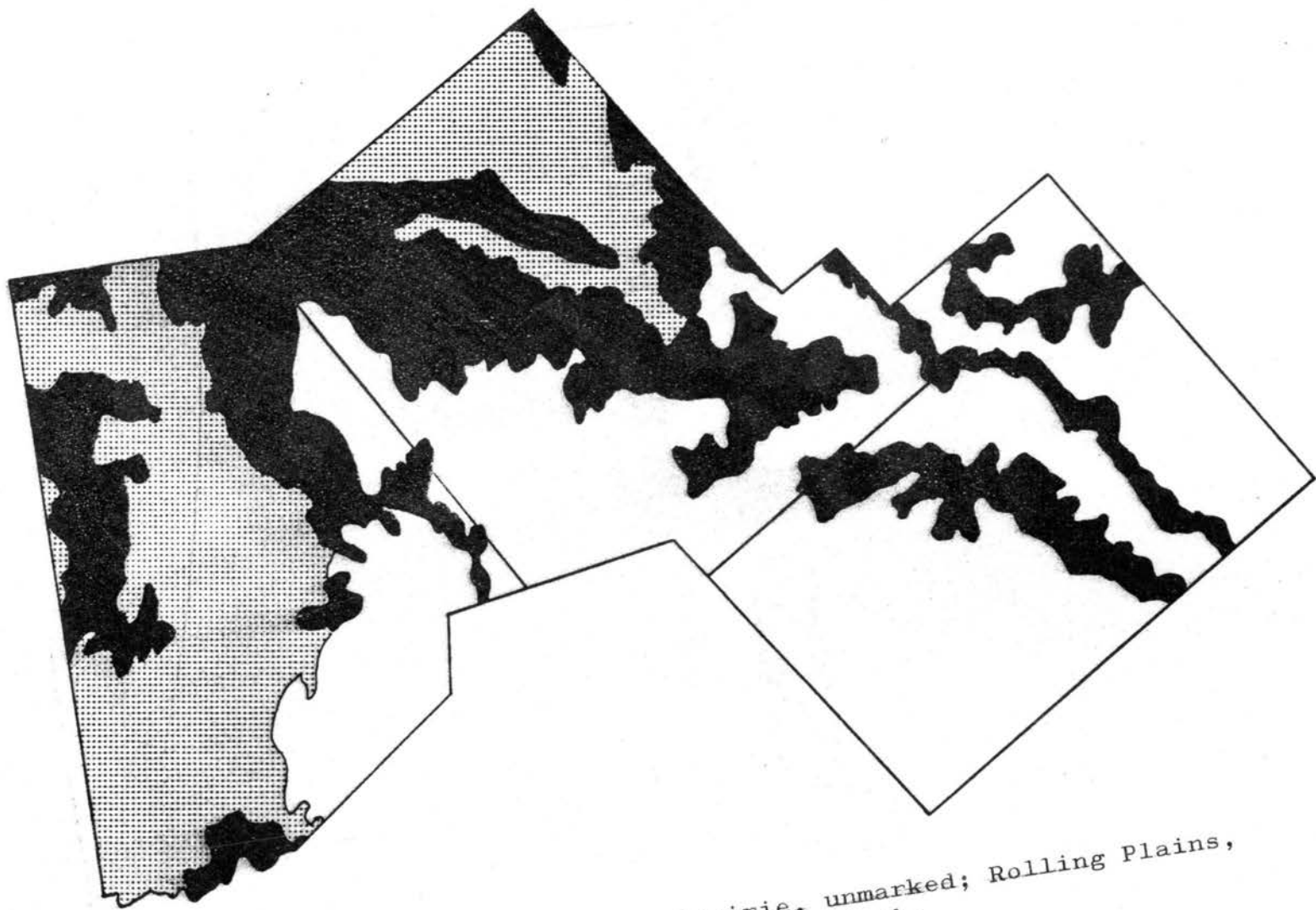


Figure 2. Vegetation map. Grand Prairie, unmarked; Rolling Plains, stippled; West Cross Timbers, black.

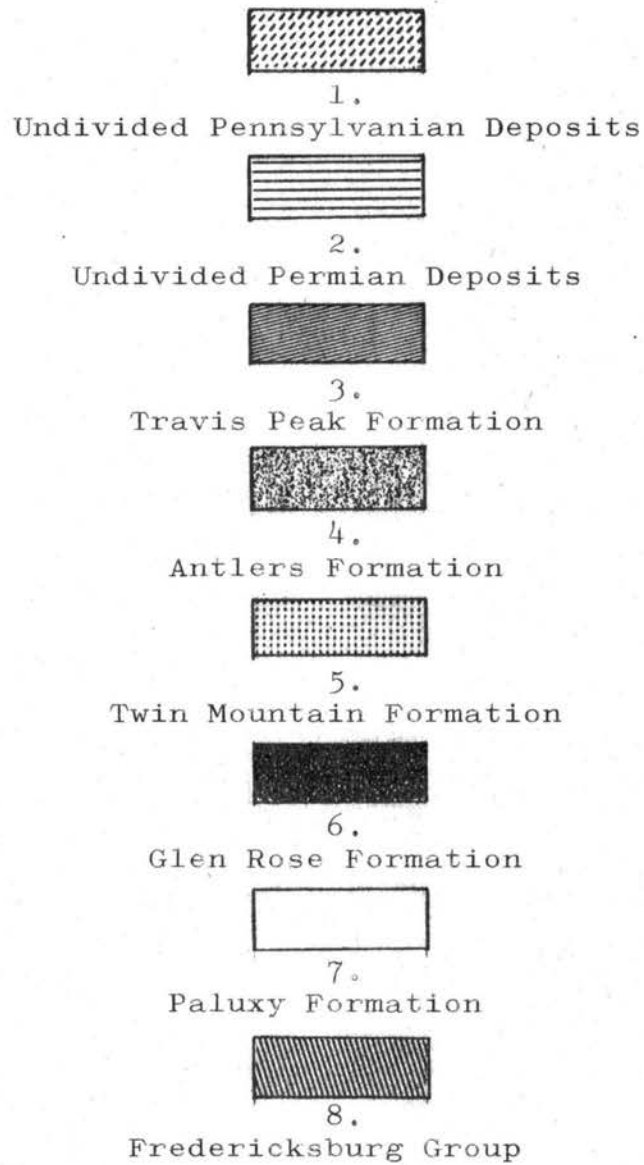
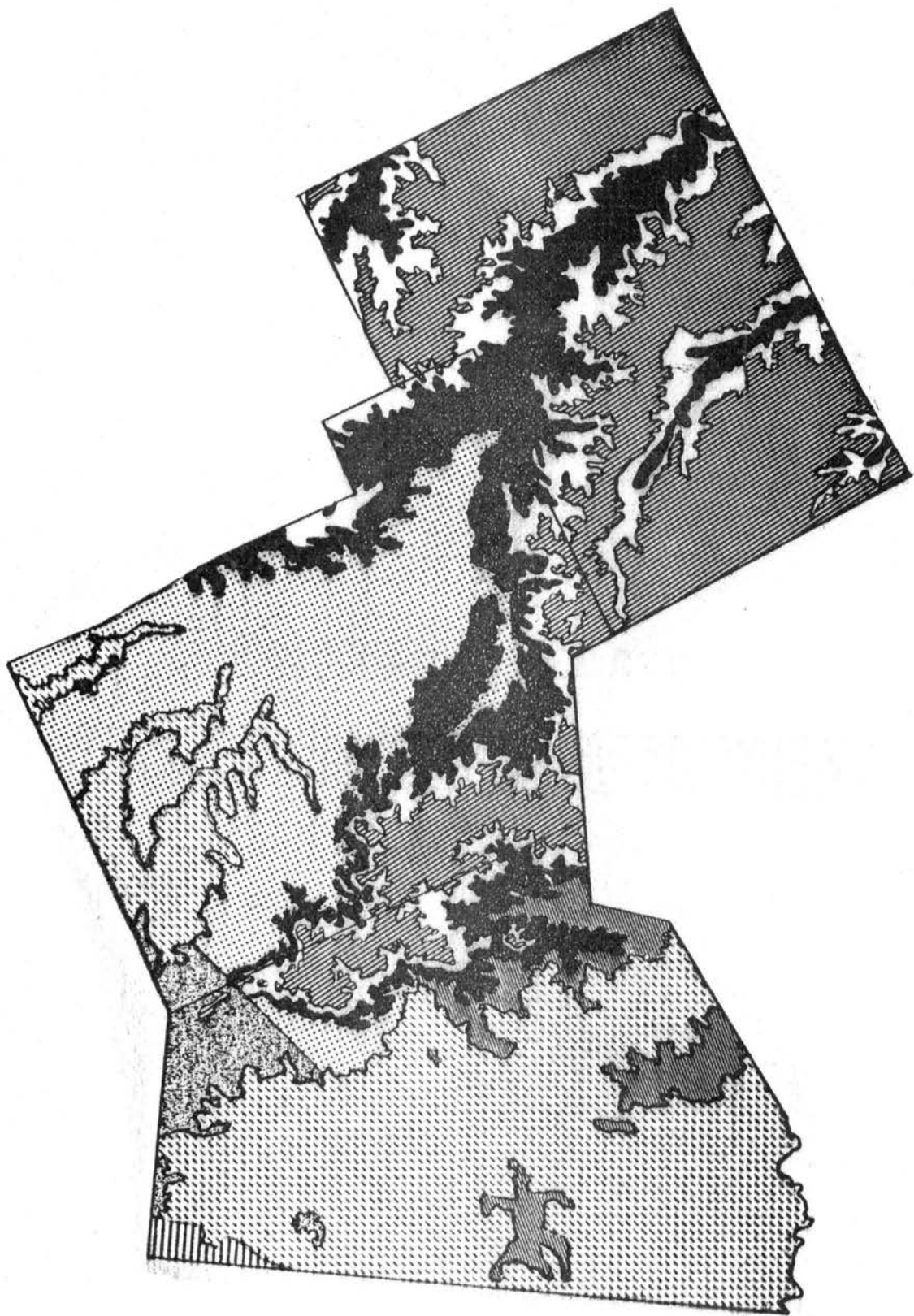


Figure 3. Geological map. Pennsylvanian deposits, 1; Permian deposits, 2; Cretaceous deposits, 3-8.



The Glen Rose formation, principally limestone with alternating beds of silt and clay, lies between the Travis Peak and Paluxy formations in Brown County. In Comanche and Hamilton Counties, this formation borders the drainage of the Leon River and the Cowhouse Creek.

The Paluxy consists of sands with some silty clay. Throughout the area it borders the Glen Rose and is in contact with the Fredericksburg.

The Fredericksburg group, made up of calcareous clay (Walnut Formation) and various limestones (Comanche Peak and Edwards Formations), occupies the intervening areas between the Leon River and the Cowhouse Creek in Hamilton County. It follows an irregular course along the Brown-Comanche county line, a distance of approximately thirty miles.

The Antlers Formation, chiefly sand and clay, barely enters the area in the northeast corner of Brown and the northwest corner of Comanche Counties. This formation is extensive in south-central Eastland and Callahan Counties (Figure 3).

The rocks of Permian age barely reach the area (Figure 3), overlying the Pennsylvanian in the extreme northwest corner of Brown County. These rocks are early Permian age and belong to the lower Wichita group. The Wichita consists of gray to red shale with interbedded thin limestone and thick channel-fill sandstone and conglomerate.

The Pennsylvanian in western Brown and north-central Comanche Counties is composed variously of clays, limestone, sandstones, and dolomites. The representative physiographic regions of the Pennsylvanian age rocks are the Western Cross Timbers and the Rolling Plains (Figure 2). The Pennsylvanian rocks belong to three groups-- Strawn, Canyon, and Cisco. The Strawn outcrops in the Colorado River valley in southern Brown County.

Most of the outcropping formations consist of non-resistant, non-marine shale and sandstone beds which are heavily eroded and occupy the frontal slopes of the cuestas and valley floors. Several Strawn Formations consist of highly resistant limestone beds which occupy the tops of cuestas and are only slightly truncated by erosion.

The Canyon group forms the largest part of the Pennsylvanian in Brown County, extending from the Colorado River in the southwest across the county in a northeasterly direction. It also occupies north-central Comanche County. This group consists chiefly of thick limestones that form the most prominent cuestas. The Canyon also consists of intervening beds of shale and sandstone which form the frontal slopes of the cuestas and valley floors.

The Cisco group occurs only in the western third of Brown County and is overlain by Permian in the extreme northwestern corner. This group consists chiefly of shale containing channel-fill deposits of chert, conglomerate,



and sandstone, and thin beds of limestone. Because they are thinner, these limestone beds do not form prominent cuestas as do the Canyon limestones.

### Topography

Most regional treatments of the vegetation of Texas place the research area into three physiographic or vegetational zones: the Rolling Plains (also known as the Reddish Prairies and the North Central Prairies), West Cross Timbers, and Grand Prairie, with all three converging in Brown and Comanche Counties (Figure 2).

The Rolling Plains reach their southern and eastern limit in Brown County. The topography varies from gently rolling minor plains to moderately rough. The Rolling Plains of this area are, however, more rolling and have more limestone than is characteristic of most of that physiographic region. The underlying rocks are chiefly Pennsylvanian limestones interbedded with shale or clay. These beds dip westward and give rise to a series of north-south valleys separated by low, stony ridges which are capped with resistant limestones. Elevation ranges from approximately 1,200 to 1,900 feet.

The West Cross Timbers characteristically have greater relief variation than the Rolling Plains. The main belt varies in width from less than a mile in southern Brown and eastern Comanche and Hamilton Counties to over fifteen miles in northern Brown and Comanche Counties.

The Cross Timbers extend southward in Brown County, forming a narrow belt at the foot of the western escarpment of the Grand Prairie. They often extend down stream valleys which transect the Grand Prairie, especially the Leon River drainageway in southeastern Comanche and eastern Hamilton Counties. Elevation varies from 1,000 to 1,600 feet.

The Grand Prairie occupies the largest land area (Figure 2) in the region. Like the Rolling Plains, the Grand Prairie reaches its southern limit along the Colorado River, extending along that river on the east side to Austin in Travis County (Hill, 1901). This portion of the Grand Prairie is a vast dip plain which becomes more dissected and grooved by stream valleys to the southwest where it contacts the Edwards Plateau in McCulloch and Coleman Counties. The main body of the Grand Prairie is surmounted by limestone mesas and cuestas. Elevation ranges from approximately 1,200 to 1,970 feet.

The highest point in the region is in Brown County, southeast of May on the Hog Mountains. The elevation is 1,973 feet (USGA, 1966).

There are two major drainage systems--the Colorado and the Leon Rivers. The Colorado and its main tributary, the Pecan Bayou drain most of the area of Brown County and the southwestern tip of Comanche County. A small area in extreme northeastern Brown County, most of Comanche, and all of Hamilton Counties are drained by the Leon

River and its tributaries, including the Cowhouse Creek, Sabana River, and Lampasas River. The Leon River is a major tributary of the Brazos River drainageway.

Soils  
(Templin, et al., 1948; Harris, 1963;  
Huckabee, 1963; Mills and Kelley, 1969)

Soils of the West Cross Timbers are primarily sandy soils which are of three types or associations. The main belt of the Cross Timbers, stretching across the area in a north-south direction, consists of deep, fine sandy loams of medium texture. Shallow sandy loams are developed upon moderately to strongly rolling areas underlain by calcareous sandy clays and marls. The third soil association consists of loose, coarse sands occupying the western borders of the main belt in Brown County and central Comanche County.

Soils of the Rolling Plains may be divided into three associations. Deep heavy soils, mainly Abilene clay loam, Abilene clay, and Roscoe clay are developed upon calcareous clays. Most areas consisting of this association are under cultivation with cotton being the principal crop. Stony, nonarable soils, Valera clay, and Abilene soils are underlain by limestone interbedded with calcareous clay. These soils are found only in central Brown County from just south of Lake Brownwood southward to the Colorado River. The remainder of the Rolling Plains' soils in north-central Brown and northeastern Comanche Counties

are composed of mixed areas of nonarable lands, mainly rough stony soils, red heavy soils over compact clay subsoils, and smaller amounts of dark crumbly clay loams in the valleys. This soil association is underlain by non-calcareous to moderately calcareous shales interbedded with thin layers of limestone and sandstone. In outlying areas, this last soil association includes small areas of sandy timbered soils and is transitional to the West Cross Timbers.

The Grand Prairie throughout the area consists of dark crumbly heavy or stony soils developed on limestone or calcareous clays. The main portion of the Grand Prairie in Hamilton, Comanche, and east-central Brown County is composed of clays and stony clays developed on rather hard limestones. In Brown County, the Grand Prairie is divided in the southeast by the West Cross Timbers. This section extends across northern Mills County, the southwestern tip of Comanche County, and western Hamilton County. These soils consist of clay loams and nonarable stony clay loams developed over limestone and calcareous clay.

Alluvial soils are confined to the stream and river valleys. These soils consist of dark, fertile soils, the Frio clay loams, and silty clay.

## CHAPTER II

### CLIMATE

The climate is essentially uniform throughout the area, being continental, warm, temperate, and transitional east to west from humid to subhumid. The area is characterized by rather erratic distribution of precipitation, moderate winters with sudden temperature changes, long summers, and comparatively dry atmosphere.

Average annual precipitation varies from about 27.50 inches (27.74 inches in Brownwood) in the west to just over 30.50 inches (30.64 inches in Hamilton) in the east (Texas Almanac, 1970-71). Yearly precipitation has varied greatly during eighty-two years of weather records in Brown County. The highest ever recorded was 46.00 inches in 1918, while the lowest precipitation was 10.86 inches in 1921 (Brownwood Bulletin, 1970).

The period of maximum precipitation occurs in the spring, April through early June, followed by a drier, hot summer period. A secondary period of moderate to high rainfall occurs in September and October.

The average frost-free period of 239 days extends from March 26, the average date of the last killing frost, to November 20, the average date of the earliest frost.

However, frost has been recorded as late as April 30 and as early as October 19 (Templin, et al., 1948).

There is a relatively small difference between mean summer and winter temperatures--about 35° F. The mean maximum in July is 96° F., and the mean minimum is 33° in January. The short winters normally have periods of several days to a few weeks of warm, balmy days followed suddenly by cold waves accompanied by strong north winds. The long summers consist primarily of hot days and moderate to cool nights. The highest temperature ever recorded in the area was 113° F. in Brownwood, with the lowest recorded as a minus 2° F., also in Brownwood.

Prevailing winds are from the north in December and January and from the south during the remainder of the year. Wind velocity is moderate, and soil erosion by wind is not serious except on some of the more sandy soils.

## CHAPTER III

### TAXONOMIC HISTORY

Most of the early Texas collections were made in the southern half of the state and across the Texas Panhandle (Shinners, 1950; Geiser, 1936; Harvard, 1885). Indian uprisings by the Apache and Comanche Indians during the early and middle 1850's postponed exploration and settlement of the research area for several years (Havins, 1958). An early account of the vegetation of the area includes that of Kennedy (1841) who briefly described the Cross Timbers of Northern Texas. This account is enumerated in the ecology section of this report. A later account was made by McClintock (McClintock in Southwestern Historical Quarterly, 1930) in 1846 as he traversed a section of Texas on a trip to Northern Mexico to serve in the Mexican War. The portions of his letters which cover Texas are replete with descriptions of the fauna, flora, and natural conditions of the country. While on the True Prairie (Allred, 1955), McClintock wrote on September 18, 1846:

The land rises from the streams on either side as well as from their confluence very gradually. . . . The beautiful plain stretches out from your feet, carpeted with grass of the most delicate green, . . . a gentle breeze swept at

intervals by, converting, as if by magic the surrounding plain into a waving sea of gold and green. . . . To the east at the distance of a mile a herd of Buffalow buffalo were quietly grazing, their humps only visible above the tall grass . . .

Munz (1944) cites a sheet of Gaura villosa from Comanche County by the Marcy Expedition, 1852. Dr. Munz added the year to the citation as it was not on the original label. There is no written account of Marcy being in the Comanche County area in 1852 (Comanche County was not organized until 1856) but was in this vicinity in late June, 1851 (Belknap to Jones, July 7, 1851--footnote in Richardson, 1963). Captain Marcy was under orders from Brevet Major General William G. Belknap to explore the territory along the Pecan Bayou and recommend a site for an army post (Richardson, 1963). Marcy traveled southwestward from Fort Arbuckle and entered the present Brown County from the north and camped on the Pecan Bayou in late June, 1851. He remained for two weeks exploring the area for an appropriate site for the post.

Marcy did not make a written report of this exploration as he did on later explorations (Marcy, 1854). Dr. R. N. Richardson of Hardin Simmons University, Abilene, Texas, has indicated to this writer that Marcy was accustomed to including a naturalist on his excursions, but because of the nature of the June, 1851, trip did not provide for any scientific exploration. The citation of Munz (1944) of Gaura villosa may have been from this



expedition, but in 1851 rather than 1852. This would make the Marcy collection the earliest in the area.

There is also some evidence that Ferdinand J. Lindheimer may have collected in the area in 1852. Moldenke (1942) cited a sheet of Phyla nodiflora (L.) Greene as F. J. Lindheimer 1071 from Comanche County. This county was not organized, however, until 1856 which could have presented problems later in determining exact location. McVaugh (1946) indicated that Lindheimer did collect in McLennan County (Figure 1), east of the research area, in 1852.

The earliest collection of any significance was by Julien Reverchon in August of 1877 (Geiser, 1948).

Geiser wrote:

In 1877 he [Reverchon] discovered about a dozen new species of plants in Dallas County alone; and during the first two weeks in August of that year, stimulated by a visit from Gray, he made a flying trip to Brown County, collecting on the way in some eleven counties south and west of Dallas.

In April, 1882, Reverchon again passed through Brown County on his way to Fort Concho in present Tom Green County. On this trip, he collected Ephedra antisiphilitica Berl. ex Meyer as Reverchon 925. Reverchon's last extended collecting trip into southwest Texas again brought him into the research area in May, 1884, when he collected a Verbena as Reverchon 1961, and Amsonia salpignatha Woods.

According to McVaugh (1946), G. C. Nealley on his second collecting trip of 1889:

. . .left Houston on August 1, reaching Brenham the following day, and San Angelo on the 3rd. He left San Angelo probably August 4, going directly to Ballinger, . . . thence on a trip into Coleman County, where he spent three days in Coleman and two in Santa Anna. He was back in Ballinger on August 15, . . .

It is conceivable that Nealley came to western Brown County between August 10 and August 15, but the author has seen no Nealley plants or citations to bear this out.

Other nineteenth century plant collectors such as Charles Wright, 1847-62; S. B. Buckley 1860-83; Lester F. Ward, 1877; and Edward Palmer 1879-80 traveled and collected in Central Texas, but the author has no evidence that any of these ever collected in the research area (Winkler, 1915; Ward, 1877; McVaugh, 1946; Havins, 1958).

In May, 1900, H. K. D. Eggert made a western collecting trip, beginning at Fort Worth on about May 4. He traveled through Brown, Comanche, and Hamilton Counties on 10 May and continued west, reaching El Paso on 9 June.<sup>1</sup> The author has noted several species citations of Eggert's collections in the area (Refer to Chapter VI).

E. J. Palmer collected in Brown County on at least two occasions.<sup>1</sup> He collected Ephedra antisiphilitica Berl. ex Meyer as Palmer 13028, 18 October 1917; Palmer 26757, 30 October 1924; and Sida physocalyx Gray as Palmer 26804, 31 October 1924.

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<sup>1</sup> Data accumulated from citations in monographs.

Other collectors include J. A. Barton in Comanche County, 1935; B. C. Tharp, Hamilton County, 1941; V. L. Cory, Brown, Comanche, and Hamilton Counties, 1950, 1953; L. H. Shinnars, Brown County, 1953; F. W. Gould, Brown, Comanche, and Hamilton Counties, 1950, 1951, 1959, 1962, 1965; and D. S. Correll, Comanche and Hamilton Counties, 1952, 1962.

William L. McCart collected in Brown County in 1965-66 while teaching botany at Howard Payne College. None of the collections of the above collectors are the subject of any specific publications.

The author made a preliminary survey of Brown County in 1966-67 (Stanford, 1967). Over 440 species in 85 families, exclusive of the Compositae were reported.

Additional collections include those made by students of the author while he was employed at Howard Payne College in 1966-68.

## CHAPTER IV

### SOME ECOLOGICAL CONSIDERATIONS

The most striking feature in the research area is the Cross Timbers region, represented by the western strip of wooded land known as the West Cross Timbers. The name "Cross Timbers" has been applied to the north-south stretch of stunted woodland that reaches from Oklahoma through Central Texas as far as Travis County (Hill, 1901; Dyksterhuis, 1948). Kennedy (1841) was probably the first to write about the Cross Timbers, but did not originate the term as is indicated from the following. He wrote:

The Cross Timbers of Northern Texas, which may be deemed one of the natural curiosities of the country, forms a remarkable feature in its topography. The following description of it is founded upon information furnished by respectable persons who have resided for several years in its vicinity, . . .

He continued by giving a detailed report of the Cross Timbers:

The Cross Timbers is a continuous series of forests, extending from the woody region at the source of the Trinity, . . . across the apparently interminable prairies of northern Texas and the Ozark territory to the southern bank of the Arkansas river. . . . It appears in the distance like an immense wall of woods stretching from south to north. . . . There appears to be no peculiarity in the surface of the ground over which the Cross Timber passes, to distinguish it from the surface of the adjoining

country. . . . The trees . . . are not distinguishable by any peculiarity from those . . . found in the adjoining prairies, or in the bottoms bordering the streams. . . .

Kennedy also remarked that:

. . . the Cross Timber forms the great landmark of the western prairies; and the Indians and hunters when describing their routes across the country, . . . refer to the Cross Timbers, as the navigators of Europe refer to the meridian of Greenwich.

The origin of the name "Cross Timbers" is not recorded according to Dyksterhuis (1948), but:

. . . presumably alludes either to the fact that this forest extends north and south across, rather than along, the major streams all of which flow eastward; or to the fact that early westward travelers who had left the main body of the great eastern forest and entered upon open prairie found it necessary to cross yet another body of forest before entering upon the grasslands that extended to the Rocky Mountains.

In addition to the Western Cross Timbers, Gould (1969), Correll and Johnston (1970), Hill (1901) and others include the Rolling Plains and Grand Prairie as vegetational types. Allred (1955) and Allred (in Weaver and Albertson, 1956) included all of the area (Figure 4) as True Prairie. He states (1955) that:

Local soil conditions . . . have profoundly modified the vegetation from what is normal for the climate. Two examples are presented as follows:

1. Communities of bottomland hardwoods along streams that drain grasslands. High water tables or occasional flooding provide added moisture and . . . soils of such river bottoms grow trees instead of grasses.

2. Sandy, gravelly and rocky areas . . . also improve local soil moisture conditions in the grassland formation.

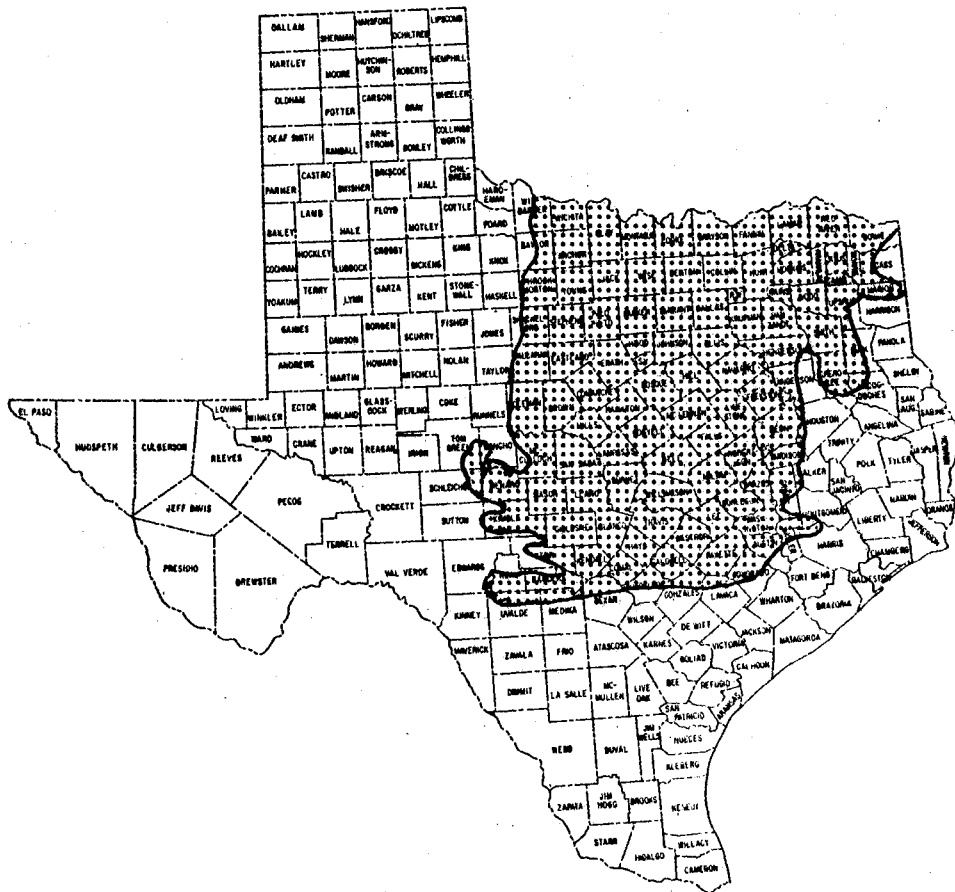


Figure 4. Distribution of True Prairie in Texas.  
(Allred, 1955)

Allred indicates that local plant patterns modified by soil conditions are found in the Cross Timbers, Lampasas Cut Plain (Grand Prairie) and eastern Edwards Plateau (Rolling Plains).

Within the True Prairie, Allred (1955) then recognized essentially the same vegetational types as described by numerous other writers.

Although much of the native cover has been removed by modern civilization, there are sufficient remnants or relicts to indicate the original vegetation. The key grasses include Andropogon scoparius, A. Gerardi, Sorghastrum nutans, Panicum virgatum, Tridens flavus, and Bouteloua curtipendula. The dominant ligneous vegetation includes Quercus stellata, Q. marilandica, Q. virginiana, Q. shumardii, Ulmus americana, U. crassifolia, Carya illinoensis, Prosopis juliflora, and Celtis laevigata.

Because of long abuse and misuse of ranges, except in a few protected situations, the present vegetation is not only influenced by climate and soil, but also by grazing of domestic animals and other agricultural practices. As a result of poor management, much of the original vegetation has been displaced, resulting in a disclimax of mid to short grasses (Mixed Prairie) in place of the True Prairie. Some of the Mixed Prairie grasses include: Buchloe dactyloides, Hilaria Belangeri, Bouteloua hirsuta, B. rigidiseta, B. trifida, Andropogon

saccharoides, Aristida glauca, A. oligantha, and A. purpurea. Also, in recent years, there has been an increase in invader species of trees and small shrubs including: Condalia obtusifolia, Aloysia lycioides, Acacia Greggii, A. Roemeriana, Prosopis juliflora, and Quercus sinuata, var. breviloba.

The vegetation types included in the area support the following floristic associations (as used here the term association refers to any relatively stable community without regard to climax).

#### Floristic Associations

##### Grasslands Consisting of True Prairie Association and Mixed Prairie Disclimax.

True Prairie still exists in portions of the more mesic Grand Prairie region, especially of Hamilton County and to a lesser extent in southern Comanche and Brown Counties (Figure 5). Lowlands, particularly open, low valleys throughout the area, also support tall grasses in the understory such as Andropogon scoparius, Panicum virgatum, Tridens flavus, and occasional Andropogon Gerardi. Under favorable grazing, soil, and moisture conditions, Andropogon scoparius dominates upland sites of the West Cross Timbers and Rolling Plains as well as the Grand Prairie. Much of the True Prairie has long since been plowed under and used for cultivation. This is true, not only for Central Texas, but throughout the Midwest (Benson, 1965).



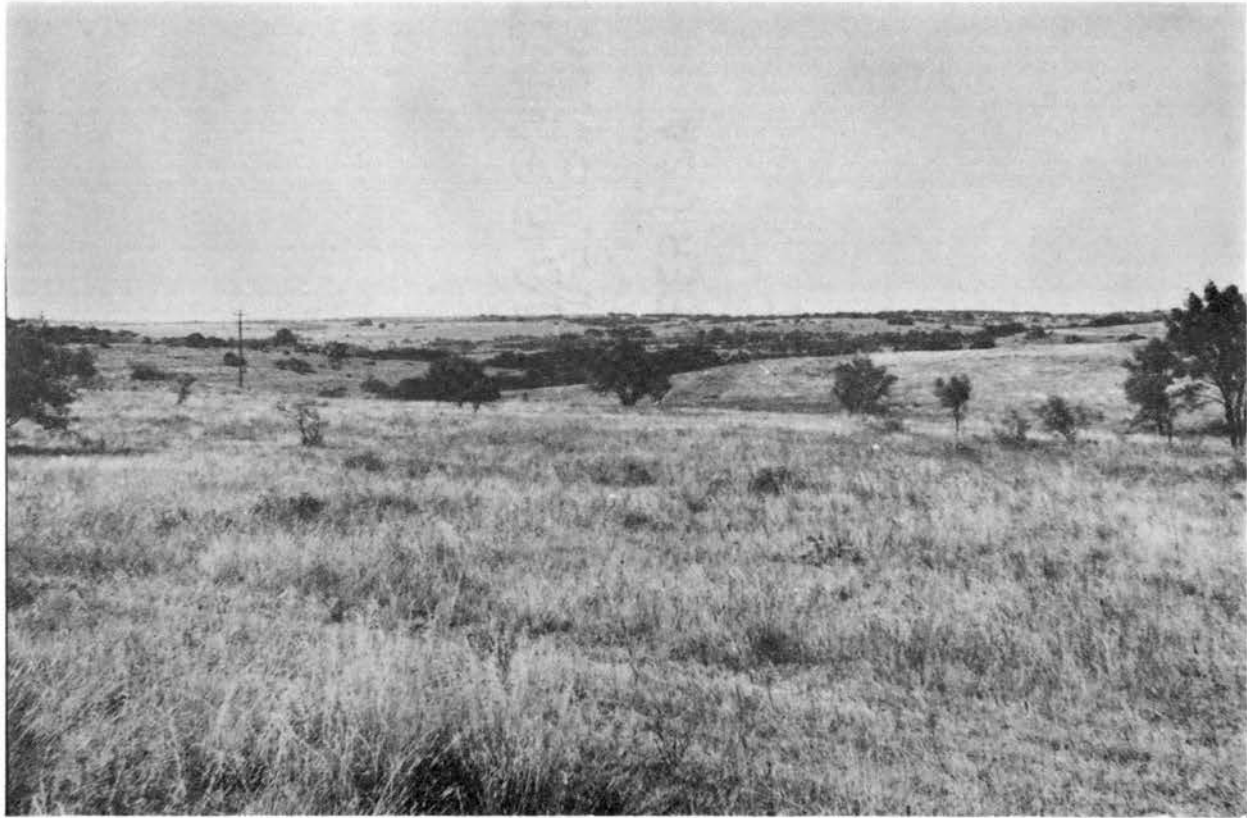


Figure 5. True Prairie Association of the Grand Prairie Region.

The Mixed Prairie association occurs as a disclimax to the True Prairie as previously indicated. This grassland association is found extensively in all three physiographic regions and appears to be more prevalent than True Prairie.

Mesquite Grassland Association.

Vast acreage of not only Central Texas, but also the entire western two-thirds of the state has undergone rapid invasion of Prosopis. It is practically impossible to find any grassland in the area without at least a few small to moderate size mesquite trees (Figure 6). Where invasion by Prosopis is heavy, available moisture is reduced, resulting in fewer tall grasses and more mid and short grasses. Among the latter, Buchloe dactyloides, Hilaria Belangeri, Bouteloua trifida, B. hirsuta, Hordeum pusillum, and Aristida purpurea are important increasers. Andropogon sacchariodes is by far the most important increaser. With increased grazing, even some of these grasses are replaced by invaders including Bouteloua rigidisetata, Chloris verticillata, Eragrostis oxylepis, and Schedonnardus paniculatus. Gutierrezia dracunculoides and Croton monanthogynus also increase under similar stress. Some of the woody plants in addition to Prosopis include Acacia Greggii, Mimosa biuncifera, M. borealis, Celtis laevigata, and C. reticulata. A few live oak trees, Quercus virginiana, and junipers, Juniperus Ashei may become part of this grassland. Opuntia leptocaulis,

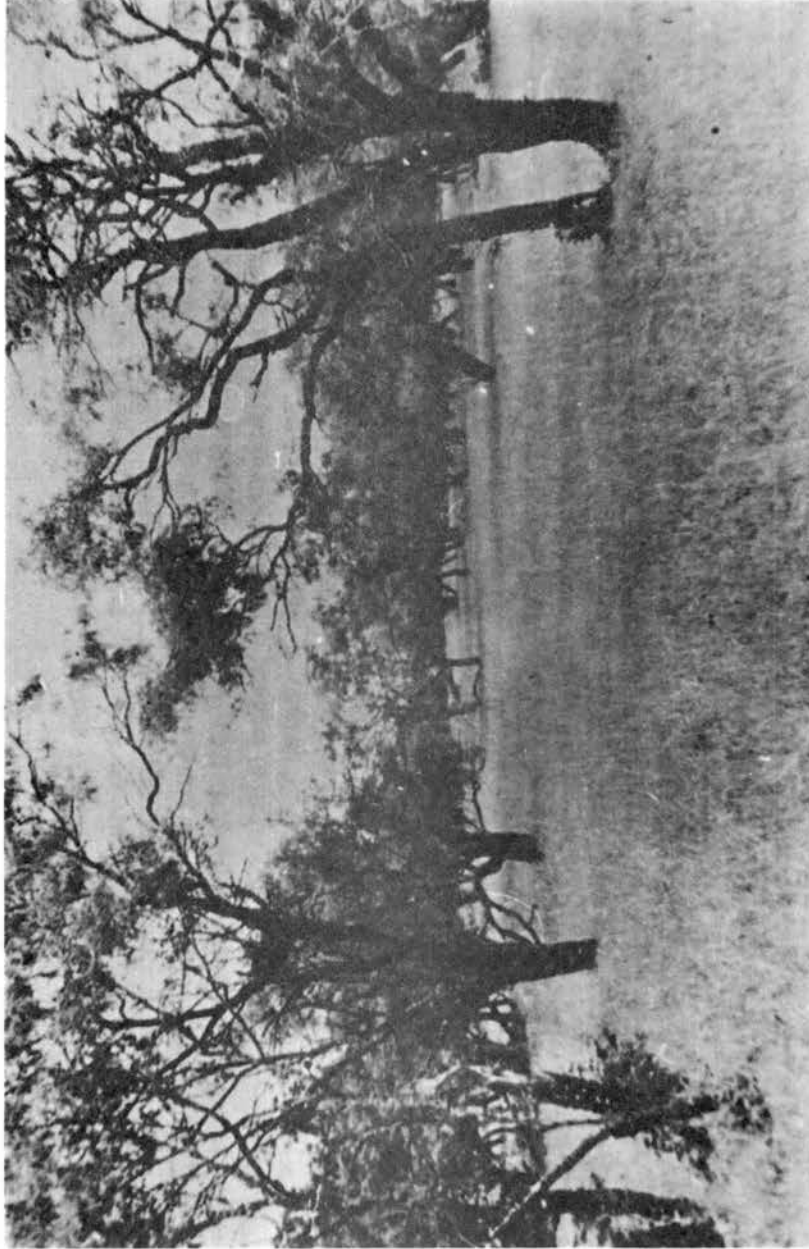


Figure 6. Open Mesquite Grassland. (Photo from Texas Forest Service)

Condalia obtusifolia, Yucca constricta, and Y. rupicola are also important increasers on the mesquite grasslands. Oak Woodland Association.

This is the West Cross Timbers type that is developed on deep sands, sandy loams, shallow loams, and loose sands. Yellow calcareous clays are also important soils. Quercus stellata is the most prominent tree species, occurring occasionally in pure stands (Figure 7). Q. marilandica is often associated with the post oak, but it is rarely or never the dominant species. Other woody species include Q. shumardii, Q. virginiana, Ulmus crassifolia, Celtis reticulata, Cercis canadensis var. texensis, Prosopis juliflora, Rhus aromatica var. flabelliformis, R. copallina, and R. glabra. The understory in open woodlands consists of rather typical mid and tall grasses.

Much of this Oak Woodland is open to such an extent that it is often referred to as Post Oak Savanna, Post Oak-Live Oak Savanna, Post Oak-Blackjack Oak Savanna, or Live Oak Savanna, depending upon the dominant trees. These savannas exist only in that small motts of trees occur, scattered over the level to moderately rolling grasslands. Figures 8 and 9 illustrate a rather typical Live Oak Savanna in Hamilton County. The intervening grassland is a moderately grazed Mixed Prairie Disclimax. Shinnery Oak Type.

Shinnery Oak (Quercus sinuata var. breviloba) is infrequent, but is locally abundant in north central

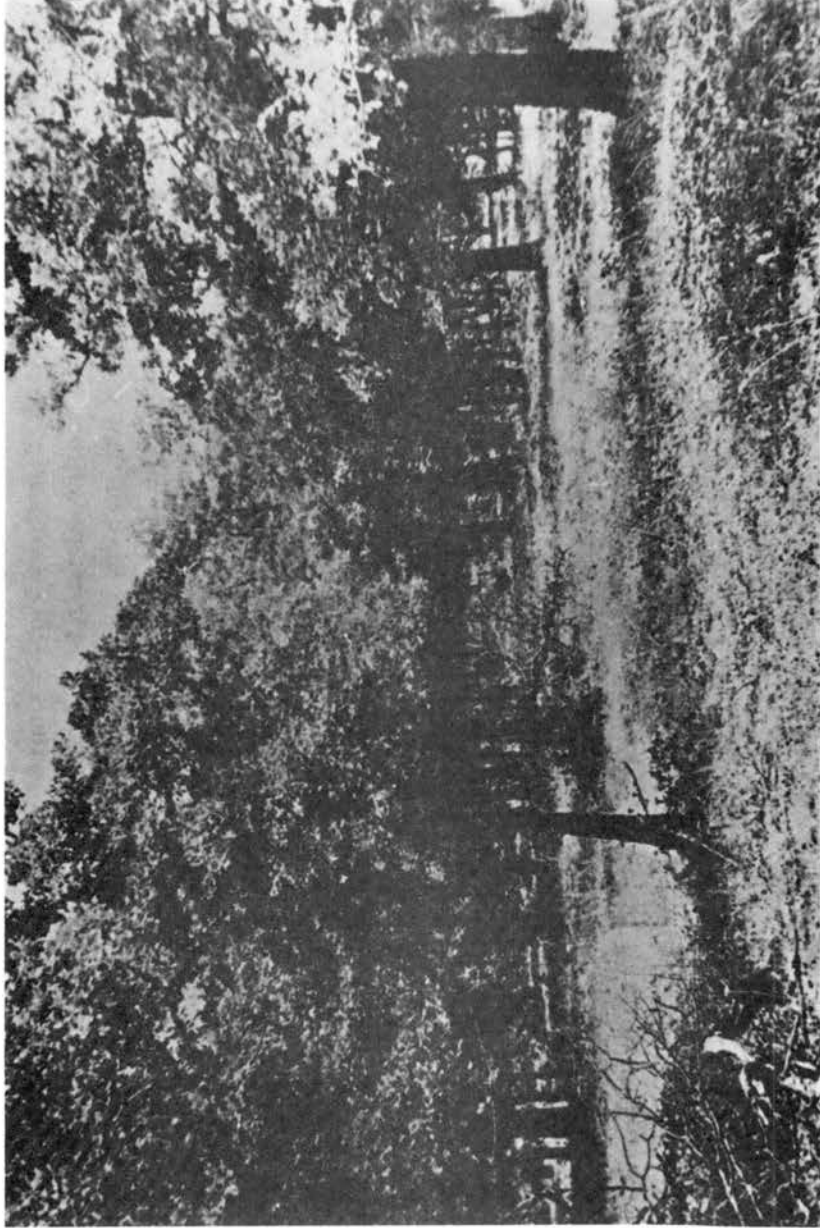


Figure 7. Post Oak Woods. (Photo from Soil Conservation Service)

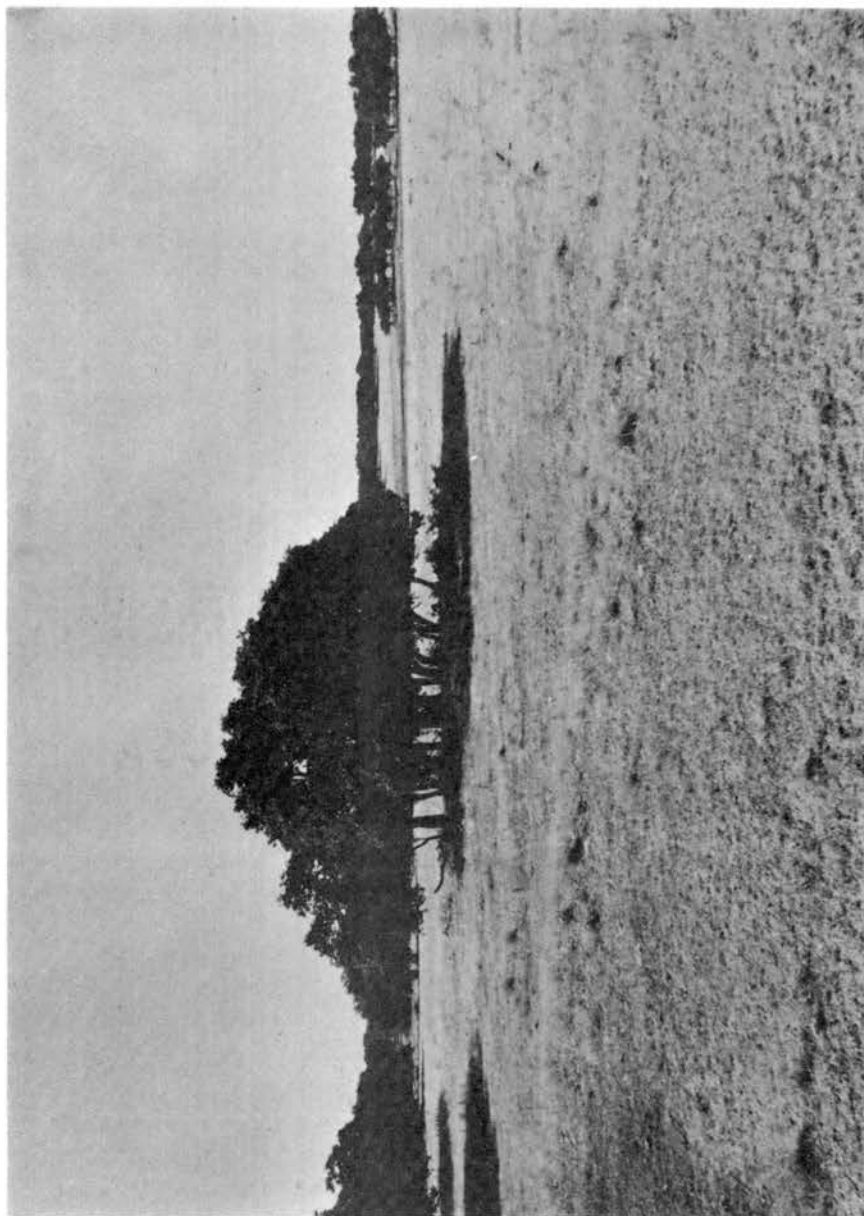


Figure 8. Live Oak Savanna.

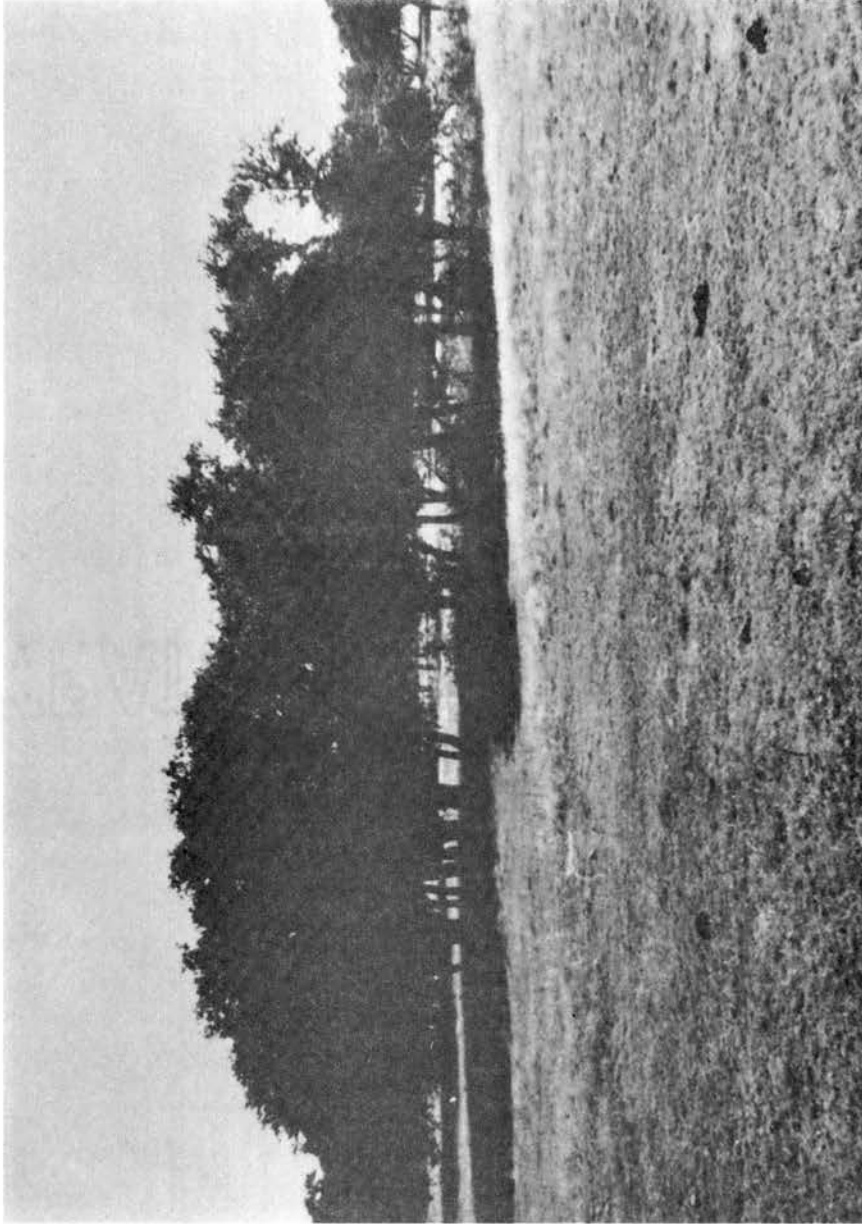


Figure 9. Live Oak Savanna. Single mott.

Brown County and the hilly southwestern portion of Hamilton County. This development in Hamilton County is on thin, stony soils of the Grand Prairie but greatly resembles the shinnery type that is common on the Western Cross Timbers in Brown County and the Rolling Plains farther north and west.

Oak-Cedar-Mesquite Association.

Though limited in extent, this association is easily recognized. It is developed on the most rugged terrain of the Grand Prairie and West Cross Timbers of south-central Comanche, central and northeast Hamilton, and extreme southeast Brown County. Prosopis juliflora var. glandulosa, Juniperus Ashei, and Quercus virginiana are the dominant trees. Also abundant are low and medium shrubs including Rhus aromatica var. flabelliformis, R. copallina, Ungnadia speciosa, Cercis canadensis var. texensis, Prunus angustifolia, and Sophora affinis. The understory grasses include Andropogon scoparius, A. saccharoides, Bouteloua curtipendula, B. hirsuta, Buchloe dactyloides, Aristida longiseta, A. oligantha, and A. Wrightii. Several species of cactus are abundant also. These include Opuntia leptocaulis, O. macrorhiza, O. phaeacantha, Mammillaria gummifera, and Echinocereus Reichenbachii.

In many areas where mesquite and live oak have been bulldozed, junipers (referred to throughout the Southwest as "cedar") quickly invade the area and create serious



problems for the local ranchers (Figure 10).

Oak-Sumac-Redbud Association.

Stony slopes of moderate to steep hills are composed of this association. It is not only developed on rough, nonarable hills and ridges of the West Cross Timbers, but also upon dry slopes and prairie ridges of the Grand Prairie and Rolling Plains. The apparent dominants Quercus Shumardii, Rhus glabra, R. copallina, and Cercis canadensis var. texensis are primarily responsible for the colorful assemblage of foliage that occurs each fall. Associate woody species include Ulmus crassifolia, Rhus aromatica var. flabelliformis, Q. stellata, Q. virginiana, and Crataegus viridis. Understory grasses are essentially non-existent because of the dense canopy. On the lower slopes the canopy is more open and may become transitional to the Mesquite Grassland Association (Figure 11).

Riparian Vegetation.

This floristic type is a flood plain or lowland influenced by permanent or intermittent streams, springs, and the major drainageways throughout the area. This type receives outside water from adjacent uplands and may overflow one or more times each year. The floristic composition includes the vegetation along the banks of streams, ponds, and lakes. The overstory may be very dense, consisting of Quercus macrocarpa, Carya illinoensis, Ulmus americana, U. crassifolia, Salix nigra, Populus deltoides, Platanus occidentalis, Morus rubra, Celtis

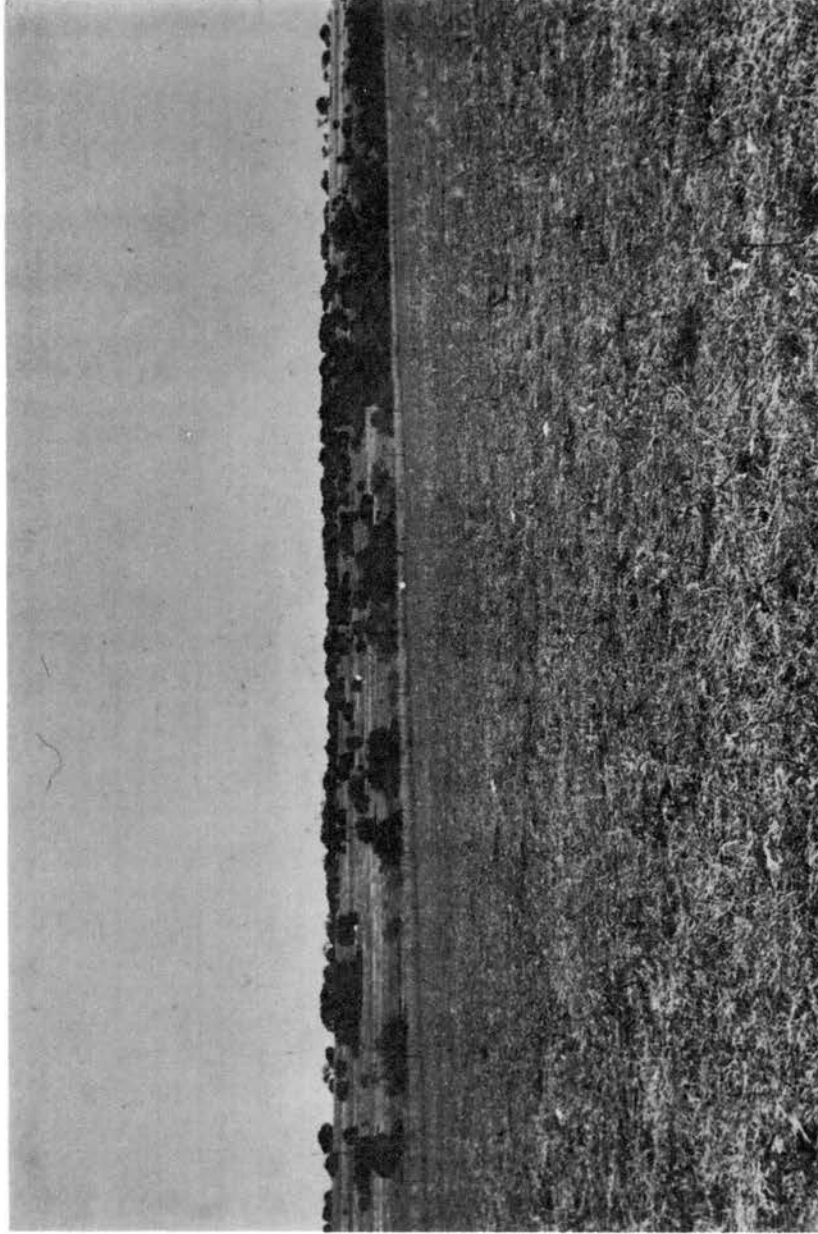


Figure 10. Cedar invaded grassland (in background).



Figure 11. Transitional zone from Oak-Sumac-Redbud to Mesquite  
Grassland Association. (Photo from Soil Conserva-  
tion Service)

laevigata, and Juglans nigra. The understory shrubs and small trees are Rhus glabra, Rhus radicans, Ilex decidua, Crataegus mollis, Rhamnus caroliniana var. mollis. The woody vines include Parthenocissus quinquefolia, Vitis vulpina, V. mustangensis, Ampelopsis cordata, and Smilax bona-nox.

In many of the rich river valleys, much of the woody vegetation has been removed. As a consequence, the hardwoods are maintained as a subclimax for commercial purposes. Figure 12 illustrates such a condition. The understory of these bottomland hardwoods consists of mid and tall grasses, or they are replaced with Coastal Bermuda grass, Cynodon maritimus.

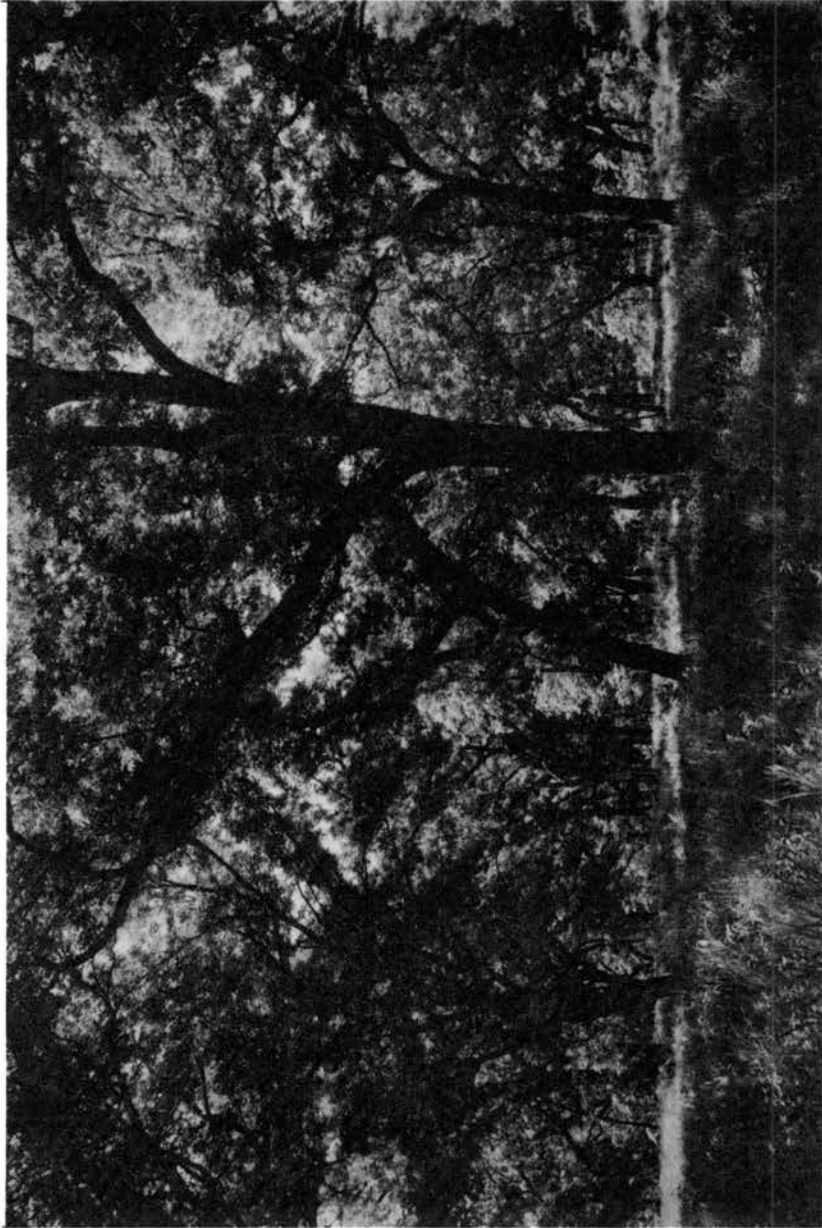


Figure 12. Bottomland Hardwoods Subclimax. (Photo from Soil Conservation Service)

## CHAPTER V

### RANGE EXTENSIONS, ADDITIONS TO THE FLORA OF TEXAS, AND SPECIES OF SPECIAL INTEREST

Because of the location of the research area (Figure 1) bordering between the humid eastern and dry western regions of the state, numerous taxa enumerated in Chapter VI constitute new distribution records. These records are based on the taxonomic literature consulted during the course of this investigation.

In addition to the anomalous taxa listed below, one taxon represents an addition to the flora of the state.

In the following list, each species is followed by a reference to the previously reported Texas ranges according to the vegetational regions listed by Gould (1969) and supplemented by Turner (1959) and Correll and Johnston (1970), and the county or counties within the research area from which collections have been examined by the author.

#### Additions to the Flora of Texas

ALLIUM PORRUM L.; not reported by Ownby (1950), Ownby and Aase (1955), Gould (1969), or Correll and Johnston (1970) from Texas; Hamilton County.

## Range Extensions

SELAGINELLA SHELDONI Maxon; Edwards Plateau, Trans-Pecos; Comanche.

ISOETES MELANOPODA Gay and Durieu; Pineywoods, Gulf Prairies and Marshes, Post Oak Savannah, Blackland Prairies, and Edwards Plateau; Hamilton.

NOTHOLAENA SINUATA (Lag.) Kaulf., var. COCHISENSIS (Goodding) Weatherby; Edwards Plateau, Rolling Plains, High Plains, and Trans-Pecos; Brown.

ECHINODORUS CORDIFOLIUS (L.) Griseb.; Gulf Prairies and Marshes, Post Oak Savannah, and South Texas Plains; Brown, Hamilton.

SAGITTARIA LONGILOBA Engelm.; Gulf Prairies and Marshes, Post Oak Savannah, South Texas Plains, High Plains, and Trans-Pecos; Hamilton.

ERAGROSTIS TRICHODES (Nutt.) Nash, var. PILIFERA (Scheele) Fern.; Post Oak Savannah, Blackland Prairies, Edwards Plateau, and Rolling Plains; Brown.

FESTUCA DERTONENSIS (All.) Aschers. and Graebn. (Vulpia bromoides (L.) S. F. Gray); Blackland Prairies; Hamilton.

MUHLENBERGIA EXPANSA (DC.) Trin.; Pineywoods, Gulf Prairies and Marshes, and Post Oak Savannah; Hamilton.

MUHLENBERGIA SCHREBERI Gmel.; Pineywoods, Gulf Prairies and Marshes, Post Oak Savannah, Blackland Prairies, and Edwards Plateau; Hamilton.

MUHLENBERGIA SOBOLIFERA (Muhl.) Trin.; Pineywoods and Post Oak Savannah; Rowell (1967) reports it from Hamphill County in the High Plains. Hamilton.

PANICUM GEMINATUS Forsk. (Paspalidium geminatum (Forsk.) Stapf.); Pineywoods, Gulf Prairies and Marshes, Post Oak Savannah, and South Texas Plains; Hamilton.

PANICUM HILLMANII Chase; Edwards Plateau, also reported by Rowell (1967) from Lubbock County on the High Plains; Brown, Comanche.

PANICUM RAMISETUM Scribn. (Setaria ramiseta (Scribn.) Pilger); all regions except Pineywoods, Blackland Prairies, and Cross Timbers and Prairies; Brown.

PASPALUM NOTATUM Flugge, var. SAURAE Parodi; Pineywoods, Gulf Prairies and Marshes; Hamilton.

SETARIA ITALICA (L.) Beauv.; Blackland Prairies, Edwards Plateau, Rolling Plains; Brown.

SETARIA LUTESCENS (Wieg.) Hubb.; all regions except Cross Timbers and Prairies and High Plains; Brown.

TRIDENS CHAPMANI Small; Pineywoods; Comanche, Hamilton.

TRIDENS STRICTUS (Nutt.) Nash; Pineywoods, Gulf Prairies and Marshes, and Post Oak Savannah; Comanche.

DICHROMENA NIVEA (Boeck.) Britt.; Pineywoods, Gulf Prairies and Marshes, Post Oak Savannah, Blackland Prairies, and Edwards Plateau; Brown.

WOLFFIA COLUMBIANA Karst.; Gulf Prairies and Marshes, South Texas Plains, and Edwards Plateau; Brown.



TRADESCANTIA EDWARDSIANA Tharp; Blackland Prairies and Edwards Plateau; Brown, Hamilton.

HESPERALOE PARVIFLORA (Torr.) Coulter; Edwards Plateau, Rolling Plains, and Trans-Pecos; Brown.

IPHEION UNIFLORUM (Lindh.) Raf.; adventive, previously reported from Blackland Prairies; Brown.

CELTIS TENUIFOLIA Nutt., var. GEORGIANA (Small) Fern. and Schub.; Pineywoods, Gulf Prairies and Marshes, and Post Oak Savannah; Brown, Comanche.

PILOSTYLES THURBERI Gray; Edwards Plateau, Rolling Plains, High Plains, and Trans-Pecos; Brown, Comanche, Hamilton. Blassingame (1968) reported this parasite from fifty-one counties. At the present, Hamilton County is the easternmost range for Pilostyles. Because of its small size and rather peculiar characteristics, this species has been largely overlooked. With careful observations, future collections should extend the present range far to the east and north in Texas.

AMORPHA LAEVIGATA Nutt.; Pineywoods and Post Oak Savannah; Comanche, Hamilton.

GALACTIA GRAYI Vail; Gulf Prairies and Marshes and South Texas Plains; Brown.

INDIGOFERA MINIATA Ort., var. MINIATA; Post Oak Savannah, Blackland Prairies, and South Texas Plains; Brown, Comanche.

SCHRANKIA OCCIDENTALIS (W. & S.) Standl.; Rolling Plains, High Plains, and Trans-Pecos; Hamilton.

SESBANIA DRUMMONDII (Rydb.) Cory; Pineywoods, Gulf Prairies and Marshes, Post Oak Savannah, Blackland Prairies, and South Texas Plains; Comanche.

VICIA LUDOVICIANA Nutt., var. LUDOVICIANA; Pineywoods, Gulf Prairies and Marshes, Post Oak Savannah, Blackland Prairies, and South Texas Plains; Hamilton.

CROTON CAPITATUS Michx., var. LINDHEIMERI (Engelm. and Gray) Muell. Arg.; Pineywoods, Gulf Prairies and Marshes, Post Oak Savannah, Blackland Prairies, Cross Timbers and Prairies; Johnston (1959) reports it west to the East Cross Timbers. Brown.

RHUS AROMATICA Ait., var. SEROTINA (Greene) Rehd.; Pineywoods, Post Oak Savannah, Blackland Prairies, South Texas Plains, and Rolling Plains; Comanche.

RHUS COPALLINA L., var. LANCEOLATA Gray; Edwards Plateau; Brown, Hamilton.

MODIOLA CAROLINIANA (L.) G. Don; reported for all areas except Cross Timbers and Prairies, Rolling Plains, and High Plains; Brown.

SPHAERALCEA COCCINEA (Pursh) Rydb., var. DISSECTA (Nutt.) Kearney; Edwards Plateau; Brown.

CORYPHANTHA MISSOURIENSIS (Sweet) Britt. & Rose, var. CAESPITOSA (Engelm.) L. Benson; Post Oak Savannah, Blackland Prairies; Hamilton.

CORYPHANTHA VIVIPARA (Nutt.) Britt. & Rose, var. RADIOSA (Nutt.) Backeberg; western half of state; Brown.

FEROCACTUS SETISPINUS (Engelm.) L. Benson; Gulf Prairies and Marshes, Blackland Prairies, and South Texas Plains; Brown.

MAMMILLARIA GUMMIFERA Engelm., var. APPLANTA (Engelm.) L. Benson; South Texas Plains, Edwards Plateau, Trans-Pecos; Brown.

MAMMILLARIA GUMMIFERA Engelm., var. MEIACANTHA (Engelm.) Benson; not in Gould (1969); reported by Benson (in Correll & Johnston, 1970) from west of the Pecos River; Brown.

OPUNTIA FICUS-INDICA (L.) Miller; adventive, according to Benson (in Correll & Johnston, 1970) an occasional escape in Texas and hybridizing occasionally with O. phaeacantha and O. Lindheimeri; Comanche.

OPUNTIA LINDHEIMERI Engelm., var. LINGUIFORMIS (Griffiths) L. Benson; Gulf Prairies and Marshes, South Texas Plains (Bexar County); probably adventive but well established in northern Brown County.

OPUNTIA TUNICATA (Lehm.) Link and Otto, var. DAVISII (Engelm. & Bigelow) L. Benson; Rolling Plains; Brown (also seen near the San Saba River in San Saba County).

GAURA PARVIFLORA Dongl., forma GLABRA Munz; form not distinguished in Gould (1969) or Raven (in Correll & Johnston, 1970). Munz (1944) cites sheets of this form from Bexar, Brewster, Cameron, Dallas, Edwards,

Parker, and Val Verde Counties; Brown, Comanche  
Hamilton.

LUDWIGIA REPENS Forst.; Blackland Prairies, Edwards  
Plateau, Rolling Plains; Comanche, Hamilton.

OENOTHERA TUBICULA Gray; Blackland Prairies, Edwards  
Plateau, Trans-Pecos; Brown.

AMMI MAJUS L.; Pineywoods, Gulf Prairies and Marshes,  
Post Oak Savannah, South Texas Plains; Hamilton.

APIUM LEPTOPHYLLUM (Pers.) F. Muell.; southern and  
southwestern Texas; Hamilton.

BOWLESIA INCANA Ruiz and Pavon; Gulf Prairies and  
Marshes, Post Oak Savannah, Blackland Prairies, South  
Texas Plain, Edwards Plateau; Brown.

POLYTAENIA NUTTALLII DC., var. TEXANA Coult. and  
Rose; Gulf Prairies and Marshes, Blackland Prairies,  
Edwards Plateau; Brown, Comanche, Hamilton.

SPIGELIA LINDHEIMERI Gray; Gulf Prairies and Marshes,  
South Texas Plains, Edwards Plateau; Hamilton.

CYNANCHUM UNIFARIUM (Scheele) Woods.; Gulf Prairies  
and Marshes, Post Oak Savannah, South Texas Plains,  
Edwards Plateau; Trans-Pecos; Brown.

IPOMOEA LACUNOSA L.; Pineywoods, Gulf Prairies  
and Marshes, Post Oak Savannah, Blackland Prairies;  
Hamilton.

PHACELIA HIRSUTA Nutt.; Pineywoods, Gulf Prairies  
and Marshes Post Oak Savannah, Blackland Prairies;  
Brown.

VERBENA HALEI Small, forma ALBIFLORA L. I. Davis;  
South Texas Plains; Brown, Hamilton.

DATURA METELOIDES DC.; south and southwestern Texas;  
Brown, Hamilton.

PHYSALIS LOBATA Torr., forma ALBIFLORA Waterfall;  
South Texas Plains; Brown. This is the second known  
collection for the state. The first collection was  
from Val Verde County. This rare white color form has  
only been collected in two additional states--Arizona  
and Oklahoma.

PHYSALIS PUBESCENS L., var. PUBESCENS; Waterfall  
(in Correll & Johnston, 1970) reports this species only  
from East Texas; Hamilton.

PHYSALIS VIRGINIANA Miller, var. TEXANA (Rydb.)  
Waterfall; Gulf Prairies and Marshes, Post Oak Savannah,  
South Texas Plains, Edwards Plateau; the author examined  
a single sheet in the herbarium of the University of  
Texas from Comanche County.

BACOPA ACUMINATA (Walt.) Robins.; Pineywoods, Gulf  
Prairies and Marshes, Post Oak Savannah, Edwards Plateau;  
Hamilton.

DICLIPTERA BRACHIATA (Pursh) Spreng.; Gulf Prairies  
and Marshes, South Texas Plains; Comanche, Hamilton.

RUELLIA HUMILIS Nutt., var. FRONDOSA Fern.; Post  
Oak Savannah, Edwards Plateau; Comanche.

PLANTAGO LANCEOLATA L.; Blackland Prairies, Edwards Plateau, Trans-Pecos; adventive in Brown.

CUCURBITA TEXANA (Scheele) Gray; Gould (1969) does not designate a vegetation region; Correll and Johnston (1970) report it along several rivers, especially the Guadalupe, that drains the Central Texas portion of the Edwards Plateau; the author's specimens are all from the Leon River drainage system; Hamilton.

APHANOSTEPHUS KIDDERI Blake; Edwards Plateau; Brown.

ASTER SIMPLEX; Gulf Prairies and Marshes, Blackland Prairies; Brown.

BERLANDIERA LYRATA Benth., var. LYRATA; western half of the state; Brown.

CENTAUREA MELITENSIS L.; southwestern Texas; Brown, Comanche, Hamilton.

COREOPSIS NUECENSIS A. Heller; Gulf Prairies and Marshes, Post Oak Savannah, South Texas Plains; Comanche.

GNAPHALUM CHILENSE Spreng.; Trans-Pecos, also reported by Rowell (1967) from the High Plains; Brown.

PALAFIXIA TEXANA DC., var. TEXANA; South Texas Plains; Brown.

ZINNIA GRANDIFLORA Nutt.; western half of the state; Brown.

## Species of Special Interest

The following list is composed of several taxa which are of special interest from the various aspects enumerated in the compilation list in Chapter VI.

<u>Taxa</u>	<u>Page</u>
SISYRINCHIUM	83
LUPINUS TEXENSIS Hook.	123
LINUM IMBRICATUM (Raf.) Shinnars	131
SIDA PROCUMBENS complex	146
EUSTOMA GRANDIFLORUM complex	165
PHYSALIS HETEROPHYLLA Nees <u>vel.</u> <u>aff.</u>	182
CASTILLEJA PURPUREA complex	185
LINDHEIMERA TEXANA Engelm. and Gray	212
THELESPERMA AMBIGUUM Gray	218

CHAPTER VI

TAXA, HABITATS, AND DISTRIBUTION

SELAGINELLACEAE  
(Correll, 1956)

SELAGINELLA

S. SHELDONI Maxon (S. peruviana (Milde.) Hieron.); locally abundant in gravel soils of conglomerate ridge on wooded slopes; January; one collection of 12 sheets from Comanche County.

ISOETACEAE  
(Correll, 1956)

ISOETES

I. MELANOPODA Gay and Durieu; fine gravel wash of ravine, in prairie; May; 8 sheets. COUNTIES: Hamilton.

OPHIOGLOSSACEAE  
(Correll, 1956)

OPHIOGLOSSUM

O. ENGELMANNI Prantl; cited by Correll from Brown County, Palmer 11432 and Hamilton County, V. L. Cory 53806.



MARSILEACEAE  
(Correll, 1956; Gupta, 1957)

MARSILEA

M. MACROPODA Engelm. ex A. Br.; wet clay soil along margins of pond and rocky creek bed; mid June through July; 11 sheets. COUNTIES: Brown, Hamilton.

M. MUCRONATA A. Br.; moist margins of streams, lakes, and rivers; June and July; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

POLYPODIACEAE  
(Correll, 1956)

ADIANTUM

A. CAPILLUS-VENERIS L.; seepage areas near spring; June; 1 sheet. COUNTIES: Brown (Clark 8).

ASPLENIUM

A. RESILIENS Kunze; crevices and ledges of limestone cliffs; February through July; 4 sheets. COUNTIES: Brown.

CHEILANTHES

C. ALABAMENSIS (Buckl.) Kunze; shaded limestone ledges along creeks and wooded valleys; February through May; 13 sheets. COUNTIES: Brown, Hamilton.

C. EATONI Baker; rocky knoll, about limestone boulders and crevices; February through March; 6 sheets. COUNTIES: Brown. (In addition to the author's collections, C. Eatonii

has been cited by Correll from Brown County as Palmer 11908 (in part).

C. FEEI Moore (C. lanuginosa Nutt. ex Hook., C. gracilis of authors, not Kaulf.); along dry limestone ledges in deep rock cut of railroad; July; 1 sheet. COUNTIES: Brown, Hamilton (cited by Correll as: J. Reverchon sin. num.).

C. HORRIDULA Maxon; in dry crevices of low limestone cliff and beneath ledges of deep rock cut of railroad; January through July; 3 sheets. COUNTIES: Brown.

C. TOMENTOSA Link (C. lanosa Fernald, not Eaton); crevices of limestone ledges above creek, on and about dry limestone ledges and boulders of railroad cut; July through August; 10 sheets. COUNTIES: Brown (including Stanford and Blassingame 1229 and 1231; also cited from Brown County by Correll as: Palmer 11908 [in part]).

#### NOTHOLAENA

N. SINUATA (Lag.) Kaulf., var. COCHISENSIS (Goodding) Weatherby; dry limestone ledges of old railroad cut. This species represents an extension of its range with the nearest collections being from Sterling County to the west and Edwards County to the south. It was probably introduced by railroad traffic. March through July; 2 sheets. COUNTIES: Brown.

## PELLAEA

P. ATROPURPUREA (L.) Link; rocky ledges, in and among crevices and limestone boulders; February through August; 22 sheets. COUNTIES: Brown (including Stanford and Blassingame 1226; also cited by Correll from Brown County as: Palmer 11115), Comanche (K. Clowdus 1), Hamilton.

P. DEALBATA (Pursh) Prantl; narrow horizontal crevices in limestone cliffsides in afternoon shade; February through September; 10 sheets; COUNTIES: Brown (cited by Correll from Brown County as: Palmer 10377, 11114).

## WOODSIA

W. OBTUSA (Spreng.) Torr.; known from a single collection from Comanche County; moist rocky ledges in narrow canyon; 17 January.

## PINACEAE

## JUNIPERUS

(Hall, 1952; Hall, et al., 1961)

J. ASHEI Buckl. (J. mexicana Spreng.); dry, open limestone hills and invading grasslands on overgrazed ranges, occasional along rocky creek valleys. Hall (1952) indicates that this species can be distinguished from J. monosperma on the basis of the glands on mature leaves. Hall, et al. (1961) has indicated that J. Ashei and J. Pinchoti introgress freely where the ranges overlap. The author has failed to find any J. Pinchoti in the area;

however, it is known from two adjacent counties, Coleman and Callahan. Late March through mid August; 7 sheets.

COUNTIES: Brown, Hamilton.

J. MONOSPERMA (Engelm.) Sarg.; sandy slopes of wooded creek valley; August; 1 sheet. COUNTIES: Hamilton.

#### GNETACEAE

#### EPHEDRA (Cory, 1938)

E. ANTISYPHLITICA Berl. ex C. A. Meyer; rugged slopes of steep sandstone hill, April through October; 6 sheets. COUNTIES: Brown.

E. PEDUNCULATA Engelm. Reported by Robert Vines from Brown County. The author has seen no material attributable to this species.

#### TYPHACEAE

#### TYPHA (Hotchkiss, 1949; Muenscher, 1967)

T. ANGUSTIFOLIA L.; moist ditches and seepage areas from hillside into outlying marshes; May; 2 sheets.

COUNTIES: Brown.

T. DOMINGENSIS Pers. (T. truxillensis H. B. K., T. angustifolia p.p. of authors); margins of erosion control dam and enclosing pond, on prairie; July; 2 sheets.

COUNTIES: Hamilton.

## ZOSTERACEAE

## POTAMOGETON

(Fernald, 1932; Ogden, 1943)

P. FOLIOSUS Raf.; submersed in shallow streams and ponds; May through mid August; 6 sheets. COUNTIES: Brown.

P. NODOSUS Poiret; quiet, shallow streams and backwaters and lakes; late April through July; 7 sheets. COUNTIES: Brown, Comanche.

## ZANNICHELLIA

(Morong, 1893)

Z. PALUSTRIS L.; rapid, shallow streams; early May through mid June; 24 sheets. COUNTIES: Hamilton.

## NAJADACEAE

## NAJAS

(Morong, 1893)

N. GUADALUPENSIS (Spreng.) Magnus; submersed in shallow water of streams, ponds, and seepage pools; late May through October; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

## ALISMATACEAE

(Muenscher, 1967)

## ECHINODORUS

E. BERTEROI (Spreng.) Fassett; boggy margins of lakes; mid June to early July; 9 sheets. COUNTIES: Comanche,

Hamilton.

*E. CORDIFOLIUS* (L.) Griseb. (*E. radicans* (Nutt.) Englem.); shallow water of reservoir and saturated marshes; June; 4 sheets. COUNTIES: Brown, Hamilton.

#### SAGITTARIA

*S. LONGILOBA* Engelm.; muddy drainage channel of lake; July; 3 sheets. COUNTIES: Hamilton.

*S. PLATYPHYLLA* (Engelm.) J. G. Smith; margins of lake; July; 3 sheets. COUNTIES: Comanche.

#### HYDROCHARITACEAE

##### ELODEA (Muenscher, 1967)

*E. DENSA* (Planchon) Caspary (*Anacharis densa* (Planchon) Marie-Vict.); rooted in water 4-6 feet deep in lakes and reservoirs; late June to mid July; 9 sheets. COUNTIES: Brown, Comanche.

##### GRAMINEAE (Hitchcock and Chase, 1950)

##### ANDROPOGON (Gould, 1957)

*A. BARBINODIS* Lag., var. *PERFORATUS* (Trin.) Gould; limestone hillside; October; 2 sheets. COUNTIES: Brown (also cited by Gould from Brown County as Gould 5681), Comanche.

*A. GERARDI* Vitman, var. *GERARDI*; fertile, broad

grassy ravine at base of hill; September; 2 sheets.

COUNTIES: Hamilton.

A. GERARDI Vitman, var. CHRYSOCOMUS (Nash) Fernald; among calcareous rocks below dam of large lake; October; 1 sheet. COUNTIES: Brown (Mc Cart et al. 9184).

A. ISCHAEMUM L., var. SONGARICUS Ruprecht; sandy soils of prairies and stony hillsides; May through October; 3 sheets. COUNTIES: Brown (McChesney 6, Geeslin 243), Comanche.

A. SACCHAROIDES Swartz, var. TORREYANUS (Steud.) Hack; sandy to stony limestone prairies and hillsides; early May through mid October; 3 sheets. COUNTIES: Brown (Geeslin 267, Holder 22), Hamilton.

A. SCOPARIUS Michx.; dry ravine on slopes of limestone hills and slopes of wooded hills; October through August; 4 sheets. COUNTIES: Comanche.

A. VIRGINICUS L., var. ABBREVIATUS (Hack.) Fernald and Griscom (incl. var. corymbosus (Chap.) Fernald and Griscom and A. glomeratus (Walt.) B. S. P.); seepage areas at base of eroded limestone hill, rocky ravines, and open prairies; early October through late January; 10 sheets. COUNTIES: Brown.

A. VIRGINICUS L., var. HIRSUTIOR (Hack.) Hitchc.; moist, boggy flats adjacent to small lake; collected in late fruit in March; 3 sheets. COUNTIES: Comanche.

## ARISTIDA

A. GLAUCA (Nees) Walp.; overgrazed prairies; October; 1 sheet. COUNTIES: Brown (Peacock 32).

A. LONGISETA Steud.; limestone outcrops, in yellow calcareous soil of disturbed prairies; late July through mid October; 3 sheets. COUNTIES: Brown, Comanche.

A. OLIGANTHA Michx.; in sand, clay, and limestone soils of prairies and hillsides; early September through late October; 8 sheets. COUNTIES: Brown, Comanche.

A. PURPUREA Nutt.; common throughout area on sandy to limestone and clay soils of prairies and hillsides; October; 1 sheet. COUNTIES: Brown (Estopinal 20).

A. WRIGHTII Nash; thin limestone soils of eroded hillsides; June; 5 sheets. COUNTIES: Brown.

## ARUNDO

A. DONAX L.; not infrequent as erosion control in ravines, escaping into moist valleys; October; 3 sheets. COUNTIES: Brown.

## AVENA

A. FATUA L.; waste places, along ditches and fences adjacent to fields; April; 1 sheet. COUNTIES: Comanche (Weathermon 79).

A. SATIVA L.; persisting along roadsides and on ungrazed prairie; May; 1 sheet. COUNTIES: Hamilton.



## BOUTELOUA

B. CURTIPENDULA (Michx.) Torr.; frequent on moderately grazed prairies and hillsides, in sand and limestone soils; June through early October; 5 sheets. COUNTIES: Brown, Comanche (Bratton sin. num.).

B. HIRSUTA Lag., var. HIRSUTA; sandy, gravel, and limestone soils of dry hillsides and margins of oak woods and playa lake; mid July through early October; 22 sheets. COUNTIES: Brown, Comanche, Hamilton.

B. HIRSUTA Lag., var. PECTINATA (Featherly) Cory; on slopes and clearings of oak-juniper association on limestone hills; August; 6 sheets. COUNTIES: Brown, Comanche, Hamilton.

B. RIGIDISETA (Steud.) Hitchc.; deep sandy soils of prairie and limestone outcrops and dry open wooded hillsides; late April through mid October; 11 sheets. COUNTIES: Brown.

B. TRIFIDA Thurb.; infrequent on limestone soils; October; 3 sheets. COUNTIES: Brown.

## BROMUS

B. JAPONICUS Thunb. (incl. B. commutatus Schrad.); limestone and sandy soils, on prairies and old fields; early May through mid June; 9 sheets. COUNTIES: Brown, Hamilton.

B. RACEMOSUS L.; limestone upland, in prairie; May; 1 sheet. COUNTIES: Hamilton.

B. UNIOLOIDES (Willd.) H. B. K. (B. catharticus Vahl); common throughout area, on disturbed limestone and sandy prairies; early April through late June; 3 sheets. COUNTIES: Brown (Rathke 106, Geeslin 99), Comanche (Teeters 13).

#### BUCHLOE

B. DACTYLOIDES (Nutt.) Engelm.; sandy, limestone, and thin calcareous clay soils, in prairies and woodlands of slopes; early May through late September; 7 sheets. COUNTIES: Brown, Hamilton.

#### CENCHRUS

C. INCERTUS M. A. Curtis; sands and sandy clay throughout area, particularly on disturbed prairies and woods; 1 sheet. COUNTIES: Brown (Geeslin 219).

C. PAUCIFLORUS Benth. (incl. C. Albertsonii and C. longispinus); disturbed sandy soils, in prairies and woods; late June through October; 2 sheets. COUNTIES: Brown (Rathke 92, Lee 17).

#### CHLORIS

C. CUCULLATA Bisch.; limestone and clay soils, in disturbed sites; mid August through mid October; 2 sheets. COUNTIES: Brown, Hamilton.

C. VERTICILLATA Nutt.; limestone, sandy, and stony soils, on hillsides and along roads; April through mid

October; 6 sheets. COUNTIES: Brown, Comanche.

C. VIRGATA Swartz; sand and clay soils on disturbed sites; late June; 6 sheets. COUNTIES: Brown.

#### CYNODON

C. DACTYLON (L.) Pers.; sandy and clay loam soils, established along many streams and ponds; August; 1 sheet. COUNTIES: Hamilton.

#### DIGITARIA

D. ADSCENDENS (H. B. K.) Henrard; cited by Gould (1963) from Hamilton County.

D. SANGUINALIS (L.) Scop.; sandy and sandy loam soils of disturbed sites along roads and bridges, in creek valleys and margins of woods; late June through mid August; 7 sheets. COUNTIES: Comanche, Hamilton.

#### DISTICHLIS

D. STRICTA (Torr.) Rydb. (D. spicata (L.) Greene, var. stricta (Torr.) Beetle); 1 specimen examined from limestone hill in shallow ravine; October; 2 sheets. COUNTIES: Comanche (Bratton sin. num.).

#### ECHINOCHLOA (Shinners, 1954)

E. COLONUM (L.) Link; sandy to rocky soils, in creek valleys and disturbed areas in towns; late June through early November; 7 sheets. COUNTIES: Brown (Rathke 100,

Alford 16), Hamilton.

E. CRUSGALLI (L.) Beauv. (incl. var. microstachya (Wieg.) Shinnery and var. zelayensis (H. B. K.) Hitchc.); sandy loam soils, in creek beds and disturbed sites around farm building; June; 3 sheets. COUNTIES: Brown, Comanche (Anders 15).

#### ELEUSINE

E. INDICA (L.) Gaertn.; waste areas and about buildings and sidewalks; September; 3 sheets. COUNTIES: Brown.

#### ELYMUS (Shinnery, 1954)

E. CANADENSIS L. (incl. var. canadensis and var. brachystachys (Scrib. and Ball) Farwell); sandy loam and clay soils, along roadsides and prairies and ravines; early May through late June; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. VIRGINICUS L., var. VIRGINICUS; sandy loam soils in wooded river valleys; late April through July; 10 sheets. COUNTIES: Brown, Hamilton.

#### ERAGROSTIS (Shinnery, 1954)

E. BARRELIERI Daveau; frequent in disturbed sandy and clay soils of fields, roadsides, wooded hills, and prairies; late June through November; 6 sheets. COUNTIES: Brown Comanche.

E. CURTIPEDICELLATA Buckl.; sandy to coarse sandy gravel soils in dry meadows, old fields, and slopes of wooded hills; late April through mid August; 11 sheets.

COUNTIES: Brown, Comanche, Hamilton.

E. CURVULA (Schrad.) Nees; deep sand and clay soils, on banks of ravines and open woodland grasslands; July through late October; 2 sheets. COUNTIES: Comanche.

E. INTERMEDIA Hitchc.; clay and thin sandy gravel soils, on hills and slopes of wooded hillsides; early June through mid September; 5 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. LUGENS Nees; dry post oak-blackjack woods in sandy loam; this species is separated from E. intermedia by the length, number of florets per spikelet and length of the lemmas; one specimen has been collected on 20 July in Hamilton County. 3 sheets.

E. MEGASTACHYA (Loel.) Link (incl. E. cilianensis (All.) Lutati); sandy loam and yellow clay soils of disturbed sites; late June through early November; 2 sheets. COUNTIES: Brown (Rathke 99, Parker 10).

E. OXYLEPIS (Torr.) Torr., var. OXYLEPIS; sand and clay soils of disturbed sites; July through October; 3 sheets. COUNTIES: Brown (McChesney 1), Hamilton.

E. OXYLEPIS (Torr.) Torr. var. BEYRICHII (J. G. Sm.) Shinnars; disturbed sites, gravel pit; August; 1 sheet. COUNTIES: Hamilton.

E. SPECTABILIS (Pursh) Steud.; dry limestone prairie;

October; 1 sheet. COUNTIES: Comanche (Bratton sin. num.).

E. TRICHODES (Nutt.) Nash, var. TRICHODES; sandy loam soil, edge of oak woods in creek valleys; June through July; 2 sheets. COUNTIES: Comanche.

E. TRICHODES (Nutt.) Nash, var. PILIFERA (Scheele) Fernald; dry rocky creek bed; September; 5 sheets. COUNTIES: Brown.

#### ERIOCHLOA

E. SERICEA (Scheele) Munro.; thin limestone soils on hills and hillsides; early May through late June; 8 sheets. COUNTIES: Brown, Hamilton.

#### FESTUCA

F. DERTONENSIS (All.) Aschers. and Graebn.; moist prairie meadows, in black limestone soil; May; 3 sheets. COUNTIES: Hamilton.

F. OCTOFLORA Walt., (Vulpia octoflora (Walt.) Rydb.); moist prairie meadows in black limestone soil; May; 1 sheet. COUNTIES: Hamilton.

#### HILARIA

H. BELANGERI (Steud.) Nash; limestone and sandstone soils on rocky prairies and outcrops; September through December; 8 sheets. COUNTIES: Brown.

## HORDEUM

H. LEPORIUM Link; woodlands, beneath low trees and also around farm buildings; April to early May; 8 sheets. COUNTIES: Brown (Turner 12), Hamilton.

H. PUSILLUM Nutt.; sandy and clay soils of prairies and lower slopes of hillsides, persisting around abandoned city lots; April to early May; 3 sheets. COUNTIES: Brown, Hamilton.

## LEPTOCHLOA

L. DUBIA (H. B. K.) Nees; sandy to limestone clay soils of prairies, drainage areas and open woodlands; late August through mid October; 6 sheets. COUNTIES: Brown, Comanche.

L. FILIFORMIS (Lam.) Beauv.; sand and limestone soils, along water course of many streams and rivers, persisting about gardens and flower beds; mid July through early October; 7 sheets. COUNTIES: Brown, Hamilton.

## LEPTOLOMA

L. COGNATUM (Schultz) Chase; sandy and limestone soils of prairies and eroded hillsides; late June through October; 9 sheets. COUNTIES: Brown.

## LIMNODEA

L. ARKANSANA (Nutt.) Dewey, var. PILOSA (Trin.) Scribn.; locally abundant on stony hillsides and prairies,

one collection from Hamilton County on 2 May. 3 sheets.

#### LOLIUM

L. MULTIFLORUM Lam.; frequent on disturbed limestone, sand, and clay soils, persisting about vacant lots; one collection from Brown County on 16 May. 3 sheets.

L. PERENNE L.; limestone and black clay soils of prairies, ravines, and river valleys; early May to mid July; 18 sheets. COUNTIES: Hamilton.

#### MELICA

M. NITENS Walt.; deep loose sand at edge of oak woods; one collection from Hamilton County on 3 May. 4 sheets.

#### MUHLENBERGIA

M. EXPANSA (DC.) Trin.; gravel soils bordering excavation pits; one collection from Hamilton County on 17 August. 3 sheets.

M. REVERCHONI Vasey and Scribn.; light limestone and yellow calcareous clay soils, on hillsides and open woodlands; late August through early October; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

M. SHREBERI Gmel.; one collection of nine sheets from rich pecan bottom in Hamilton County along the Leon River, 25 October.

M. SOBOLIFERA (Muhl.) Trin.; one collection of four sheets from rich pecan bottom in Hamilton County along the



Leon River, 25 October.

PANICUM  
(Shinners, 1954)

P. CAPILLARE L.; limestone and sandy loam soils of prairies and open woodlands; mid July through late September; 4 sheets. COUNTIES: Comanche, Hamilton.

P. DICHOTOMIFLORUM Michx.; infrequent about abandoned fields, margins of oak woods, and rocky stream beds; mid August to early September; 4 sheets. COUNTIES: Brown, Hamilton.

P. FASCICULATUM Sw., var. RETICULATUM (Torr.) Beal. (incl. var. fasciculatum); widespread on limestone, sand, and clay soils of prairies, eroded hills, and cultivated fields; mid June through early October; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. FILIPES Scribn.; eroded limestone outcrops and also in waste grounds of disturbed sites; September through mid October; 2 sheets. COUNTIES: Brown, Hamilton (Cory 58041).

P. GEMINATUM Forsk.; one collection from Hamilton County; 17 August; along moist channels of lake bed. 3 sheets.

P. HALLII Vasey; various soils of prairies and woodlands; May through October; 19 sheets. COUNTIES: Brown, Hamilton.

P. HILLMANII Chase; disturbed site in city, but more frequent along sand banks of streams and rivers; late June through late September; 3 sheets. COUNTIES: Brown (Rathke

107 Alford 1), Comanche (Cory 58102).

P. LANUGINOSUM Ell., var. FASCICULATUM (Torr.) Fern. (incl. P. huachucae Ashe); rocky creek valleys in sand and clay at or near water's edge; mid June through July; 9 sheets. COUNTIES: Brown (half of McCart's 9156), Comanche, Hamilton.

P. LANUGINOSUM Ell., var. LINDHEIMERI (Nash) Fern.; one collection from Brown County, 29 April; in rich woods along creek; 3 sheets.

P. OBTUSUM H. B. K.; sandstone and limestone hills and prairies; also in sandy loams of old fields and river valleys; late May through September; 6 sheets. COUNTIES: Brown, Hamilton.

P. OLIGOSANTHES Schultes, var. HELLERI (Nash) Fern.; sand, sandy loam, and clay soils of creek valleys and roadside ditches; May through early September; 7 sheets. COUNTIES: Brown (Geeslin 227, half of McCart's 9156), Hamilton.

P. OLIGOSANTHES Schultes, var. SCRIBNERIANUM (Nash) Fern.; one collection from Comanche County, 18 July; on gravel slopes of open woodland; 2 sheets.

P. RAMISETUM Scribn. (Setaria ramiseta (Scribn.) Pilger); eroded slopes of sandstone hill; one collection from Brown County on 24 June; 5 sheets.

P. REVERCHONII Vasey (Setaria Reverchonii (Vasey) Pilger); one sheet examined from Brown County, 12 May; on stony limestone prairie.

P. TEXANUM Buckl.; frequent in waste places, one

collection from Hamilton County, 25 October.

P. VIRGATUM L.; various soils, but normally restricted to ungrazed waste places or moderately grazed prairies, also along water courses in sand; late June through mid September; 8 sheets. COUNTIES: Brown, Comanche.

#### PASPALUM

P. DILATATUM Poir.; one collection of one sheet, 25 June, persisting about lawns and disturbed sites of towns; Brown County (Rathke 113).

P. DISTICHUM L.; one collection from Hamilton County; 29 June; rooted in water, marshes of Leon River. 2 sheets.

P. NOTATUM Flugge, var. SAURAE Parodi; locally widespread as an escape from cultivation, spreading into adjacent fertile valley in tight clay; one collection; 29 June; 4 sheets. COUNTIES: Hamilton.

P. PUBIFLORUM Rupr., var. PUBIFLORUM; sand and clay soils near water courses; also frequent in moist ditches; April through June; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. SETACEUM Michx., var. STRAMINEUM (Nash) D. Banks (P. stramineum Nash, P. ciliatifolium Michx., var. stramineum (Nash) Fern.); sandy loam and deep sands of ditches, abandoned fields, and adjacent pastures; June through mid August; 7 sheets. COUNTIES: Brown, Comanche (Cory 58103), Hamilton.

## PHALARIS

P. CANARIENSIS L.; one collection from Brown County, 5 June, margins of abandoned military dump; 1 sheet.

P. CAROLINIANUS Walt.; deep sand and sandy loam soils of prairies, hillsides, and ravines; late April through May; 10 sheets. COUNTIES: Brown, Hamilton.

## POA

P. ANNUA L.; one collection of one sheet from Brown County, 26 April; in sandy loam soil.

P. ARACHNIFERA Torrey; sandy loam of disturbed sites, one collection, 12 April; 1 sheet. Brown County (Cope 31).

## POLYPOGON

P. MONSPELIENSIS (L.) Desf.; clay and clay loam soils of waste places near seepage areas and clearing of woods along drainage areas; May; 4 sheets. COUNTIES: Brown.

## SCHEDONNARDUS

S. PANICULATUS (Nutt.) Trel.; sandy, limestone, and yellow clay soils; on disturbed prairies and waste areas, very frequent throughout; late April to August; 7 sheets. COUNTIES: Brown, Hamilton.

SETARIA  
(Rominger, 1962)

S. ITALICA (L.) Beauv.; one collection from Brown

County, 26 June; along deep sandy banks of roadside and prairie ravines; 5 sheets.

S. LEUCOPILA (Scribn. and Merrill) K. Schum. (S. macrostachya H. B. K. of authors); one collection from Brown County, 14 November; collected by Holder (19) as: weed on overgrown lot; 1 sheet.

S. LUTESCENS (Wieg.) Hubb. (S. glauca authors as to name, not Pennisetum glaucum, the same as Panicum glaucum); rare, found once as lawn weed and once along rocky creek bed; September through October; 5 sheets. COUNTIES: Brown.

S. MACROSTACHYA H. B. K.; dry sandy to limestone soils of hillsides, prairies, and roadside ditches; May through early October; 6 sheets. COUNTIES: Brown, Comanche, (Bratton sin. num.), Hamilton.

S. SCHEELEI (Steud.) Hitchc.; sandy loam and coarse sandy gravel soils, in fertile creek valleys and disturbed prairies; mid August through mid September; 4 sheets. COUNTIES: Brown (McCart 9154), Hamilton.

S. VERTICILLATA (L.) Beauv. (S. adhaerens (Forsk.) Chiov. according to Correll and Johnston (1970)); rare in waste places; October; 7 sheets. COUNTIES: Brown, Hamilton.

S. VIRIDIS (L.) Beauv.; various soils, in wooded river valleys, limestone hillsides, moist ditches, and disturbed sites in towns; mid May through late August; 7 sheets. COUNTIES: Brown (Neal 425, Rathke 94), Hamilton.

## SORGHASTRUM

S. NUTANS (L.) Nash; one collection from Comanche County (Bratton sin. num.), 5 October; slopes of ravine at base of limestone hill; 3 sheets.

## SORGHUM

S. HALEPENSE (L.) Pers.; common on various soils of disturbed sites; one collection from Brown County (Foreman 13).

## SPOROBOLUS

S. ASPER (Michx.) Kunth, var. HOOKERI (Trin.) Vasey; dry limestone and clay soils, on hillsides and prairies; October; 4 sheets. COUNTIES: Comanche (Hill and McCart 9266, Bratton sin. num.).

S. CRYPTANDRUS (Torr.) Gray; sandy, limestone, and clay soils along river valleys, hillsides, and disturbed prairies; May through mid October; 7 sheets. COUNTIES: Brown, Comanche.

S. VAGINIFLORUS (Torr.) Wood, var. NEGLECTUS (Nash) Scribn.; stony prairies, primarily on overgrazed sites; October; 9 sheets. COUNTIES: Brown, Comanche.

## STENOTAPHRUM

S. SECUNDATUM (Walt.) Kuntze; cultivated as lawn grass throughout Texas (Gould 1969). The author has seen none of this species established as an escape.

## STIPA

S. LEUCOTRICHA Trin. and Rupr.; coarse sandy gravel, clay, and sandy loam soils, frequent on prairies and in woodlands; May through mid July; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

## TRICHACHNE

T. CALIFORNICA (Benth.) Chase; dry limestone uplands on prairies; late June through October; 6 sheets. COUNTIES: Brown.

## TRIDENS

T. ALBESCENS (Vasey) Woot. and Standl.; very frequent on limestone loams and sandy soils of hillsides, woodlands, and prairies; early April through mid October; 6 sheets. COUNTIES: Brown, Comanche (Bratton sin. num.), Hamilton.

T. CHAPMANI Small (T. flavus (L.) Hitchc., var. Chapmani (Small) Shinnery); more mesic slopes of limestone hills and slopes of shallow gravel pit, infrequent; mid August through early October; 4 sheets. COUNTIES: Comanche (Bratton sin. num.), Hamilton.

T. FLAVUS (L.) Hitchc.; dry limestone and gravel soils, on hillsides and growing with T. Chapmani on slopes of shallow gravel pit, frequent; late June through early October; 8 sheets. COUNTIES: Brown, Comanche (Bratton sin. num.), Hamilton.

T. MUTICUS (Torr.) Nash, var. MUTICUS; one collection of 2 sheets from Comanche County, 5 October; on dry limestone hillside.

T. MUTICUS (Torr.) Nash, var. ELONGATUS (Buckl.) Shinnars (T. elongatus Buckl.); sandy and limestone soils on disturbed prairies; May to mid October; 3 sheets.

COUNTIES: Brown, Comanche (Cory 58170).

T. PILOSUS (Buckl.) Hitchc.; disturbed sites, especially overgrazed situations; October; 2 sheets. COUNTIES: Brown.

T. STRICTUS (Nutt.) Nash; one collection of 3 sheets from sandy wash in post oak woods, 17 January. COUNTIES: Comanche.

#### TRIPSACUM

T. DACTYLOIDES (L.) L.; clearing of rich woods of creek valleys; late May through June; 4 sheets. COUNTIES: Brown.

#### UNIOLA

U. LATIFOLIA Michx.; moist woods of creek valleys; late June to early September; 7 sheets. COUNTIES: Brown, Hamilton.

#### CYPERACEAE (Svenson, 1957)



## CAREX

(Hermann, 1954; Mackenzie, 1931, 1940)

C. BLANDA Dewey; one collection from Hamilton County, 13 April; rich woods of river valley; 4 sheets.

C. BRITTONIANA Bailey; various soils, moist habitats of ditches, watercourses, and temporary pools on prairies; mid April through late June; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

C. CRUS-CORVI Shuttleworth; one collection from Brown County, 19 June; boggy flats and margins of lake; 3 sheets.

C. GRAVIDA Bailey, var. LUNELLIANA (Mack.) Gleason; one collection from Hamilton County, 2 May; along rocky stream; 2 sheets.

C. MICRODONTA Torr. and Hook.; sandy and rocky banks of creeks and moist prairie meadows; May; 7 sheets. COUNTIES: Hamilton.

C. MUHLENBERGII Schkuhr., var. ENERVIS Boott. (C. plana Mack.); one collection from Hamilton County, 13 April; rolling hills, edge of low woods.

C. PLANOSTACHYS Mack.; one collection from Hamilton County, 1 May; low brush along rocky creek, 2 sheets.

C. STRICTA Lam., var. ELONGATA (Boeck.) Gleason (C. Emoryi Dewey); moist areas of prairies; one collection of 1 sheet; October; Brown County.

## CYPERUS

(MacKenzie, 1931; Johnston, 1966)

C. ACUMINATUS Torr. and Hook.; marshes and mud flats

of rivers and banks of streams, occasional on moist slopes of limestone hills; late April through October; 8 sheets.

COUNTIES: Brown, Comanche, Hamilton.

C. ERYTHORRHIZOS Muhl.; widespread in damp woods and along streams; August through October; 6 sheets. COUNTIES: Brown, Hamilton.

C. ESCULENTUS L.; common on wet meadows and margins of ponds and lakes; late June through early November; 4 sheets. COUNTIES: Brown, Comanche.

C. FILICULMIS Vahl; one collection from Hamilton County, 20 July; blackjack woods in sandy gravel; 2 sheets.

C. GLOBULOSUS Aubl., var. GLOBULOSUS; margins of playa lake; one collection from Brown County, 29 September; 2 sheets.

C. ODORATUS L.; frequent in sands and clay along streams, rivers, and margins of ponds; late June through late September; 12 sheets. COUNTIES: Brown, Comanche (Cory 58150, 58151).

C. ROTUNDUS L.; lawn weed; one collection on campus of Howard Payne College, Brown County (Ewing 8), 6 June.

C. UNIFLORUS Torr. and Hook.; disturbed sands and gravel of open grounds and margins of lakes and ponds; late June through mid August; 5 sheets. COUNTIES: Brown (Boatman 5, Rathke 110), Comanche (Bratton sin. num., Cory 58149, 58105), Hamilton.

## DICHROMENA

D. NIVEA (Boeck.) Britt.; seen and collected once from spring seepage in gravel wash on hillside above small stream; 8 sheets; Brown County, 13 October.

ELEOCHARIS  
(Svenson, 1957)

E. ACUTISQUAMATA Buckl.; moist depressions, seepage areas, and ditches; April; 3 sheets. COUNTIES: Brown.

E. COMPRESSA Sulliv.; temporary and permanent water of streams, ponds, ditches, and wet prairie meadows; late March through September; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. MACROSTACHYA Britt. (E. xyridiformis Fern. and Brack., E. calva of authors not Torrey); common throughout area on pond and lake margins and along streams; June; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. MONTEVIDENSIS Kunth. (E. arenicola Torr.); seepage areas, flood plains, margins of water courses; early March through June; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. PARVULA (R. and S.) Link; silt and sand on margins of streams and reservoir; June; 6 sheets. COUNTIES: Brown.

## FUIRENA

F. SIMPLEX Vahl; seepage areas of dams, moist ditches, and creek valleys; mid June through late September; 9

sheets. COUNTIES: Brown, Comanche (Cory 58148), Hamilton.

SCIRPUS  
(Svenson, 1957)

S. CALIFORNICUS (C. Mey.) Steud.; silt and sand on margins of reservoirs, lakes, and streams; June to mid July; 8 sheets. COUNTIES: Brown, Comanche, reported from Hamilton County as Wright sin. num., 1882, on Honey Creek.

ARACEAE

ARISAEMA

A. DRACONTIUM (L.) Schott; about roots of oak trees, in creek valley; one sheet of a single collection from Hamilton County; 4 May.

LEMNACEAE

LEMNA

L. MINOR L.; one sheet of one collection from Brown County (Hill and McCart 9275), 23 September; floating in shallow water.

L. VALDIVIANA Phillippi; floating on quiet waters of streams, ponds, and marshes; late June through mid October; 6 sheets. COUNTIES: Brown, Hamilton.

WOLFFIA

W. COLUMBIANA Karst.; backwaters of Pecan Bayou, not

seen elsewhere; late June through July; 9 sheets. COUNTIES: Brown.

#### COMMELINACEAE

##### COMMELINA

(Pennell, 1916; Brashier, 1966)

*C. COMMUNIS* L. (*C. Wildenowii* Kunth); one collection from Brown County, 30 May; weed about flower beds in Brownwood; 4 sheets.

*C. ERECTA* L., var. *ERECTA* forma *ERECTA*; dark sandy humus in rich woods; one collection from Comanche County; 2 sheets.

*C. ERECTA* L., var. *ERECTA* forma *INTERCURSA* Fern.; sand and clay soils of river valleys and margins of fields; late June through mid October; 6 sheets. COUNTIES: Brown (Steadman 11, Peacock 13), Comanche, Hamilton.

*C. ERECTA* L., var. *ANGUSTIFOLIA* (Michx.) Fern., forma *CRISPA* (Woot.) Fern.; in lowland woods about streams and along fence rows in sand; 9 sheets. COUNTIES: Brown, Hamilton.

##### TRADESCANTIA

(Anderson and Woodson, 1935)

*T. EDWARDSIANA* Tharp; thin limestone soils of open woodlands; April; 3 sheets. COUNTIES: Brown, Hamilton.

*T. GIGANTEA* Rose; rich woods, in Leon River valley, one collection from Hamilton County, 13 April; includes specimens with pink and white color forms; 3 sheets.

T. OCCIDENTALIS (Britt.) Smyth; sand and sandy loam soils, in river valley to occasional on prairies; April through May; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

T. OHIOENSIS Raf. (T. canaliculata Raf.); one collection from Hamilton County, 4 May; in deep limestone humus on grassland prairie; 3 sheets.

PONTEDERIACEAE  
(Alexander, 1937)

HETERANTHERA

H. DUBIA (Jacq.) Mac.M.; locally abundant on marshes of backwaters of the Leon River in open meadows; one collection from Hamilton County, 29 June; 4 sheets.

PONTEDERIA

P. CORDATA L., var. CORDATA; rooted in shallow stream below dam, Lake Eanes, Comanche County; June; 6 sheets.

JUNCACEAE

JUNCUS

J. CRASSIFOLIUS Buch. (J. validus Cov.); one collection from Comanche County, 28 June; rooted in shallow stream in rich creek valley; 2 sheets.

J. INTERIOR Wieg.; moist ravine in prairie; one collection of 2 sheets from Hamilton County, 1 May.

J. MARGINATUS Rostk. (incl. J. biflorus and J.

setosus); seepage areas below pond dams, prairie depressions and ditches; May through early August; 11 sheets.

COUNTIES: Brown, Comanche.

J. TENUIS Willd., var. DUDLEYI (Wieg.) Hermann; local depressions on prairies, moist seepage from hillsides, and open woods near water; late May through June; 7 sheets.

COUNTIES: Brown, Hamilton.

J. TEXANUS (Engelm.) Cov.; broad, open prairie ravine in tight clay soils and below seepage from nearby limestone hills; June through mid July; 14 sheets. COUNTIES: Hamilton.

J. TORREYI Cov.; ditches, moist depressions on prairies, margins of ponds and streams; May through mid July; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

## LILIACEAE

### ALLIUM

(Ownby, 1950; Ownby and Aase, 1955)

A. CANADENSE L., var. CANADENSE; in deep humus in rich woods of river valley; one collection from Hamilton County; 14 April; 3 sheets.

A. CANADENSE L., var. FRASERI M. Ownby; prairie grasslands, sandy flats near water, and slopes of limestone hills; late April to mid May; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. CANADENSE L., var. HYACINTHOIDES (Bush) Ownby; slopes of limestone hill in oak-juniper woods; one

collection from Hamilton County; 3 sheets.

A. CANADENSE L., var. LAVENDULARE (Bates) Ownby; prairie meadows and river valleys; late March through April; 4 sheets. COUNTIES: Comanche.

A. DRUMMONDII Regel (incl. A. Nuttallii Wats. and A. Helleri Small); sandy, clay, and limestone soils in disturbed areas, prairies, and hillsides; mid March through April; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. PORRUM L.; spreading throughout broad, grassy ravine on upland prairie, well established and reproducing; one collection from Hamilton County, 4 May; 7 sheets.

#### ANDROSTEPHIUM

A. COERULEUM (Scheele) Greene; along fence row on flat, upland prairie; one sheet from Hamilton County; 31 March.

#### CAMASSIA

C. ANGUSTA (Engelm. and Gray) Blank.; frequent on disturbed, stony prairies and hillsides; April; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### HESPERALOE

H. PARVIFLORA (Torr.) Coulter; native of the Trans-Pecos, often cultivated in Brown County; collection made in open mesquite grounds from one of numerous plants, 10 June; 2 sheets.



## IPHEION

I. UNIFLORUM (Lindl.) Raf. (Milla uniflora (Lindl.) Graham, Brodiaea uniflora (Lindl.) Engelm., Leucocoryne uniflora Greene, Beauverdia uniflora Herter); escaped and widespread locally along streets from abandoned lot; March; 5 sheets. COUNTIES: Brown.

## MUSCARI

M. RACEMOSUM (L.) Mill. (incl. var. neglectus (Gussone) Fiori); abundant throughout early spring, spilling over from roadsides into adjacent prairies; March; 8 sheets. COUNTIES: Comanche, Hamilton.

## NOLINA

N. TEXANA S. Wats.; limestone and clay soils, hillsides and ridges on prairies; mid March through mid June; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

## NOTHOSCORDUM

N. BIVALVE (L.) Britt.; various soils, very frequent throughout area; March through April; 4 sheets. COUNTIES: Brown (Beach 14, Carpenter 3), Comanche (Murrell 36).

SMILAX  
(Coker, 1944)

S. BONA-NOX L. (incl. var. hederaefolia (Beyrich) Fern., and var. hastata (Willd.) DC.); frequent in woods,

particularly in creek and river valleys; early April through mid October; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

YUCCA  
(McKelvey, 1947; Webber, 1953)

Y. ARKANSANA Trel., var. ARKANSANA (Y. angustifolia Pursh, var. mollis); ridges and slopes of hillside above fertile river valley, infrequent; one collection from Hamilton County, 5 May; 4 sheets.

Y. CONSTRICTA Buckl.; frequent on sands and clay soils of disturbed pasture land and railroads; one collection from Brown County (Rathke 2); 2 sheets.

Y. FREEMANII Shinnery; infrequent but locally abundant on sandy loams of prairies and ridges; one collection from Brown County, 23 May; 4 sheets.

Y. PALLIDA McKelvey; common throughout Central Texas on limestone ridges, hillsides, and disturbed situations; May; 8 sheets. COUNTIES: Brown, Hamilton.

Y. RUPICOLA Scheele; commonly occurring with Y. pallida; late April through May; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

ZIGADENUS

Z. NUTTALLII Gray; collected once on top of rocky limestone hill, Hamilton County; 13 April; 4 sheets.

## AMARYLLIDACEAE

## ZEPHYRANTHES

Z. BRAZOSSENSIS Traub. (Cooperia Drummondii Hebert); sandy and rocky limestone soils, in waste areas along roadsides and on prairies and dry hillsides; August to early October; 10 sheets. COUNTIES: Brown (Maples 5), Comanche (Bratton sin. num.), Hamilton.

Z. DRUMMONDII B. Don (Cooperia pedunculata Hebert); sandy and rocky limestone soils of roadsides, ridges on prairies and hilltops; mid April through early May; 6 sheets. COUNTIES: Brown.

## IRIDACEAE

## NEMASTYLIS

N. GEMINIFLORA Nutt.; locally abundant on rich prairies to occasional on limestone ridges; late March to mid April; 10 sheets. COUNTIES: Brown, Hamilton.

## SISYRINCHIUM

(Fernald, 1946; Shinnars, 1962;  
Bicknell, 1901; Gould, 1969)

S. ENSIGERUM Bickn. (incl. white corolla forms); various soils and habitats, including prairies, woodlands, and rocky slopes of hills; mid April to early May; 10 sheets; COUNTIES: Brown, Comanche, Hamilton.

S. LANGLOISII Greene; various soils, in prairies, on limestone ridges and banks of open, dry creek bed; late

April to early May; 5 sheets. COUNTIES: Brown, Comanche.

*S. PRUINOSUM* Bickn. (incl. white corolla forms); various soils, chiefly sands and sandy loams; on prairies, and in woodlands; late March to early May; 8 sheets. COUNTIES: Brown (Gardner 1, Romig 9, Richardson 33), Comanche, Hamilton.

Gould (1969) reported these three taxa from the research area in addition to several other species. The author has assigned all the material seen to these three taxa with some degree of satisfaction, although they could be treated as *S. angustifolium* Miller and include the following: *S. graminoides* Bickn., *S. varians* Bickn., *S. furcatum* Bickn., *S. Bushii* Bickn., *S. pruinatum* Bickn., *S. texanum* Bickn., *S. ensigerum* Bickn., *S. langloisii* Greene, *S. flaccidum* Bickn., and *S. amoenum* Bickn.

ORCHIDACEAE  
(Correll, 1944)

HEXALECTRIS

*H. SPICATA* (Walt.) Barnh.; reported by Correll from Brown County as: E. Mathews sin. num. The author has visited the herbarium at the University of Texas with the intention of studying this sheet, but the sheet is not there.

SALICACEAE

POPULUS  
(Correll, 1961)

P. DELTOIDES Marsh. (incl. P. Sargentii Dode); frequent about streams and rivers to occasional along prairie ravines; March; 5 sheets. COUNTIES: Brown, Comanche.

SALIX  
(Ball, 1961)

S. NIGRA Marsh., var. NIGRA; sand and clay soils of streams, river valleys, pond margins and lakes; flowering from late March through mid April; 8 sheets. COUNTIES: Brown, Comanche.

S. NIGRA Marsh., var. LINDHEIMERI C. Schn.; infrequent but usually locally abundant about ponds, collected once in rich woods along the Colorado River; April, fruiting to mid June; 4 sheets. COUNTIES: Brown, Hamilton (Weathermon 56).

JUGLANDACEAE

CARYA

C. ILLINOENSIS (Wang.) K. Koch; rich woods of streams and river valleys; flowering early March through April, fruiting through October; 6 sheets. COUNTIES: Brown (Carpenter 19), Comanche, Hamilton.

JUGLANS

J. NIGRA L.; occasional in rich woods of creek and

river valleys; flowering from early April to early May; 15 sheets. COUNTIES: Brown, Comanche, Hamilton.

FAGACEAE

QUERCUS  
(Muller, 1951)

Q. MACROCARPA Michx.; occasional in dense woods of creek and river valleys; fruiting in September; 5 sheets. COUNTIES: Hamilton.

Q. MARILANDICA Muench.; infrequent but locally abundant in sandy oak woods; fruiting late August through September; 3 sheets. COUNTIES: Hamilton, (cited by Muller from Brown as: Muller 8776, E. J. Palmer 29545 and from Comanche as: Muller 8740).

Q. MOHRIANA Buckl. ex Rydb.; reported by Muller from Callahan County adjoining Brown County on its northwest corner as Muller 8787 and Tharp sin. num. and San Saba County which joins Brown County on its southern-most point on the Colorado River as S. B. Buckley sin. num. None seen, but to be expected.

Q. SHUMARDII Buckl., var. SHUMARDII; rich woods along streams and rivers, and on slopes of limestone hills; flowering in March, fruiting through late October; 15 sheets. COUNTIES: Brown, Comanche.

Q. SHUMARDII Buckl., var. MICROCARPA (Torr.) Shinnery (incl. Q. texana Buckl.); woods of creek valleys and rivers and on slopes of limestone hills; fruiting from late August

through September; 11 sheets. COUNTIES: Comanche, Hamilton.

Q. SINUATA Walt., var. BREVILOBA (Torr.) C. H. Muller (Q. San-Sabeana Buckl. ex Young); chiefly on stony limestone to clay loam soils, in woodlands with Celtis and Ulmus; fruiting from August to early September; 15 sheets. COUNTIES: Brown, Comanche, Hamilton. Also cited by Muller from Brown County as: Muller 8773, 8774, Palmer 11907, 13036.

Q. STELLATA Wang.; sandy soil of uplands, also commonly cultivated; fruiting through mid October; 3 sheets. COUNTIES: Brown (Davis 31, Treadwell 4, Allen 19). Also cited by Muller from Brown County as: Muller 8777, E. H. Templin 28.

Q. STELLATA Wang., var. DRUMMONDII (Liebm.) Trel. (Q. Drummondii Liebm.; Q. Stellata Wang., var. Margaretta (Ashe) Sarg. of authors, not Muller); woods of river valley along the Leon River; one collection from Hamilton County; 29 August; 3 sheets.

Q. STELLATA Wang. X Q. SINUATA Walt., var. BREVILOBA (Torr.) C. H. Muller; rather open woods on gravel slopes above Lake Nabors; one collection from Comanche County; 27 August; 2 sheets.

Q. VIRGINIANA Mill., var. VIRGINIANA; common in woods and open woodlands, on hills and river valleys; flowering through April, fruiting through early September; 9 sheets. COUNTIES: Brown (Weathermon 32), Comanche, Hamilton.

Q. VIRGINIANA Mill., var. FUSIFORMIS (Small) Sarg.; dry limestone hills on slopes and ridges; fruiting late August to early November; 3 sheets. COUNTIES: Brown. Also cited by Muller from Brown County as: Muller 8778, Palmer 26779, 29498, H. L. Shantz sin. num.

#### ULMACEAE

#### CELTIS

C. LAEVIGATA Willd.; common throughout Central Texas, chiefly on limestone hills but also on open woodlands of grassland prairies; fruiting in mid August through mid October; 9 sheets. COUNTIES: Brown (Holder 1, Gray 14), Comanche.

C. RETICULATA Torr.; frequent in open woodlands, margins of old fields, invading grasslands; flowering in late March, fruiting through October; 5 sheets. COUNTIES: Brown.

C. TENUIFOLIA Nutt., var. GEORGIANA (Small) Fern. and Schub.; along watercourses and moist erosion slopes on hills; fruiting from late August through mid October; 4 sheets. COUNTIES: Brown, Comanche.

#### ULMUS

U. ALATA Michx.; infrequent but locally abundant, one collection examined which is sterile (McChesney 9); 24 October; in rocky soil; Brown County.

U. AMERICANA L.; river valleys and flood plains;



March through early April; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

U. CRASSIFOLIA Nutt.; abundant in wooded valleys and slopes of limestone hills, persisting along fence rows bordering old fields and prairies; fruiting late August through mid October; 13 sheets. COUNTIES: Brown, Comanche (Cory 58168), Hamilton.

#### MORACEAE

##### BROUSSONETIA

B. PAPYRIFERA (L.) Vent.; widely cultivated as shade trees, occasionally escaping along roadside, vacant lots and alleys of homesites; one collection from Brown County, 3 April. 1 sheet.

##### MACLURA

M. POMIFERA (Raf.) Schn. (Toxylon pomiferum Raf.); occasional in flat woodlands, frequent along fence rows, usually in sand; flowering in May, fruiting through mid October; 10 sheets. COUNTIES: Brown (Humphreys 12), Comanche, Hamilton.

##### MORUS

M. MICROPHYLLA Buckl.; small shrub clinging to crevices of limestone cliff, also infrequent on sand and clay low hills; fruiting through June; 8 sheets. COUNTIES: Brown.

M. RUBRA L.; rich woods of fertile river valleys; flowering in April, fruiting through early summer, cerca July; 10 sheets. COUNTIES: Brown, Hamilton.

#### URTICACEAE

#### PARIETARIA

P. PENNSYLVANICA Muhl., var. PENNSYLVANICA Muhl.; very common on dry hills about boulders and bases of low shrubs, occasional above fallen trees in dry woods; April through mid May; 7 sheets. COUNTIES: Brown, Comanche.

P. PENNSYLVANICA Muhl., var. OBTUSA (Rydb.) Shinnery; collected twice, on limestone ridge about boulders and in shade of low shrubs; April; 2 sheets. COUNTIES: Brown, Hamilton.

#### URTICA

U. CHAMAEDRYOIDES Pursh; river valleys and streams, in woods; March to early April; 7 sheets. COUNTIES: Brown, Hamilton.

#### LORANTHACEAE

#### PHORADENDRON (Johnston, 1957)

P. SEROTINUM (Raf.) M. C. Johnston, var. PUBESCENS (Engelm. ex Gray) M. C. Johnston; common throughout area as parasite, especially on Celtis, Prosopis, and Ulmus; flowering in March, fruiting through December (fruit

sometimes remains on plant through the following season); 11 sheets. COUNTIES: Brown, Comanche (Foreman 16), Hamilton.

#### RAFFLESIACEAE

##### PILOSTYLES (Blossingame, 1968)

P. THURBERI Gray; parasite on Dalea frutescens Torr.; frequent on dry limestone and sandstone hills in Brown County, less frequent to rare in Hamilton County; flowering May through August with plant body remaining attached to host year around; 32 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### POLYGONACEAE

##### ERIOGONUM (Reveal, 1968; Stokes, 1936)

E. ANNUUM Nutt.; sands, gravel, and dry rocky limestone soils of prairies and disturbed situations; mid July through late September; 10 sheets. COUNTIES: Brown, Comanche.

E. LONGIFOLIUM Nutt., var. LONGIFOLIUM; dry rocky limestone hills; late August to early October; 4 sheets. COUNTIES: Comanche (Bratton sin. num.), Hamilton.

E. LONGIFOLIUM Nutt., var. PLANTAGINEUM Engelm. and Gray (E. vespinum Shinnery); open grounds, usually sandy soils; late June through July; 2 sheets. COUNTIES: Brown,

Hamilton.

*P. MULTIFLORUM* Benth.; one collection from Hamilton County; 17 August; in deep sands of abandoned field; 3 sheets.

POLYGONUM  
(Small, 1895)

*P. AVICULARE* L. (incl. *P. buxiforme* Small and *P. neglectum* Besser); disturbed sites, along sidewalks and roads; July through early October; 6 sheets. COUNTIES: Brown, Hamilton.

*P. BICORNE* Raf.; sand and rich loam soils of water-courses, ditches, and margins of ponds; late June through mid October; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

*P. COCCINEUM* Muhl., var. *PRACTINCOLA* (Greene) Stanford (*P. Muhlenbergii*; incl. *Persicaria pratincola* and *P. vestita*); growing in shallow water of Lake Eanes, Comanche County; 14 June; not seen elsewhere; 4 sheets.

*P. DENSIFLORUM* Meisn. vel. aff. (*P. acuminatum* Meisn. not H. B. K., *P. glabrum* Chamisso and Schlechtendal, *P. Portoricense* Bert.); only one population of this taxon seen growing in and along seepage ditch to city reservoir; May through June; 8 sheets. COUNTIES: Brown. Specimens examined by the author are assigned to this species with reservation. This species is very closely allied to *P. ferrugineum* Weddell from the West Indies and eastern Brazil (Small, 1895).

P. LAPATHIFOLIUM L.; sand and dark humus soils about watercourses in wooded valleys and margins of lakes; June through September; 12 sheets. COUNTIES: Brown, Hamilton.

P. PUNCTATUM Ell.; locally abundant about wide, flat margins of polluted streams; one collection of 7 sheets from Brown County, 29 September.

RUMEX  
(Rechinger, 1937)

R. ALTISSIMUS Wood (incl. R. ellipticus Greene); sandy and silty clay soils, along streams and rivers and in disturbed areas; flowering in April to mid May, fruiting through June; 5 sheets. COUNTIES: Brown (cited by Rechinger from Brown County as: Palmer 10376 (R. ellipticus Greene)), Comanche (cited by Rechinger from Comanche County as: Eggert sin. num.).

R. CRISPUS L.; sandy to clay soils, near water and abundant in ditches and old fields; mid May through June; 5 sheets. COUNTIES: Brown, Comanche.

R. HASTATULUS Baldw.; deep coarse sands, on prairies and open woodlands; late April to July (fruiting); 6 sheets. COUNTIES: Comanche, Hamilton.

R. HYMENOSEPALUS Torr.; dry mesquite-oak woods, Colorado River floodplain; one collection from Brown County; 14 April (Spence 45).

R. PULCHER L.; dry woods of creek and river valleys; June through July; 4 sheets. COUNTIES: Brown, Hamilton.

CHENOPODIACEAE  
(Standley, 1916; Reed, 1969)

ATRIPLEX  
(Brown, 1956)

A. CANESCENS (Pursh) Nutt.; sandstone and clay barrens of hillsides; mid April through June; 7 sheets. COUNTIES: Brown.

CHENOPODIUM

C. ALBUM L. (incl. C. Berlandieri C. lanceolatum, C. missouriensis, C. peganum, C. opulifolium, and C. viride); various soils of disturbed habitats; September to early November; 4 sheets. COUNTIES: Brown, Hamilton; also cited by Reed (1969) from Brown County (C. Berlandieri Moq., var. Zschackei (Murr.) Murr.) collected by Shinnors 16808. The material has been examined with an attempt to separate into various taxa according to Reed (1969) but with little success. Consequently, the author has assigned all material to this species.

C. AMBRSIOIDES L., var. AMBRSIOIDES; sand and stony limestone soils, in creek valleys and waste areas; August and September; 10 sheets. COUNTIES: Brown, Hamilton.

C. INCANUM (Wats.) Heller; sands along eroded ravines on hills; one collection from Brown County; 21 October; 1 sheet.

C. STANDLEYANUM Aellen; reported by Reed (1969) from

Brown County as: Diane Bunte 13, 26 September.

CYCLOLOMA

C. ATRIPLICIFOLIUM (Spreng.) Coult.; deep sands along fence rows of fields and pastures; late June through July; 8 sheets. COUNTIES: Brown, Comanche.

KOCHIA

K. SCOPARIA (L.) Schrad. (K. alata Bates); one sheet labeled "Sipe Springs"; Comanche County, McCart 9295, October 30.

MONOLEPIS

M. NUTTALLIANA (R. and S.) Greene; sand and clay soils of ditches, flowerbeds, and river valleys; late March to early May; 12 sheets. COUNTIES: Brown (cited by Reed [1969] from Brown County as: Smith 47), Comanche.

SALSOLA

S. KALI L. (S. pestifer A. Nels.); becoming abundant on disturbed prairies, also about margins of fields; one collection from Brown County; 24 June; 5 sheets.

AMARANTHACEAE

(Reed, 1969; Standley, 1917)

ALTERNANTHERA

(Achyranthes L. p.p.)

A. CARACASANA H. B. K. (A. repens of American authors,

not A. repens L.; A. peploides (H. & B.) Urban); frequent in waste places, along roads and sidewalks; July to early October; 14 sheets. COUNTIES: Brown, Comanche (cited by Reed as: Barton 17602 and Schudder 34566), Hamilton (also cited by Reed from Hamilton County and duplicate examined by author as: Cory 58039).

AMARANTHUS  
(Saur, 1955)

A. ALBUS L., var. ALBUS (A. graecizans of authors, not L.); waste places around fields, ditches, and eroded hillsides; October; 5 sheets. COUNTIES: Brown (also cited by Reed from Brown County as: Hernandez 2, October 28, 1965).

A. ALBUS L., var. PUBESCENS (Uline and Bray) Fern.; cited by Reed from Brown County as McKnight 13 p.p. None seen with viscid pubescence.

A. BERLANDIERI (Moq.) Uline and Bray; one sheet examined from Brown County (also a duplicate of this sheet is cited by Reed as: Ewing 9, June 6, 1966) on campus of Howard Payne College, Brownwood.

A. ARENICOLA I. M. Johnston (A. Torreyi of many authors, not Gray); two collections from a single location, edge of sandy field in oak woods; Comanche County; 22 July.

A. GRAECIZANS L. (A. blitoides Wats.); widespread on various soils on river banks, roadsides, pastures, and eroded hillsides; late June through October; 15 sheets. COUNTIES: Brown (also cited by Reed as McKnight 13 p.p.),



Comanche (also cited by Reed and duplicate examined by the author as Cory 58171), Hamilton.

A. HYBRIDUS L.; cited by Reed from Brown County as R. Stanley 5, October 22, 1965.

A. PALMERI S. Wats.; weedy annual in sand and clay soils about farm buildings, ditches, river valleys, and eroded hillsides; mid June to early September; 7 sheets; COUNTIES: Brown (incl. several sheets cited by Reed as Parks and Cory 15331, 15332; Alford 11; Bunte 1; Snow 7); Hamilton.

A. POWELLII S. Wats.; cited by Reed from Brown as Cory 15330.

A. TAMARISCINUS Nutt. (Acnida); dry lake bed in clay soil; one sheet examined from Hamilton County, 17 August. Also cited by Reed from Brown County as Hill and McCart 9146, Owings 11.

#### FROELICHIA

F. GRACILIS (Hook.) Moq.; infrequent but abundant where found, in clay and sandy soils of prairies and disturbed sites; mid August to early September; 10 sheets. COUNTIES: Brown, Hamilton.

#### GOSSYPIANTHUS (Guilleminea)

G. LANUGINOSUS (Poir.) Moq. (incl. var. rigidiflorus and var. Sheldoni); the author has seen only three collections, all from Brown County (April and September) in

eroded barrens. Reed lists these varieties separately; however, he cites a sheet from Brown County collected as McCart 9278 from sidewalks, Brownwood, 2 October 1965 for both varieties.

NYCTAGINACEAE  
(Reed, 1969)

BOERHAAVIA  
(Standley, 1918)

B. COCCINEA Miller; weedy invader, frequent about lawns, roadsides, on limestone ridges of prairies, and occasional on eroded sandstone hills; mid August through October; 6 sheets. COUNTIES: Brown, Hamilton (also cited by Reed from Hamilton County as Cory 58049).

MIRABILIS  
(Shinners, 1951)

M. ALBIDA (Walt.) MacM.; dry limestone clay soils, on prairie ridges, open woods, and eroded hillsides; mid April through August; 16 sheets. COUNTIES: Brown (also cited by Reed from Brown County as McCart 9178, White 9 and from Comanche County as Phipps sin. num.), Comanche Hamilton.

M. EXALTATA (Standl.) Standl.; reported by Shinners as "extending from the Red River to Ward and Comanche Counties." Reed (1969) cited a collection by Warnock (46493, 20 June 1946) from Comanche County. The author has seen no material that can be placed here.

M. JALAPA L.; hardy perennial, persisting about

abandoned farmhouse and old garden; one collection of 2 sheets from Hamilton County; 17 October.

M. LINDHEIMERI (Standl.) Shinnars (M. jalapa subsp. Lindheimeri Standl.); cited by Reed from Brown County as E. J. Palmer 29361a, 2 November 1925.

M. LINEARIS (Pursh) Heimerl., var. LINEARIS; widespread in various soils about erosion slopes, prairie ridges, and waste places; mid April through October; 7 sheets. COUNTIES: Brown (also cited by Reed as Hewitt 13, Robb 10).

M. NYCTAGINEA (Michx.) MacM.; one sheet examined from Brown County; 13 April; on limestone ridge in thin, yellow clay.

#### PHYTOLACCACEAE

##### PHYTOLACCA

P. AMERICANA L.; widespread in wooded river valleys and edge of woods; June to early September; 10 sheets. COUNTIES: Hamilton.

##### RIVINA

R. HUMILIS L.; mud slopes above water, in river valley and open woods in sand and black clay; May through June; 7 sheets. COUNTIES: Brown, Hamilton.

#### AIZOACEAE

## MOLLUGO

M. VERTICILLATA L.; frequent about moist soils of woods and temporary pools, also on waste places; August and September; 4 sheets. COUNTIES: Brown, Hamilton.

PORTULACACEAE  
(Rydberg, 1932)

PORTULACA  
(Johnston, 1948)

P. MUNDULA I. M. Johnston; sands, sandstone and clay soils, on eroded hills, moist meadows and stony prairies; October; 6 sheets. COUNTIES: Brown, Comanche (McCart 9293a).

P. OLERACEA L.; one sheet examined from Comanche County (McCart 9293); 30 October; in calcareous clay soil.

P. UMBRATICOLA H. B. K. (P. coronata Small and P. lanceolata Engelm.); disturbed situations including flower beds, riverbanks, and eroded sandstone hillsides; October; 4 sheets. COUNTIES: Brown.

## TALINUM

T. AURANTIACUM Engelm.; abundant on stony soils, about eroded slopes and prairie uplands; June and July; 4 sheets. COUNTIES: Brown.

T. PARVIFLORUM Nutt.; one collection from Hamilton County, 20 July; on sandy hill in open oak woods; 1 sheet.

## CARYOPHYLLACEAE

## ARENARIA

(Maquire, 1951; Shinnars, 1962)

A. BENTHAMII Fenzl. ex T. & G.; sand, clay, and limestone loam soils, on slopes of hills about rocks, open meadows, and river valleys; late March to mid July; 15 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. STRICTA Michx., var. TEXANA Robinson; one collection from barren limestone boulders on hill; 13 April; 3 sheets. COUNTIES: Hamilton.

## CERASTIUM

(Shinnars, 1966)

C. BRACHYPODUM (Engelm.) Robinson (incl. var. compactum Robinson); disturbed prairies and ditches; March; 6 sheets. COUNTIES: Brown.

## SAGINA

S. DECUMBENS (Ell.) T. & G.; one sheet from Brown County; 15 March; in sandy loam soil bordering fields.

## SILENE

S. ANTIRRHINA L., forma ANTIRRHINA; prairies and open woods, in sand, clay, and limestone soils; mid April through May; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

S. ANTIRRHINA L., forma DEANEANA Fern.; sand and

humus soils on prairies and creek valleys; April to early May; 7 sheets. COUNTIES: Comanche, Hamilton.

#### STELLARIA

S. MEDIA (L.) Cyrillo; weedy annual on lawns and about fences and farm buildings, frequent in wooded creek valleys; 10 sheets. COUNTIES: Brown, Hamilton.

#### ILLECEBRACEAE

#### PARONYCHIA (Correll, 1966)

P. JAMESII T. & G., var. JAMESII; sandy, sandstone, and clay soils, on eroded hillsides and bordering playa lake; late June through September; 7 sheets. COUNTIES: Brown.

#### NYMPHACEAE

#### NELUMBO

N. LUTEA (Willd.) Pers.; rooted in shallow water, ponds, and slow streams; June to mid August; 6 sheets. COUNTIES: Brown, Comanche.

#### NYMPHAEA

N. ODORATA Ait.; rooted in water of stream below dam of Lake Eanes, Comanche County; May; 5 sheets.

#### CERATOPHYLLACEAE

## CERATOPHYLLUM

C. DEMERSUM L.; two collections of 10 sheets from Brown County, 31 July and 22 September; floating submerged in backwaters of the Pecan Bayou.

## RANUNCULACEAE

## ANEMONE

A. DECAPETALA Ard., var. HETEROPHYLLA (Nutt.) Britt. and Rusby; sands, clay, and limestone soils of prairies and open woodlands; late February to early May; 15 sheets. COUNTIES: Brown, Comanche, Hamilton.

## CLEMATIS

C. DRUMMONDII T. & G.; sandy clay and thin limestone soils of grasslands and dry hills; August through October; 8 sheets. COUNTIES: Brown, Comanche.

C. PITCHERI T. & G.; frequent in low woods of creek and river valleys, also in wooded prairie ravines; mid May through August; 18 sheets. COUNTIES: Brown, Comanche, Hamilton.

## DELPHINUM

D. AJACIS L.; persisting and spreading along roadsides, oak woods, and railroad tracks in sand and clay soils; late April through May; 2 sheets. COUNTIES: Brown.

D. VIRESCENS Nutt. (incl. var. macroceratilis (Rydb.)

Cory); sands, clay, and thin limestone soils of prairies, dry hills, and margins of oak woods; April through May; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### MYOSURUS

M. MINIMUS L.; one plant collected with Plantago elongata in silty clay of moist meadow, Comanche County, 6 April.

#### RANUNCULUS (Benson, 1948)

R. SCELERATUS L.; sand and clay banks of river and stream valleys; one collection from Hamilton County, 4 May.

#### BERBERIDACEAE

#### BERBERIS

B. TRIFOLIOLATA Moric. (Mahonia trifoliolata (Moric.) Fedde, var. glauca I. M. Johnston); sands and limestone soils of prairies and dry hills; March, fruiting to May; 4 sheets. COUNTIES: Brown.

#### MENISPERMACEAE

#### COCCULUS

C. CAROLINUS (L.) DC.; frequent throughout area, scandent in woods, trailing and clambering on prairies; flowering from May to mid June, fruiting through December; 15 sheets. COUNTIES: Brown, Comanche (Bingham 45), Hamilton.



## PAPAVERACEAE

ARGEMONE  
(Ownbey, 1958)

A. ALBIFLORA Hornem. (incl. var. texana (Ownbey) Shinnery, A. alba Lestib.); frequent on sandy prairies and mesquite-oak woods; April; 2 sheets. COUNTIES: Brown.

A. POLYANTHEMOS (Fedde) Ownbey (incl. A. intermedia of authors not Sweet); sands, loams, and rocky limestone soils of prairies, open woods, old fields, and sandy flats of lakes; April to early July; 7 sheets. COUNTIES: Brown, Comanche.

## PAPAVER

P. RHOEAS L.; well established and spreading in sands along roadside and adjacent woodlands; April; COUNTIES: Comanche (Strasner 100, Weathermon 82).

P. SOMNIFERUM L.; one sheet examined from Brown County labeled as an escape from cultivation; near dam, Lake Brownwood; 22 April.

## FUMARIACEAE

CORYDALIS  
(Ownbey, 1947)

C. AUREA Willd., var. OCCIDENTALIS Engelm.; Material assigned to this species is variable in seed sculpturing and keel of the outer petals. This is possibly attributed to some introgression with C. curvisiliqua which is locally

abundant. Sand and clay soils along roadside and open woods of river valleys; April; 4 sheets. COUNTIES: Brown; also reported by Ownbey (1947) from Comanche County.

C. CURVISILIQUA Engelm., var. GRANDIBRACTEATA Fedde; sand and clay soils, open prairies; March; 3 sheets. COUNTIES: Brown.

C. MICRANTHA (Engelm.) Gray (incl. C. Halei (Small) Fern. and Schubert, C. campestris (Britt.) Buch. and Palmer); rich wooded river valleys in sand and clay loams; late March to mid April; 9 sheets. COUNTIES: Comanche, Hamilton.

#### CRUCIFERAE

#### ARABIS

A. CANADENSIS L.; one collection from Brown County, 25 May; 3 sheets; frequent on brushy slopes of dry, eroded hillside.

#### BRASSICA (Sun, 1946)

B. JUNCEA (L.) Cosson; one collection of a single sheet from Hamilton County, 19 April; ditches along roadside.

B. KABER (DC.) Wheeler, var. PINNATIFIDA (Stokes) Wheeler; rare, seen once at city dump, Comanche County, in tight clay, 16 March; 4 sheets.

B. KABER (DC.) Wheeler, var. STRICTA (Celakovsky)

Shinners; locally abundant in sands and calcareous clay soils on prairies and disturbed areas; March; 11 sheets.

COUNTIES: Brown (Geeslin 43), Comanche, Hamilton.

B. RAPA L. (incl. B. campestris L.); infrequent along roadsides as an escape; late February to mid April; 4 sheets. COUNTIES: Brown, Hamilton.

#### CAPSELLA

C. BURSA-PASTORIS (L.) Moench.; weedy annual of sand, clay, and limestone soils; in woods of river valleys, prairies, and disturbed areas; flowering throughout the year except December; 5 sheets. COUNTIES: Brown (Hazel 18, Spence 48), Hamilton.

#### CARDAMINE

C. PARVIFLORA L., var. ARENICOLA (Britt.) O. E. Schulz; one collection from Brown County, 25 February; in sand beneath low mesquites.

#### DESCURAINIA

(Delting, 1939; Shinners, 1949)

D. PINNATA (Walt.) Britt., var. PINNATA; sand, sandstone, and yellow clay soils of river valleys, woods, and disturbed sites; weedy annual; March and April; 7 sheets. COUNTIES: Brown, Comanche.

D. PINNATA (Walt.) Britt., var. BRACHYCARPA (Richards.) Fern.; one collection of two sheets from Comanche County, 25 April; slopes of steep oak-mesquite hill in clay soil.

D. PINNATA (Walt.) Britt., var. OSMIARUM (Cockerell) Shinnery; Central Texas plants not very distinct from the type but are assigned here according to Delting (1939). One collection of two sheets from Comanche County, 8 April; in tight clay of moist meadow.

#### DIPILOTAXIS

D. MURALIS (L.) DC.; rare weed, reported by Gould (1969) from the Blackland Prairies and the Cross Timbers and Prairies of Texas. One collection from Hamilton County, 14 April; in caliche soil along low bank of roadcut.

#### DRABA (Fernald, 1934)

D. BRACHYCARPA Nutt.; encountered twice, in sand and silty clay meadows; February to early March; 3 sheets. COUNTIES: Brown, Comanche.

D. CUNEIFOLIA Nutt., var. CUNEIFOLIA (Incl. var. leiocarpa Schultz and var. Helleri (Small) Schultz); widespread on sandy, clay, and thin limestone soils, about prairies, eroded hills, and disturbed sites; late February through March; 4 sheets. COUNTIES: Brown, Comanche.

D. CUNEIFOLIA Nutt., var. PLATYCARPA (T. & G.) S. Wats.; widespread in sandy and clay soils, ranging from prairies to rich woods of river valleys; late February to early May; 17 sheets. COUNTIES: Brown, Comanche, Hamilton.

D. REPTANS (Lam.) Fern., var. REPTANS; usually in

sandy flats bordering woods and ponds; February to early March; 4 sheets. COUNTIES: Brown (McCart 9321), Comanche, Hamilton.

ERYSIMUM  
(Rossbach, 1958)

E. REPANDUM L.; one collection from Hamilton County, 31 March; in shallow ditches of roadside; 4 sheets.

LEPIDIUM  
(Hitchcock, 1936)

L. AUSTRINUM Small; various soils, on grasslands, hills, and disturbed areas; March through April; 8 sheets. COUNTIES: Brown, Comanche.

L. DENSIFLORUM Schrad.; one sheet from Brown County, 3 April; labeled "disturbed area," Brownwood.

L. OBLONGUM Small; one collection from Brown County, 6 April; moist meadow in silty clay; 3 sheets.

L. VIRGINICUM L. (incl. L. medium Greene and L. texanum Buckl.); sandy and silty clay loam soils, edge of woods and moist prairie meadows; late March and April; 4 sheets. COUNTIES: Comanche.

LESQUERELLA

L. DENSIFLORA (Gray) Wats.; stony hillsides and prairies; March; 2 sheets. COUNTIES: Brown.

L. ENGELMANNII (Gray) Wats.; one sheet from Brown County, 27 March; eroded hillside in thin sandy loam.

L. GORDONII (Gray) Wats.; sandy loam and thin rocky calcareous soils, on eroded hillsides and fallow fields; late March to mid April; 10 sheets. COUNTIES: Brown, Comanche.

L. GRACILIS (Hook.) Wats.; limestone and light clay soils of eroded hills and grasslands; April; 7 sheets. COUNTIES: Brown, Hamilton.

L. RECURVATA (Engelm.) Wats.; one collection from Hamilton County, 31 March; in thin calcareous soil of grassland; 3 sheets.

#### NASTURTIUM

N. OFFICINALE R. Br. (Rorippa nasturtium-aquaticum (L.) Hayek); about rocks and mud banks of shallow streams; May through late June; 8 sheets. COUNTIES: Brown, Hamilton.

#### RORIPPA

R. SESSILIFLORA (Nutt.) Hitchc.; banks of rivers and streams in silty clay and black loam soils; July and August; 5 sheets. COUNTIES: Brown, Hamilton.

#### SIBARA

S. VIRGINICA (L.) Rollins (Arabis virginica L.); sandy river valleys and moist prairie meadows; March to mid April; 11 sheets. COUNTIES: Brown, Comanche.

SISYMBRIUM  
(Rollins, 1960)

S. IRIO L.; various soils of river valleys and disturbed areas along roads and railroads; mid February through early November; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

STREPTANTHUS

S. HYACINTHOIDES Hooker; reported by Shinnars (1958) from Comanche County.

CAPPARIDACEAE

POLANISIA  
(Iltis, 1958, 1966)

P. DODECANDRA (L.) DC., var. TRACHYSPERMA (T. & G.) Iltis; limestone and calcareous clays on prairie ridges and dry hills; mid July through August; 7 sheets. COUNTIES: Comanche, Hamilton.

CRASSULACEAE

SEDUM

S. NUTTALLIANUM Raf.; locally abundant on stony ridges and limestone bluffs; late April and May; 6 sheets. COUNTIES: Brown.

PLATANACEAE

## PLATANUS

P. OCCIDENTALIS L. (incl. var. attenuata Sarg., and var. glabrata (Fern.) Sarg.); occasional in river valleys and moist ravines, widely cultivated throughout Central Texas; flowering in April, fruiting to early fall; 5 sheets. COUNTIES: Comanche, Hamilton.

## ROSACEAE

CRATAEGUS  
(Palmer, 1946)

C. CRUS-GALLI L.; dry creek valleys and lower slopes of low hills, flowering in April, fruiting to early October; 4 sheets. COUNTIES: Brown.

C. MOLLIS (T. & G.) Scheele; understory of wooded river and creek valleys; flowering in March to mid April, fruiting through September; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

C. REVERCHONII Sarg.; sands and dark loams along wooded creek valleys; flowering in March and April, fruiting late April through late fall; 4 sheets. COUNTIES: Brown, Comanche.

C. TRACYI Ashe; reported by Vines (1960) from Brown County. Gould (1969) reports this species from Trans-Pecos only. The author has seen no material attributable to this species.

C. VIRIDIS L.; sandy, gravel, and calcareous soils of dry hillsides, prairie ridges, and wooded valleys;



flowering in April, fruiting through October; 15 sheets.

COUNTIES: Brown, Comanche.

#### GEUM

G. CANADENSE Jacq., var. CAMPORUM (Rydb.) Fern.; sandy to clay loams of creek and river valleys, flowering through mid May, fruiting through mid August; 11 sheets.

COUNTIES: Comanche, Hamilton.

#### PRUNUS

P. ANGUSTIFOLIA Marshall; widespread along roadside and persisting in large, low thickets on prairies; flowering in March; fruiting through June; 7 sheets. COUNTIES: Comanche.

P. GRACILIS Engelm. and Gray (incl. P. venulosa Sarg.); sandstone and limestone ridges of dry hills, forming thickets on stony prairies; flowering in late March to mid April; 10 sheets. COUNTIES: Comanche, Hamilton.

P. MEXICANUS L. Wats.; sands, sandy loams, limestone, and tight clay soils of valleys, woodlands, and slopes of hills; flowering through March, fruiting to early September; 19 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. PERSICA (L.) Batsch.; becoming widespread on dry limestone hills and silting ravines; flowering in March, fruiting April to early September; 11 sheets. COUNTIES: Comanche, Hamilton.

P. REVERCHONII Sarg. (incl. P. rivularis Scheele);

sands, clay, and limestone soils of river and creek valleys, slopes of hills, and in prairie thickets. flowering from mid March to mid April; 18 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### RUBUS

R. APOGAEUS Bailey (incl. R. uncus Bailey); one sheet from Brown County, 8 April; open ground on rocky prairie.

R. TRIVIALIS Michx. (incl. var. seorsus Bailey and R. riograndis Bailey); rocky, wooded creek and river valleys; occasional in ditches; March to mid April; 10 sheets. COUNTIES: Brown, Hamilton.

#### SANGUISORBA

S. ANNUA Nutt.; sands and clay soils of prairies and roadside ditches; April; 7 sheets. COUNTIES: Brown.

#### LEGUMINOSAE (Turner, 1959)

#### ACACIA (Isley, 1969)

A. ANGUSTISSIMA (Mill.) Kuntze, var. HIRTA (T. & G.) Robinson; sands, clay, and rocky limestone soils of prairies and dry hills; May through June, sporadic through August, fruiting through October; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. GREGGII Gray; dry hills and stony prairie ridges; April to early May; 5 sheets. COUNTIES: Brown.

A. ROEMERIANA Scheele; dry hills, prairies, and disturbed areas; flowering in March, fruiting to mid June; 6 sheets. COUNTIES: Brown.

#### ALBIZIA

A. JULIBRISSIN Michx.; widely cultivated, persisting on vacant lots and abandoned farm houses; flowering in early summer; 1 sheet. COUNTIES: Brown.

#### AMORPHA

A. FRUTICOSA L., var. ANGUSTIFOLIA Pursh; sands, sandy loams, and clay soils of streams, rivers, ponds, and lakes; April and May, fruiting to early September; 15 sheets. COUNTIES: Brown, Hamilton.

A. LAEVIGATA Nutt.; Turner (1959) states that he has seen two Texas collections, both from northeastern Texas. The author has seen specimens from Hamilton and Comanche Counties that have glabrous, warty petiolules characteristic of the species. In silt and rocky limestone soils about margins of lakes; June; 2 sheets.

#### ASTRAGALUS

(Jones, 1923; Barneby, 1964)

A. LEPTOCARPUS T. & G.; Turner (1959) reports this species from Comanche County. It is very closely allied with A. Nuttallianus, var. Nuttallianus which is extremely common in Central Texas. The author has not assigned any material seen to this taxon.

A. LINDHEIMERI Gray, var. BELLUS Shinnery; locally abundant in sandstone, clay, and limestone soils of prairies and eroded hillsides; late March through April; 10 sheets. COUNTIES: Brown, Comanche.

A. LOTIFLORUS Hook., var. LOTIFLORUS; sands, clay, and limestone soils, prairies, hillsides, and roadcuts; late March through April, fruiting to mid May; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. NUTTALLIANUS DC., var. NUTTALLIANUS; very common in sands, clay, and limestone soils throughout the area; March and April; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. NUTTALLIANUS DC., var. TRICHOCARPUS T. & G. (incl. var. austrinus (Small) Barneby); various soils throughout area. The author has collected three sheets from a very small population with pure white petals marked basially with ruby, red spots. This white form was growing with var. Nuttallianus and var. trichocarpus on steep slopes of dry limestone hill. Late March to mid April; 6 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. PLATTENSIS Nutt. ex T. & G.; stony hills, dry prairies, and waste areas; late March through May; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### CAESALPINIA

C. GILLIESII Wall. ex Hook.; widely cultivated, persisting and spreading about vacant lots and abandoned farm

and ranch sites; flowering and fruiting May through June; 6 sheets. COUNTIES: Brown.

#### CASSIA

C. FASCICULATA Michx., var. FASCICULATA (incl. var. rostrata (Standl. and Woot.) Turner with which it integrates in Central Texas according to Turner (1959)); sands, clay, and limestone soils of prairies; mid June through mid October; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

C. PUMILIO Gray; infrequent on stony grasslands and dry hills; April; 2 sheets. COUNTIES: Brown.

C. ROEMERIANA Scheele; rocky limestone prairies and sandstone and limestone hills; flowering April through August; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### CERCIS (Hopkins, 1942)

C. CANADENSIS L., var. CANADENSIS; one sheet from Hamilton County, 8 April, labeled "woods, on lower slopes of hill"; no other specimens seen but this variety is apparently common farther east on the Blackland Prairies and Cross Timbers (Turner, 1959).

C. CANADENSIS L., var. TEXENSIS (Wats.) Rose; sandy loam, yellow clay, and rocky limestone soils of wooded slopes and prairie thickets; flowering in February through March, fruiting April and May; 18 sheets. COUNTIES: Brown (also reported by Hopkins (1942) from Brown County),

Comanche, Hamilton.

C. CANADENSIS L., var. MEXICANA (Rose) Hopkins; Hopkins (1942) cites a collection by Reverchon, April 1882 (C. reniformis) from Brown County, duplicates in United States National Herbarium and Missouri Botanical Garden. Turner (1959) indicates that this variety is from the Trans-Pecos and adjacent counties. The author has seen no material that can be assigned to this variety from the area.

#### CLITORIA

C. MARIANA L.; rare twining herb, collected once in Hamilton County in low shrubs of sandy woods, 13 May; 7 sheets.

#### DALEA (sen-strict.)

D. AUREA Pursh (Parosela aurea (Pursh) Britt.); clay and limestone soils, of prairies, dry slopes, and waste places; mid May through June; 6 sheets. COUNTIES: Brown, Comanche (Bingham 42), Hamilton (Leach 43).

D. ENNEANDRA Nutt. (D. laxiflora Pursh); widespread on sandstone and limestone slopes and prairie ridges; May to mid July; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

D. FRUTESCENS Gray; limestone hills, limestone and sandstone ridges, and red clay woodlands; mid May to early September; 15 sheets. COUNTIES: Brown, Comanche,

Hamilton.

D. HALLII Gray; rare, two sheets examined from Brown and Comanche Counties; on rocky hillsides and open woods of gently sloping hill; mid June through October.

D. LASIATHERA Gray (Parosela lasiathera (Gray) Heller); stony hillsides in open woods, also on disturbed limestone prairies; April; 6 sheets. COUNTIES: Brown.

D. NANA Torr. ex Gray, var. NANA (Parosela nana (Torr. ex Gray) Heller, P. lesueuri Tharp and Barkley); sand and clay soils of rocky slopes and disturbed sites; May; 4 sheets. COUNTIES: Brown.

#### DESMANTHUS

D. ACUMINATUS Benth.; stony prairie; one collection of three sheets from Hamilton County, 29 June.

D. ILLINOENSIS (Michx.) MacM.; common in disturbed situations, ditches, roadsides, and fence rows; flowering through May, fruiting through June with legumes persisting throughout the year; 4 sheets. COUNTIES: Brown, Comanche.

D. LEPTOLOBUS T. & G.; red shales and coarse gravel soils, of disturbed areas; flowering in June, fruiting through July; 5 sheets. COUNTIES: Brown, Comanche.

D. VELUTINUS Scheele; dry hills and prairies, also disturbed sites, usually in stony limestone soils; flowering in April, sporadically to October; 17 sheets. COUNTIES: Brown, Comanche (Nesbitt 315), Hamilton.

## DESMODIUM

D. PANICULATUM (L.) DC.; known from a single collection of three sheets from Brown County; rocky creek bed, near Zephyr; September. Also reported by Turner (1959) from Comanche County.

D. SESSILIFOLIUM (Torr.) T. & G.; deep sands along fence rows and margins of oak woods; late June through September; 6 sheets. COUNTIES: Comanche.

D. TWEEDYI Britt. (incl. Texas plants previously referred to D. illinoense Gray which is unknown for the state); one collection from Hamilton County, 17 August 1968; 2 sheets.

GALACTIA  
(Vail, 1895)

G. GRAYI Vail (G. heterophylla Gray not (Gillies) Vail); frequent in sands and dry sandstone and limestone soils of prairies; late April through June; 15 sheets. COUNTIES: Brown. Turner (1959) states that this species is an endemic of southern Texas. However, Vail (1895) in her monograph of the genus indicated that the original locality is on the Llano River, Texas, far north of Turner's later statement.

G. VOLUBILIS (L.) Britt.; infrequent low climbing and trailing herb, in loose sand of prairies and margins of oak woods; June; 6 sheets. COUNTIES: Brown (Rathke 61), Comanche.



## GLEDITSIA

G. TRIACANTHOS L.; occasional about fields and moist sands around lakes and ponds; collected once in fruit, 29 June, from Hamilton County.

## GLOTTIDIUM

G. VESICARIA (Jacq.) Harper (Sesbania vesicaria (Jacq.) Ell.); sandy creek banks; late August through October; 5 sheets. COUNTIES: Comanche. This is the westernmost station for this species in the state (See Turner, 1959).

## HOFFMANSEGGIA

H. DENSIFLORA Benth. ex Gray; Turner (1959) reports this species as common in southern and western Texas. The author has collected it once in Comanche County on a sandy prairie, 27 August.

H. JAMESII T. & G.; rare but locally abundant on open wooded hilltop in dry calcareous soil; June to early October; 5 sheets. COUNTIES: Brown, Comanche; also reported by Turner (1959) from Comanche and Hamilton Counties.

## INDIGOFERA

The author has collected I. miniata, var. miniata from Brown and Comanche Counties, previously unreported for this particular region of Texas. Turner (1959) states that the varieties of I. miniata are distinguishable but

that there is complete intergrading of var. miniata with var. leptosepala. Stanford 1125 appears to be such an intergression.

I. MINIATA Ort., var. MINIATA; sands and gravel soils of prairies and erosion slopes of low hills; late April through July; 8 sheets. COUNTIES: Brown, Comanche.

I. MINIATA Ort., var. LEPTOSEPALA (Nutt.) Turner; occurring with the above; late April through May; 8 sheets. COUNTIES: Brown, Hamilton.

#### KRAMERIA

K. SECUNDIFLORA DC. ( K. lanceolata Torr.); common in sands, clay, and rocky limestone soils of prairies and open hillsides; late April through mid July; 15 sheets. COUNTIES: Brown, Hamilton.

#### LESPEDEZA

L. PROCUMBENS Michx.; one collection of six sheets from rocky creek bed, Blanket Creek, Brown County, 7 September.

L. STUEVEI Nutt., var. STUEVEI; loose sands, sandstones, yellow clay, and gravel soils of prairies, ridges, and eroded hillsides; late May through September; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

L. TEXANA Britt. ex Small; reported by Turner (1959) from Comanche County.

## LOTUS

L. AMERICANUS (Nutt.) Bisch. (L. Purshianus (Benth.) Clements and Clements, not L. Americanus Vell.); one collection from Comanche County, 18 July; gravel slopes above Lake Nabors, in open oak woods; 4 sheets.

## LUPINUS

L. SUBCARNOSUS Hook.; one collection from Comanche County, 8 April; labeled thin, rocky site, 5 miles west of Comanche (Weathermon 74).

L. TEXENSIS Hook. (incl. white corolla forms); widely cultivated by highway department, but native. Various soils of prairies, roadsides, and slopes; white color forms occurring with and hybridizing with blue color forms; mid March through early June; 17 sheets. COUNTIES: Brown, Comanche, Hamilton.

## MEDICAGO

M. HISPIDA Gaertn., var. APICULATA (Willd.) Burnat.; one collection of one sheet from Brown County (Neal 35), 31 March; labeled as disturbed area, campus of high school, Brownwood.

M. MINIMA (L.) Bartalina; very common on most pasture ranges as important livestock forage in early spring; April to early May; 7 sheets. COUNTIES: Brown, Comanche, Hamilton.

M. ORBICULARIS (L.) Bartalina; rarely encountered

but abundant where found, occurs with M. polymorpha and occasionally with M. minima; prairies and hillsides; April and May; 4 sheets. COUNTIES: Brown, Hamilton.

M. POLYMORPHA L., var. VULGARIS (Benth.) Shinnars (nomenclature according to Shinnars (1956); occurring with M. minima and M. orbicularis; late March to early May; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

M. SATIVA L.; escaped and spreading, encountered frequently along highways and county roads about fields and cattle feeding areas; April to mid June; 4 sheets. COUNTIES: Brown, Comanche (Weathermon 75), Hamilton.

#### MELILOTUS

M. ALBUS Desv.; sand and clay soils of roadsides and fallow fields, escaped; mid May through June; 4 sheets. COUNTIES: Comanche, Hamilton.

M. INDICA (L.) All.; tight clay and rocky disturbed soils along highways and county roads; April to early May; 7 sheets. COUNTIES: Brown, Comanche, Hamilton.

M. OFFICINALIS (L.) Lam.; escaped cultivar, common along ditches; spring and summer. COUNTIES: Brown, reported by Turner (1959) from Hamilton County.

#### MIMOSA

M. BIUNCIFERA Benth., var. BIUNCIFERA; frequent on low brushy hills and stony prairie waste areas; May, fruiting through October; 5 sheets. COUNTIES: Brown.

M. BOREALIS Gray (incl. M. fragrans Gray, M. texana (Gray) Small); sands, yellow clays, and rocky limestone soils, infrequent in wooded creek valleys, common on prairies and hills; April, fruiting through early June; 25 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### NEPTUNIA

N. LUTEA (Leavenw.) Benth.; prairies, occasional on lower slopes of hills; late May through August; 24 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### OXYTROPIS

O. LAMBERTII Pursh (Astragalus Lambertii (Pursh) Spreng.); reported by Turner (1959) from Comanche County.

#### PARKINSONIA

P. ACULEATA L.; escape from cultivation, rapidly spreading in disturbed sites; one collection from Brown County, 12 October.

#### PETALOSTEMUM

(Shinners, 1949; Wemple and Lersten, 1966; Rydberg, 1920)

P. MICROPHYLLUM (T. & G.) Heller (Dalea Drummondiana Shinners); deep sand of fields and roadsides; mid May through mid August; 4 sheets. COUNTIES: Brown, Hamilton.

P. MULTIFLORUM Nutt. (Dalea multiflora (Nutt.) Shinners); limestone soils, of stony prairies and dry

hills; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. PULCHERRIMUM (Heller) Heller (Dalea Helli Shinners); one collection of one sheet from Hamilton County; 5 June; rocky slopes above creek in limestone soil.

P. STANFIELDII Small (incl. P. molle Rydb., P. tenuis (Coult.) Heller); sandy clay and light limestone soils of open woods and prairie ridges; June; 7 sheets. COUNTIES: Brown, Hamilton.

#### PROSOPIS

P. JULIFLORA (SW.) DC., var. GLANDULOSA (Torr.) Cock. (P. glandulosa Torr.); sands, clay, and limestone soils, throughout the area; May through June, fruiting to September; 9 sheets. COUNTIES: Brown, Hamilton.

#### PSORALEA

(Shinners, 1951; Ockendon, 1965; Isley, 1958, 1962)

P. CUSPIDATA Pursh (P. caudata (Rydb.) Cory, Pediomelum cuspidatum (Pursh) Rydb.); sandy loam, sandstone, and limestone soils of dry prairies and wooded slopes; April through May; 10 sheets. COUNTIES: Brown (also cited by Ockendon (1965) from Brown County as Ockendon 89, Comanche (cited by Turner (1959) and Ockendon (1965) from Comanche County as H. Eggert sin. num.), Hamilton (also cited by Ockendon from Hamilton County as Cory 53788).

P. CYPHOCALYX Gray (Pediomelum cyphocalyx (Gray) Rydb.); limestone ridges of prairies and hillsides; mid May to mid June; 11 sheets. COUNTIES: Hamilton (also

cited by Ockendon (1965) as Cory 53797).

P. LATESTIPULATA Shinnery; sands and rocky limestone soils of open fields and prairies; April; 3 sheets. COUNTIES: Brown (Meredith 19, also cited by Ockendon (1965) from Brown County as Turner 4792), Comanche (also cited by Ockendon as H. Eggert sin. num.).

P. LINEARIFOLIA T. & G. (Psoralidium linearifolium (T. & G.) Rydb.); rocky slopes of hills and prairie ridges; June; 8 sheets. COUNTIES: Hamilton.

P. RHOMBIFOLIA T. & G. (Pediomelum rhombifolium (T. & G.) Rydb.); sand and red clay soils of prairies and disturbed sites; late April through September; 10 sheets. COUNTIES: Brown, Comanche (also cited by Ockendon (1965) as Cory 58107), Hamilton (cited by Ockendon (1965) as Cory 53800).

P. SCAPOSA (Gray) MacBride (P. hypogaea Nutt. ex T. & G., ssp. scaposa (Gray) Ockendon of authors, Pediomelum scaposum (Gray) Rydb., P. goughae Tharp and Barkley); yellow clay and stony limestone soils of hillsides and prairie ridges; May through late June; 3 sheets. COUNTIES: Brown (Brunson 75), Comanche (cited by Ockendon as H. Eggert sin. num. and Phipps 87), Hamilton (also cited by Ockendon as Reverchon 214).

P. TENUIFLORA Pursh (P. floribunda Nutt. ex T. & G., P. obtusiloba T. & G., Psoralidium obtusilobium (Nutt.) Rydb.); sandy soils of upland prairies and eroded sandstone hills; May through September; 8 sheets. COUNTIES:

Brown.

RHYNCHOSIA

R. TEXANA T. & G., var. ANGUSTIFOLIA Gray; lower slopes of dry sandstone hill and clay banks of small streams; late August and September; 10 sheets. COUNTIES: Brown, Comanche.

SCHRANKIA

S. OCCIDENTALIS (W. & S.) Standl.; one sheet from Hamilton County, 4 May; rocky slopes of hill overlooking the Lampasas River.

S. ROEMERIANA (Scheele) Blankenship; infrequent but abundant locally, upland prairies and hillside ravines; April through mid June; 12 sheets. COUNTIES: Brown, Hamilton.

S. UNCINATA Willd. (incl. S. Nuttallii (DC.) Standl.); various soils of prairies, margins of wood, eroded hills, and disturbed areas; mid April through May; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

SESBANIA

S. DRUMMONDII (Rydb.) Cory; rare but abundant where found; one collection from deep coarse sands of prairie in Comanche County; 4 sheets.



## SOPHORA

S. AFFINIS T. & G.; sands, sandstone, and limestone soils about open woods and thickets of hillsides and prairies; March and April, fruit sometimes persisting throughout the year; 22 sheets. COUNTIES: Brown, Comanche, Hamilton.

## STROPHOSTYLES

S. HELVOLA (L.) Ell.; scandent on low herbs and fences, in sands of disturbed prairies and dry, open woods; May through August; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

S. LEIOSPERMA (T. & G.) Piper; deep sands of wooded creek valleys and margins of fields; 8 sheets. COUNTIES: Brown, Comanche.

## TEPHROSIA

T. VIRGINIANA (L.) Pers.; reported from Comanche County by Turner (1959).

VICIA  
(Shinners, 1948)

V. LUDOVICIANA Nutt., var. LUDOVICIANA; one collection from Hamilton County, 30 March; scandent on fences at base of limestone hill; 3 sheets.

V. LUDOVICIANA Nutt., var. LAXIFLORA Shinners; sandy, sandy loam, and clay soils, scandent on low herbs and

shrubs, on prairies, open woods, and borders of fields; March through mid April; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

V. VILLOSA Roth.; widespread about field borders and sandy ravines, scandent on fence rows and low vegetation; one collection from Comanche County; 3 sheets.

ZORNIA  
(Mohlenbrock, 1961)

Z. BRACTEATA (Walt.) Gmel.; rare, collected twice, once on vacant lot, Brownwood, and on gravel slopes above lake in open woods; May through mid July; 5 sheets. COUNTIES: Brown (Nesbitt 332), Comanche.

GERANIACEAE

ERODIUM

E. CICUTARIUM (L.) L'Her.; sands, clays, and limestone soils of prairies, stony hills, and various disturbed situations; March to early May; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. TEXANUM Gray; weedy annual of various soils and habitats; March to mid April; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

GERANIUM

G. CAROLINIANUM L.; various soils, along creeks and rivers, on prairies and open wooded slopes; April to early

May; 9 sheets. COUNTIES: Brown, Hamilton.

OXALIDACEAE

OXALIS

*O. DILLENII* Jacq., var. *RADICANS* (incl. *O. corniculata* L. according to Shinnars (1956) and Texas reports of *O. stricta* not L.); sands, clay, and thin limestone soils of prairies, river valleys, and disturbed sites; April to mid October; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

*O. DRUMMONDII* Gray; infrequent, occurring in clumps of grass on disturbed sites, also on wooded slopes and sandy river valleys; October; 7 sheets. COUNTIES: Brown, Hamilton.

LINACEAE

LINUM

(Shinnars, 1949; Rogers, 1963, 1964)

*L. IMBRICATUM* (Raf.) Shinnars (incl. *L. hudsonioides* Planch. and *L. multicaule* Hook.). The material seen by the author is not clearly *L. imbricatum* nor *L. hudsonioides* as indicated by the outer sepals having at least some teeth in addition to the presence or absence of minute, thickish cilia on the upper leaves. More detailed study may justify the separation of this taxon. Sands, clay, and sandstone soils of woods, prairies, and wooded slopes; April to early May; 8 sheets. COUNTIES: Brown,

Comanche, Hamilton.

L. LEWISII Pursh, var. PRATENSIS Norton; common in various soils of prairies, woods, fallow fields, and roadsides; April; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

L. RIGIDUM Pursh, var. BERLANDIERI (Hook.) T. & G.; common in sands, clay, and thin rock limestone soils of prairies and rolling hills; late April through early June, fruiting through early September; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

L. RUPESTRE Engelm.; limestone ridges of prairies to slopes of wooded limestone hills; late April through July; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### ZYGOPHYLLACEAE

#### KALLSTROEMIA

K. INTERMEDIA Rydb. (incl. K. hirsutissima Vail); various soils of disturbed areas, including cultivated fields; late August through early October; 2 sheets. COUNTIES: Brown (Strother 26), Hamilton.

K. PARVIFLORA Norton; one collection from Hamilton County; 31 August; waste areas of farm site, in limestone loam. 4 sheets.

#### TRIBULUS

T. TERRESTRIS L.; widespread in various soils of disturbed situations throughout area; June; 1 sheet.

COUNTIES: Brown (Rathke 95).

RUTACEAE

PTELEA  
(Bailey, 1962)

P. TRIFOLIATA L., var. TRIFOLIATA (incl. P. lucida Greene, P. Toxicodendron (Greene); one collection from Comanche County, 18 July; lower slopes of oak-covered limestone hill; 4 sheets.

THAMNOSMA

T. TEXANA (Torr.) Gray; sands and limestone soils of prairies and ridges; March through April; 4 sheets. COUNTIES: Brown.

XANTHOXYLUM

X. HIRSUTUM Buckl. (X. carolinianum Lam., var. fruticosum (Gray) Wats., Fagara fruticosa (Gray) Small, F. Clava-Herculis Small, var. fruticosa (Gray) Sargent); sands, sandy loams, and thin limestone soils of prairies and dry woods; April to early May, fruit maturing through August; 10 sheets. COUNTIES: Brown, Hamilton.

SIMAROUBACEAE

AILANTHUS

A. ALTISSIMA (Mill.) Swingle; occasionally escaping cultivation and persisting in vacant lots, abandoned farm

sites; 2 sheets. COUNTIES: Hamilton.

MELIACEAE

MELIA

M. AZEDARACH L.; occasional in creek and river valleys; April through early May, fruiting through September; 12 sheets. COUNTIES: Hamilton.

POLYGALACEAE  
(Blake, 1924)

POLYGALA

P. ALBA Nutt.; sandy and limestone soils of prairies and slopes of rolling hills; April and May; 12 sheets. COUNTIES: Brown, Hamilton.

P. TWEEDYI Britton; limestone hills and red clay flats; late June to early September; 7 sheets. COUNTIES: Brown.

EUPHORBIACEAE

ACALYPHA

A. GRACILENS Gray (incl. var. Fraseri (Muell. Arg.) Weatherby, and var. monococca Engelm.); two collections in July and August from the same location in Comanche County; gravel slopes in open oak woods above Lake Nabors; 6 sheets.

A. LINDHEIMERI Muell. Arg.; limited to limestone and

calcareous soils of prairie ridges and rugged slopes of hills; late April to mid June, fruit maturing to early October; 18 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. *OSTRYAEFOLIA* Ridd.; widespread weedy annual, of rich woods and disturbed areas; June through October; 4 sheets. COUNTIES: Brown, Hamilton.

A. *VIRGINICA* L.; rocky and clay soils of creek and river valleys; July and August; 13 sheets. COUNTIES: Hamilton.

#### CNIDOSCOLUS

C. *TEXANUS* (Muell. Arg.) Small; widespread but rarely collected; sandy flats and open woods, occasional on limestone outcrops; April through May; 2 sheets. COUNTIES: Brown, Hamilton.

#### CROTON (Johnston, 1959)

C. *CAPITATUS* Michx., var. *LINDHEIMERI* (Engelm. and Gray) Muell. Arg.; one sheet from Brown County, 13 October; rare, seen only once along Santa Fe railroad in disturbed sandy loam. Probably introduced by railroad traffic.

C. *GLANDULOSA* L., var. *LINDHEIMERI* Muell. Arg.; deep sands of overgrazed prairies and rich woods along river flood plains; August and September; 8 sheets. COUNTIES: Brown, Hamilton.

C. *MONANTHOGYNUS* Michx.; widespread weedy annual,

about fields, prairies, and woods, in various soils; April to mid November; 20 sheets. COUNTIES: Brown, Comanche, Hamilton.

C. TEXENSIS (Klotzsch) Muell. Arg. (C. corymbulosus Engelm.); sands, sandstones, and rocky calcareous soils of hillsides and various disturbed sites; late June to early September; 13 sheets. COUNTIES: Brown, Hamilton.

DITAXIS  
(Argythamnia)

D. HUMILIS (Engelm. and Gray) Pax., var. HUMILIS; sands and limestone soils of prairies, dry woods, and disturbed sites; mid April to early September; 5 sheets. COUNTIES: Brown, Hamilton.

D. MERCURIALINA (Nutt.) Coult., var. MERCURIALINA; sands and limestone soils of slopes; June; 4 sheets. COUNTIES: Comanche, Hamilton.

EUPHORBIA  
(Including Chamaesyce)  
(Wheeler, 1941)

E. DENTATA Michx., forma DENTATA; silty sand and limestone loams, of rich creek and river valleys and protected slopes of wooded hillsides; late May to early September; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. DENTATA Michx., forma CUPHOSPERMA (Engelm.) Fern.; creek valleys, in alluvial wash; 2 sheets. COUNTIES: Brown, Hamilton.

E. FENDLERI T. & G., var. FENDLERI; limestone and



silty clay soils of dry prairies and hills, also abundant in disturbed soils; April through August; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. GLYPTOSPERMA Engelm.; limestone, clay, and sandy soils of prairies, ridges, and hills, also frequent on disturbed grounds; late June to early November; 13 sheets. COUNTIES: Brown, Comanche.

E. LONGICURIS Scheele (Tithymalus longicuris (Scheele) Small); weedy annual, about fields, creek valleys, and woods; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. MARGINATA Pursh; common throughout area on prairies and fields; August through October; 11 sheets. COUNTIES: Brown, Comanche (Traylor 37), Hamilton.

E. MISSURICA Raf. (incl. var. intermedia (Engelm.) Wheeler); deep sands of woods to occasional on prairies; late June through August; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. NUTANS Lag. (E. maculata L. and E. Preslii Gussone); sands, gravel, and limestone soils of creek valleys, wooded hills, prairie ridges, and disturbed sites; July to mid September; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. PROSTRATA Ait. (E. chamaesyce L.); widespread weed on prairies, hills, and various disturbed situations; July through October; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. SERPENS H. B. K.; sand, clay, and limestone soils

of creek valleys, prairie ridges, hills, and disturbed areas; late June through late October; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. SPATHULATA Lam. (E. dictyosperma Fisch. and May. and E. arkansana Engelm. and Gray); widespread in sands, clay, and limestone soils of prairies, woods, creek valleys, and disturbed sites; April to early June; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. STRICTOSPORA Engelm.; one sheet from Brown County, 29 September; labeled "on watered lawn, Blanket, Texas."

E. SUPINA Raf.; rich woods and disturbed sites; late June to late October; 4 sheets. COUNTIES: Brown.

#### PHYLLANTHUS

P. ABNORMIS Baillon; one collection of one sheet from Brown County, 16 July; on sandy banks of Pecan Bayou in open woods.

P. POLYGONOIDES Nutt. ex Spreng.; dry limestone hills and prairies, particularly about rocky outcrops; April and May; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### STILLINGIA (Rogers, 1951)

S. TEXANA I. M. Johnston; red clay, gravel, and limestone soils of dry prairies and slopes of eroded hills; late April through mid June; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

## TRAGIA

(Johnston, 1962; Miller and Webster, 1967)

T. AMBLYODONTA (Muell. Arg.) Pax and Hoffm.; one sheet from Comanche County, 30 October; labeled "meadow, in calcareous clay."

T. BREVISPICA Engelm. and Gray; one sheet from Brown County, 11 June; labeled "twining on herbaceous vegetation, Colorado River flood plain"; apparently widespread but rarely collected.

T. RAMOSA Torr.; about small limestone rocks on prairies and slopes; April and May; 4 sheets. COUNTIES: Brown, Hamilton.

T. URTICIFOLIA Michx.; one sheet labeled "Riverside Park, Brownwood," 25 April; Brown County.

ANACARDIACEAE  
(Barkley, 1943)

## RHUS

R. AROMATICA Aiton, var. FLABELLIFORMIS Shinnery; sandstone, clay, and limestone soils of ridges, wooded slopes, and waste ground; March, fruit maturing and persisting through mid August; 18 sheets. COUNTIES: Brown, Comanche (Rathke 15), Hamilton.

R. AROMATICA Aiton, var. SEROTINA (Greene) Rehd.; one collection from Comanche County, 25 April; woods on sandy flats; 3 sheets.

R. COPALLINA L., var. LANCEOLATA Gray; widespread

throughout area on dry limestone hills and prairie ridges; August, fruit persisting through October; 9 sheets. COUNTIES: Brown, Hamilton.

R. GLABRA L.; clay, sand, and limestone soils of river valleys and lower slopes of hills; fruit maturing through June; 7 sheets. COUNTIES: Comanche, Hamilton.

R. MICROPHYLLA Engelm. ex Gray; rare shrub on sandstone and limestone hills and prairie ridges; fruiting through May; 8 sheets. COUNTIES: Brown.

R. RADICANS L., var. RADICANS (incl. var. vulgaris (Michx.) DC.); low shrub in woods of river valleys and beneath live oak thickets on prairies; flowering in May, fruit maturing through June; 8 sheets. COUNTIES: Hamilton.

R. TOXICODENDRON L., forma TOXICODENDRON; widespread, rarely collected, occurring along prairie ravines as erect, non-climbing stands beneath trees; fruit maturing in September; 4 sheets. COUNTIES: Hamilton.

R. TOXICODENDRON L., var. EXIMA (Greene) McNair; stony prairies and slopes, beneath low shrubs and trees; very common; April; 4 sheets. COUNTIES: Brown, Comanche.

R. VIRENS Lindh. ex Gray; rare low spreading tree, collected twice from the same location, along rocky ledges of eroded hilltop, Brown County; April. Gould (1969) and Barkley (1943) both report this species from the Central Texas area, but the author has failed to find it anywhere in Central Texas except for this single location.

## AQUIFOLIACEAE

## ILEX

I. DECIDUA Walt.; sands and sandy loam soils of wooded creek valleys and moist prairie ravines; April, fruit maturing and persisting to early September; 21 sheets. COUNTIES: Comanche, Hamilton.

## HIPPOCASTANACEAE

## AESCULUS

A. GLABRA Willd., var. ARGUTA (Buckl.) B. L. Robinson; infrequent but rather abundant locally; occurring in deep sands of fertile valleys and rich woods of river valleys; March to early April; 9 sheets. COUNTIES: Comanche, Hamilton.

## SAPINDACEAE

## CARDIOSPERMUM

C. HALICACABUM L.; rare but locally abundant about moist fields and streams; August and September; 12 sheets. COUNTIES: Brown, Hamilton.

## SAPINDUS

S. DRUMMONDII Hook. and Arn. (S. saponaria L., var. Drummondii (Hook. and Arn.) Benson); sands, sandy loam, and limestone loam soils of river valleys, field borders,

and wooded slopes; May, fruiting through summer and early fall; 15 sheets. COUNTIES: Brown, Comanche.

#### UNGNADIA

U. SPECIOSA Endl.; frequent on dry hills and ravines; late March and April, fruit maturing in mid July; 7 sheets. COUNTIES: Brown (Nesbitt 259), Comanche, Hamilton.

#### RHAMNACEAE

#### CEANOTHUS

C. HERBACEUS Raf. (incl. var. pubescens (T. & G.) Shinners); limestone and calcareous clay soils of upland prairie ridges and eroded slopes; late March through April, fruit maturing in May; 18 sheets. COUNTIES: Brown, Comanche (Beach 141), Hamilton.

#### COLUBRINA

C. TEXENSIS (T. & G.) Gray; rare shrub, seen and collected once on red clay of high ground along the Colorado River, Brown County; 9 May; 6 sheets.

#### CONDALIA (Johnston, 1962, 1963)

C. OBTUSIFOLIA (Hook.) Weberb. (Zizyphus obtusifolia Hook.); sandstone and limestone soils of abused prairies, eroded hillsides, and dry, open creek valleys; 9 sheets. COUNTIES: Brown.

## RHAMNUS

R. CAROLINIANA Walt., var. MOLLIS Fern.; rich woods of creek valleys, rarely on wooded slopes; June, fruit maturing in October; 20 sheets. COUNTIES: Brown (Boatman 12), Comanche (Cory 58158), Hamilton.

## VITACEAE

## AMPELOPSIS

A. CORDATA Michx. (Cissus ampelopsis Pers.); occasional in rich woods of creek and river valleys; June, fruit maturing through early August; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

## CISSUS

C. INCISA (Nutt.) Des Moulins; scandent on vegetation, fences, and fence posts, of woods and prairie borders; late May, fruiting through August; 6 sheets. COUNTIES: Brown.

## PARTHENOCISSUS

P. HEPTAPHYLLA (Buckl.) Small; scandent on fences, low shrubs, and vertical limestone cliffs; May to early June; 6 sheets. COUNTIES: Brown, Hamilton.

P. QUINQUEFOLIA (L.) Planch., forma QUINQUEFOLIA; common about woods throughout the area, also commonly cultivated; May to early June; fruit maturing through early

July; 7 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### VITIS

V. MUSTANGENSIS Buckl.; common throughout the area, scandent on trees, shrubs, fences, in woods and prairies (along fence rows); May, fruit maturing in July and August; 13 sheets. COUNTIES: Hamilton.

V. VULPINA L. (V. cordifolia Michx.); common throughout area on any available vegetation; of ravines and valleys; May to early June, fruit maturing through July; 10 sheets. COUNTIES: Brown, Hamilton.

#### MALVACEAE (Kearney, 1951)

#### ABUTILON (Kearney, 1955)

A. INCANUM (Link) Sweet; widespread, occurring throughout area on limestone prairies and stony hillsides; mid April to mid June; 7 sheets. COUNTIES: Brown, Comanche, Hamilton (Leach 38).

#### CALLIRHOE (Waterfall, 1951)

C. DIGITATA Nutt., var. STIPULATA Waterfall; sands, clay, and limestone soils of prairies, limestone ridges and low, rocky hills; April through mid July; 14 sheets. COUNTIES: Brown, Hamilton.

C. DIGITATA Nutt., var. STIPULATA Waterfall, forma



ALBA Waterfall (including pink corolla intermediates); rare, occurring with red corolla forms; one collection of 6 sheets from Hamilton County, 4 May; on gently rolling hills. An additional collection from this site is an intermediate form having pink corollas.

C. INVOLUCRATA (Nutt. ex Gray) Gray, var. INVOLUCRATA; disturbed prairies and river valleys; April to early June; 2 sheets. COUNTIES: Comanche (Dieckmeier 16), Hamilton.

C. INVOLUCRATA (Nutt. ex Gray) Gray, var. LINEARILoba (T. & G.) Gray (incl. white corolla form with very large stipules); sands and sandy loam soils of flats and prairies; April through mid May; 9 sheets. COUNTIES: Brown, Comanche.

C. LEIOCARPA Martin; clay and limestone soils, prairie; April; 5 sheets. COUNTIES: Brown.

MALVA  
(Shinners, 1958)

M. NEGLECTA Wallr.; disturbed sites throughout area; April through mid October; 10 sheets. COUNTIES: Brown, Hamilton.

M. SYLVESTRIS L.; reported by Shinners (1958) as "rather rarely cultivated; found as a roadside escape at Tyler, Smith County and persisting in neglected yard at Brownwood, Brown County." The author has seen no material fitting the description of this species.

## MODIOLA

M. CAROLINIANA (L.) G. Don; one sheet from Brown County, 21 April; labeled "Brownwood, in waste place."

SIDA  
(Clement, 1957; Kearney, 1955)

S. LEPROSA (Ort.) K. Schum., var. HEDERACEA (Dougl.) K. Schum.; all material seen is from a single collection site, along caliche road through river valley, north of Hamilton, 1 July, 1968; 5 sheets of two collections. The author attempted to repeat the collection one year later but without success.

S. PHYSOCALYX A. Gray; infrequent but very abundant where found, occurring on sandy and limestone soils of prairies and open woods, also on disturbed grounds; April to mid October; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

S. PROCUMBENS Swartz (according to Kearney (1955), all of the following are synonyms: S. diffusa H. B. K., S. filicaulis T. & G., S. filiformis Moric., S. ovata Cav., S. pilosa Cav., S. supina L'Her. and perhaps S. caespitosa Helwig.). In Central Texas, this species is represented by plants with long hairs on the stems and plants without long hairs on the stems. Sands, tight clay, and limestone soils of prairies and dry hills throughout the area; mid April through late October; 25 sheets. COUNTIES: Brown, Comanche, Hamilton.

SPHAERALCEA  
(Kearney, 1935)

S. ANGUSTIFOLIA (Cav.) D. Don, var. CUSPIDATA Gray; common throughout area, particularly on limestone soils but also frequently found on sandstone outcrops and waste areas; April through October; 3 sheets. COUNTIES: Brown.

S. COCCINEA (Pursh) Rydb., var. DISSECTA (Nutt.) Kearney; seen and collected once in Brown County, 27 April, base of eroded sandstone hill; 3 sheets.

S. HASTULATA Gray; seen and collected or observed at only one site, in Brown County, 16 April; top of eroded hill; 4 sheets.

GUTTIFERAE

HYPERICUM

H. HYPERICOIDES (L.) Crantz; one collection of 4 sheets from post oak woods, Comanche County; 17 January.

ELATINACEAE

BERGIA

B. TEXANA (Hook.) Seubert; rare, collected twice, occurring in moist clay of stream beds and moist channel of old lake bed; July; 2 sheets. COUNTIES: Brown, Hamilton.

TAMARICACEAE

TAMARIX  
(Gorschkova, 1957)

T. GALLICA L.; infrequent throughout area about margins of streams and lakes; May; 4 sheets. COUNTIES: Brown, Hamilton.

CISTACEAE  
(Wilbur, 1969)

HELIANTHEMUM

H. GEORGIANUM Chapman; collected once in Brown County on caliche outcrop of low hill, 20 May; 1 sheet. Wilbur (1969) cited a specimen from Comanche County as Tharp sin. num., 13 June, 1941.

H. ROSMARINIFOLIUM Pursh; one collection from Hamilton County, 17 August; on sandy, low hill above dry lake bed. 3 sheets.

LECHEA  
(Wilbur, 1966; Hodgdon, 1938)

L. MUCRONATA Raf. (incl. L. villosa Ell.); sandy clay and deep, loose sandy soil of hillsides and oak woods; June through October; 5 sheets. COUNTIES: Brown (also cited by Wilbur (1969) as McCart and Clark 30), Hamilton.

L. SAN-SABEANA (Buckl.) Hodgdon; sandy clay loam of upland woods; June; 6 sheets. COUNTIES: Brown.

L. TENUIFOLIA Michx.; sands and coarse gravel soils of open wooded slopes and prairie ridges; July and August; 8 sheets. COUNTIES: Comanche, Hamilton.

## VIOLACEAE

HYBANTHUS  
(Shinners, 1951)

H. VERTICILLATUS (Ort.) Baill. (H. linearis (Torr.) Shinners); frequent in sand and limestone soils, of prairies and limestone ridges of low hills; late April to early September; 8 sheets. COUNTIES: Brown, Hamilton.

VIOLA  
(Russell, 1965)

V. MISSOURIENSIS Greene; rare, but abundant where found; collected once in Hamilton County, 30 March; floors of lowland woods in deep humus; 4 sheets.

## LOASACEAE

MENTZELIA  
(Darlington, 1934)

M. OLIGOSPERMA Nutt.; limestone outcrops of prairies and dry hills; May; 3 sheets. COUNTIES: Brown.

CACTACEAE  
(Benson, 1969; Schulz &  
Runyon, 1930; Britton & Rose, 1919)

Nomenclature follows that of Benson(1969).

CORYPHANTHA  
(Incl. Mammillaria and Neobesseya p.p.)

C. MISSOURIENSIS (Sweet) Britt. & Rose, var. CAESPITOSA (Engelm.) L. Benson; cespitose cactus, rare, seen

only on stony prairie 1 mile west of Hamilton, Hamilton County; May, fruit maturing in July and August; 3 sheets.

C. SULCATA (Engelm.) Britt. and Rose; rare on limestone hills covered with mid grasses and low shrubs; May; 2 sheets. COUNTIES: Comanche. Also seen in Brown County but not collected.

C. VIVIPARA (Nutt.) Britt. and Rose, var. RADIOSA (Nutt.) Backeberg; rare, seen and collected once on shaded (afternoon) roadcut of sandstone hill; 2 sheets. Brown County.

#### ECHINOCACTUS

E. TEXENSIS Hopffer; widespread on grasslands; April, fruit maturing in late summer; 2 sheets. COUNTIES: Comanche (seen but not collected in Brown and Hamilton Counties).

#### ECHINOCERUS

E. REICHENBACHII (Terscheck) Haage; restricted to sandstone and limestone rocky soils of scrubby hills and stony prairies; April and early May; 8 sheets. COUNTIES: Brown, Comanche (also seen but not collected in Hamilton County).

#### FEROCACTUS

(Incl. Hamatocactus and Echinocactus p.p.)

F. SETISPINUS (Engelm.) L. Benson; restricted to brushy sandstone hills and grassy creek valleys; June

through July; 7 sheets. COUNTIES: Brown.

#### MAMMILLARIA

M. GUMMIFERA Engelm., var. APPLANTA (Engelm.) L. Benson (M. Heyderi Muhlenpfordt, var. Heyderi); limestone and calcareous clay soils of stony hillsides; April and May, fruit maturing in summer; 2 sheets. COUNTIES: Brown.

M. GUMMIFERA Engelm., var. MEIACANTHA (Engelm.) L. Benson (M. meiacantha Engelm.); limestone soil, stony hillside, one collection of one sheet from Brown County, 3 May.

#### OPUNTIA

O. COMPRESSA (Salisb.) Macbr.; one collection from Brown County, 24 June (in both flower and fruit); labeled "open woods on hill, in deep sand."

O. FICUS-INDICA (L.) Miller; probably adventive but established and spreading (over twenty individual plants counted from collection site) on dry, rocky limestone hill; one collection from Comanche County, 18 June; 2 sheets.

O. LEPTOCAULIS DC. (incl. Texas reports of var. brevispina Engelm.); widespread, invading prairies; particularly where mesquite and juniper have been removed, also in open woods; May through June; 3 sheets. COUNTIES: Brown. Also observed but not collected in Comanche and Hamilton Counties.

O. LINDHEIMERI Engelm.; occasional throughout the area, rarely collected; one collection of one sheet from Brown County, 25 September; slopes of sandstone hillside.

O. LINDHEIMERI Engelm., var. LINGUIFORMIS (Griffiths) L. Benson (O. linguiformis Griffiths); probably adventive, becoming well established in open sandy woods of northern Brown County; 3 sheets.

O. MACRORHIZA Engelm. (incl. O. tortispina Engelm. & Bigelow); frequent in various soils of prairies and hillsides, including open woods; flowering in May, fruit persisting through September; 7 sheets. COUNTIES: Brown, Comanche (cited by Benson (1969) as D. Griffiths 10623). Also observed in Hamilton.

O. PHAEACANTHA Engelm.; frequent throughout the area, increasing on overgrazed pastures and sites disturbed by "bulldozing" mesquite and juniper; May; 2 sheets. COUNTIES: Brown, cited by Benson (1969) from Comanche County as D. Griffiths 10622.

O. SCHOTTII Engelm., var. SCHOTTII; infrequent but very abundant where found; occurring in sands, sandy loams, and sandstone soils of grasslands and eroded slopes; June to mid July, fruit persisting through winter and dropping off before spring flowering begins; 6 sheets. COUNTIES: Brown. Cited by Benson from Brown County as E. J. Palmer 11121.

O. TUNICATA (Lehm.) Link & Otto, var. DAVISII (Engelm. & Bigelow) L. Benson (O. Davisii Engelm. & Bigelow);



rare cactus, observed only twice; collection made on dry flats above small temporary stream in tight clay; 31 July; 2 sheets. COUNTIES: Brown.

## LYTHRACEAE

## AMMANNIA

A. AURICULATA Willd.; moist silty clay shores of Lake Eanes, Comanche County; one collection of two sheets, 10 August.

A. COCCINEA Rottboell; sandy loam and clay soils about margins of lakes and ponds; August through September; 9 sheets. COUNTIES: Brown (McCart 9142), Comanche, Hamilton.

LYTHRUM  
(Shinners, 1953)

L. ALATUM Pursh, var. ALATUM; sands and clay soils of prairie depressions, meadows, and moist slopes of brush covered hills; mid June through mid July; 20 sheets. COUNTIES: Brown, Comanche, Hamilton.

ONAGRACEAE  
(Munz, 1944)

## GAURA

G. BRACHYCARPA Small; sandy and tight clay soils of prairies and meadows; April; 4 sheets. COUNTIES: Brown (Allison 17), Comanche.

G. COCCINEA Nutt.; widespread, in sands, clay, and limestone soils of prairies, slopes of hills, and disturbed sites; April and May; 10 sheets. COUNTIES: Brown, Hamilton.

G. ODORATA Sesse ex Lag.; sandy loam and deep humus soils of creek valleys; April; 2 sheets. COUNTIES: Brown (Weathermon 96), Hamilton (Geeslin 125).

G. PARVIFLORA Dougl., forma PARVIFLORA; occasional on disturbed grounds; one sheet from Brown County, 12 May.

G. PARVIFLORA Dougl., forma GLABRA Munz; frequent in sands, clays, limestone, and sandstone soils, about fields, margins of woods, and waste areas; May to September; 9 sheets. COUNTIES: Brown, Comanche, Hamilton (Leach 40).

G. PARVIFLORA Dougl., var. LACHNOCARPA Weatherby; one collection of two sheets from Comanche County, 25 April; yellow calcareous soil of grassy hill above small stream.

G. SINUATA Nutt.; sandstone and limestone loam soils of prairies, dry hills, and open ravine slopes; mid April to early September; 7 sheets. COUNTIES: Brown, Hamilton.

G. SUFFULTA Engelm.; limestone soils, abundant on prairies and limestone ridges; April and May; 8 sheets. COUNTIES: Brown, Hamilton.

G. VILLOSA Torr.; reported by Munz (1944) from Comanche County by Marcy Expedition in 1852. The author has seen no material fitting the description by Munz for this species.

## JUSSIAEA

J. PEPLOIDES (H. B. K.) Raven, var. GLABRESCENS  
(Ktze.) Shinnars (J. repens L.); rooted at water's edge,  
in silty clay of ponds and streams; June through August;  
6 sheets. COUNTIES: Brown, Comanche.

## LUDWIGIA

L. REPENS Forst. (L. natans Ell.); rooted in shallow  
pools and slow streams of wooded valleys; June through  
August; 7 sheets. COUNTIES: Comanche, Hamilton.

## OENOTHERA

O. GREGGII Gray, var. LAMPASANA (Buckl.) Munz; lime-  
stone and clay soils, abundant on stony prairies, hill-  
sides, and along roadsides; April and May; 13 sheets.  
COUNTIES: Brown, Comanche, Hamilton.

O. HETEROPHYLLA Spach., var. RHOMBIPETALA (Nutt.)  
Fosb.; sands, throughout area on prairies and open woods;  
mid May to July; 14 sheets. COUNTIES: Brown, Comanche,  
Hamilton (Leach 101).

O. LACINIATA Hill, var. LACINIATA; sands and clay  
soils of prairies and open valleys; 7 sheets. COUNTIES:  
Comanche.

O. LACINIATA Hill, var. GRANDIFLORA (Wats.) B. L.  
Robinson; one collection of one sheet from Brown County,  
16 April; disturbed roadside in sand.

O. MISSOURIENSIS Sims, var. MISSOURIENSIS; common on

limestone and calcareous clay soils of low hills and road-cuts; April to early May; 12 sheets. COUNTIES: Brown, Comanche (Beach 136), Hamilton.

0. SERRULATA Nutt., var. SERRULATA; widespread throughout area on limestone, clay, sandstone, and sandy soils of prairies, hillsides, valleys, and disturbed roadways; April to early June; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

0. SERRULATA Nutt., var. DRUMMONDII Torrey and Gray. Munz (1944) points out that some plants fitting the description for this species lack any dark pigment in the hypanthium and stigma and may be called forma flava Munz. All material from Central Texas examined by the author is assigned to this form. Rare, collected three times in Brown County on disturbed ground; April.

0. SERRULATA Nutt., var. PINIFOLIA Engelm.; reported by Munz (1944) from Comanche County as H. K. D. Eggert sin. num., 1900. The author has seen no material attributable to this taxon.

0. SPECIOSA Nutt.; abundant on ungrazed prairies and roadsides; April to early May; 5 sheets. COUNTIES: Brown, Hamilton.

0. TRILOBA Nutt.; throughout area, about fields, prairies, and disturbed roadsides; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

0. TUBICULA Gray; rare, collected once in Brown County, 27 June; limestone ridges of rolling prairies;

2 sheets.

#### STENOSIPHON

S. VIRGATUS Spach; relatively frequent throughout area, particularly on limestone and sandstone slopes and along roadways; late June through August; 7 sheets. COUNTIES: Comanche, Hamilton.

#### HALORAGIDACEAE

#### MYRIOPHYLLUM

M. BRASILIENSE Camb.; seen and collected at only one site in Comanche County; rooted in shallow stream below dam, Lake Eanes; May and June; 7 sheets.

M. HETEROPHYLLUM Michx.; shallow streams, infrequent but locally abundant; late June to August; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### UMBELLIFERAE

(Mathias and Constance, 1951)

#### AMMI

A. MAJUS L.; one collection from Hamilton County, 2 May, on prairie depressions in limestone loam soils; 3 sheets.

#### AMMOSELINUM

A. POPEI T. & G.; one collection of four sheets from Hamilton County; 4 May; on moist prairie meadow.

Also reported by Mathias and Constance (1951) from Brown County as J. Reverchon 1402.

#### APIUM

A. LEPTOPHYLLUM (Pers.) F. Muell.; one collection from Hamilton County, in rocky creek bed of woods, 18 July; 4 sheets.

#### BIFORA

B. AMERICANA (DC.) Benth. and Hook.; sandy and yellow clay soils of prairies and hilltops; April to mid June; 12 sheets. COUNTIES: Brown (Land 13), Hamilton.

#### BOWLESIA

B. INCANA Ruiz and Pavon; one collection of three sheets from Brown County, 8 April; in rich woods of creek valley.

#### CHAEROPHYLLUM

C. TAINTURIERI Hook., var. TAINTURIERI; sands, clay, and limestone soils, throughout area, particularly of disturbed grounds; May; 12 sheets. COUNTIES: Comanche, Hamilton.

C. TAINTURIERI Hook., var. DASYPARPUM S. Wats.; sands and limestone soils of prairies and river valleys; March through April; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

## CYMPTERUS

C. MACRORHIZUS Buckl.; limestone soils of prairies, limestone ridges, and borders of fields; late February to mid April; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

## DAUCUS

D. PUSILLUS Michx.; sands, sandstone, and clay soils of prairies, river valleys, and disturbed sites; April through May; 5 sheets. COUNTIES: Brown, Comanche, Hamilton.

## ERYNGIUM

E. DIFFUSUM Torr.; reported by Mathias and Constance (1951) from Brown County as J. Reverchon 715.

E. LEAVENWORTHII T. & G.; common throughout area in sands, clays, and rocky limestone soils of prairies and fields; August through October; 5 sheets. COUNTIES: Brown (Strother 35), Comanche, Hamilton.

## EURYTAENIA

E. TEXANA T. & G.; rare, in sands and sandstone soils of prairies and slopes; May through mid June; 7 sheets. COUNTIES: Brown.

## HYDROCOTYLE

H. VERTICILLATA Thunb., var. TRIRADIATA (A. Rich.)

Fern.; frequent about shallow streams and ponds throughout the area; mid June to August; 9 sheets. COUNTIES: Comanche, Hamilton.

#### POLYTAENIA

P. NUTTALLII DC., var. TEXANA Coult. and Rose (P. texana (Coult. and Rose) Math. and Const.); occasional on sandy clay and limestone soils of prairies, open woods, and limestone ridges of hillsides; flowering in April and May with fruit maturing in June; 11 sheets. COUNTIES: Brown, Comanche (Bingham 41), Hamilton.

#### SANICULA

S. CANADENSIS L.; rich woods of creek and river valleys; June through July; 7 sheets. COUNTIES: Hamilton.

#### SPERMOLEPIS

S. ECHINATA (Nutt.) A. Heller; sand and sandstone soils of woods and eroded slopes; April to early May; 6 sheets. COUNTIES: Brown, Comanche. Also reported by Mathias and Constance (1951) from Hamilton County as B. C. Tharp sin. num.

S. INERMIS (Nutt.) Math. and Const.; sands, clay, and limestone soils of woods, open grasslands, and disturbed grounds; April; 8 sheets. COUNTIES: Brown, Comanche, Hamilton (also reported by Mathias and Constance (1951) as B. C. Tharp sin. num.).



## TORILIS

T. ARVENSIS (Huds.) Link (T. japonica of authors); weedy annual about farm dwellings, also of river valleys and along roads; May through June; 8 sheets. COUNTIES: Brown, Hamilton.

T. NODOSA (L.) Gaertn.; infrequent but very abundant where found, about old farm dwellings and river valleys; May; 8 sheets. COUNTIES: Hamilton.

## CORNACEAE

## CORNUS

C. DRUMMONDII Meyer; sands and limestone soils about ravines, creeks, and river valleys; flowering in April, sporadically to early September; fruit maturing in August and September; 7 sheets. COUNTIES: Brown (Beach 163), Comanche, Hamilton.

## PRIMULACEAE

## ANDROSACE

A. OCCIDENTALIS Pursh; dry, stony hillsides; March; 10 sheets. COUNTIES: Brown.

## SAMOLUS

S. PARVIFLORUS Raf.; loam soils of shaded creek banks; 10 sheets. COUNTIES: Brown, Comanche.

## SAPOTACEAE

BUMELIA  
(Cronquist, 1945)

B. LANUGINOSA (Michx.) Pers. (incl. var. oblongifolia, albicans, rigida, and texana); sands, clay, and limestone soils, throughout area in open woods of hills, ravines, and river valleys; flowering in June and July, fruit maturing through September; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

## EBENACEAE

## DIOSPYROS

D. TEXANA Scheele; restricted to sands and sandstone soils of valleys and low hills about the Colorado River in Brown County; April and early May, fruit maturing through June; 4 sheets.

D. VIRGINIANA L.; sands and clay soils of open woods and bottomlands; fruiting July through mid October; 6 sheets. COUNTIES: Brown (McCart 9203), Comanche.

## OLEACEAE

FORESTIERA  
(Johnston, 1957; Shinners, 1950, 1959)

F. NEOMEXICANA Gray; Material keying here all has leaves that are more than twice as long as broad; otherwise characteristics similar to F. pubescens with which

it probably intergrades in Central Texas. Sands, gravel, and limestone soils of prairie thickets, steep hillsides, and wooded creek valleys; April, fruit maturing in early summer; 6 sheets. COUNTIES: Brown.

F. PUBESCENS Nutt., var. PUBESCENS; sands, gravel, calcareous clays, and red silty clay soils of open, dry woods of hills and valleys; flowering March to early April, fruiting through October; 9 sheets. COUNTIES: Brown, Comanche.

F. PUBESCENS Nutt., var. GLABRIFOLIA Shinnery; Most of the Central Texas material examined by the author has glabrous leaves but slightly pubescent twigs which become glabrous or nearly so with age. This variety is often found growing beside var. pubescens and may intergrade with it. Introgression may also occur with F. neomexicana. Occurs in similar habitats as var. pubescens; March and April, fruiting through August; 4 sheets. COUNTIES: Brown (also reported by Johnston (1957) from Brown County as J. Reverchon 2763, August 12, 1877).

#### FRAXINUS

F. AMERICANA L., var. AMERICANA; one collection from Hamilton County, 13 April, in thickets along the Bosque River; 4 sheets.

F. AMERICANA L., var. TEXENSIS Gray (F. texensis (Gray) Sarg.); one collection from Hamilton County, 29 June (in fruit); woods of creek valley; 3 sheets.

## LIGUSTRUM

L. SINENSE Loureiro; adventive, spreading along open prairie ravine in deep sand; one collection from Comanche County, 5 May; 3 sheets.

MENODORA  
(Steyermark, 1932)

M. HETEROPHYLLA Moric.; infrequent but usually abundant where found; red clay and broken sandstone soils of disturbed grasslands; April to early May; 6 sheets. COUNTIES: Brown.

## LOGANIACEAE

## POLYPREMUM

P. PROCUMBENS L.; coarse sand and loose gravel, on disturbed sites; mid May through August; 8 sheets. COUNTIES: Brown, Hamilton.

## SPIGELIA

## GENTIANACEAE

## CENTAURIUM

C. BEYRICHII (T. & G.) Robinson; sands and calcareous soils of prairies and low hills; late April through late June; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

C. TEXENSIS (Griseb.) Fern.; limestone and calcareous

clay soils of stony prairies, hills, and disturbed grounds; June through mid July; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

EUSTOMA  
(Shinners, 1957)

E. GRANDIFLORUM (Raf.) Shinners, forma GRANDIFLORUM; infrequent but locally very abundant, forming populations that cover several acres. Sands, calcareous clay, and limestone soils of dry prairies and prairie depressions; June and July, sporadically through August; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. GRANDIFLORUM (Raf.) Shinners, forma BICOLOR (Standl.) Shinners. One collection of three sheets from a large population. Most of this population is var. grandiflorum, but a significant number are not. Material keying here (when fresh) has pure white corollas with brick red bases. Before the plants could be pressed, the corollas turned very pale pink and after drying became light lemon yellow except for the red bases. Dry meadow adjacent to woods; Comanche County; 28 June.

E. GRANDIFLORUM (Raf.) Shinners, forma FLAVIFLORUM (Cockerell) Shinners. A few plants from this same population have pure white corollas but with bright yellow bases (when fresh). Upon drying, all the corollas turned bright lemon yellow. Shinners (1957) lists the known color forms found in Texas as normal, white, white with purple-tinged lobes, pink, and yellow. He has not seen

the type or isotypes and apparently did not have fresh material available; thus, the material examined by Shinners and this author may be the same forma, but having white corollas, not yellow. If this is the case, then the identity of this taxon is still unresolved. Collection is Stanford 3244 on dry meadow adjacent to woods. COUNTIES: Comanche.

SABATIA  
(Wilbur, 1955)

S. CAMPESTRIS Nutt.; deep sands and gravel, of prairies, dry woods, and disturbed areas; June through mid July; 3 sheets. COUNTIES: Brown, Comanche.

APOCYNACEAE

AMSONIA  
(Woodson, 1938)

A. CILIATA Walt., var. TEXANA (Gray) Coulter (incl. var. tenuifolia (Raf.) Wood.); calcareous clay and limestone soils of stony prairies and ridges; late March through April; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. SALPIGNATHA Woodson; Woodson (1938) described this species designating the type as J. Reverchon 1557, collected on rocky prairies on the Cowhouse Creek, Hamilton County; May, 1884. Also cited is another J. Reverchon collection (99) from Hamilton County, 1885. This author has seen no material attributable to this taxon.

## APOCYNUM

A. CANNABINUM L., var. GLABERRIMUM A. DC.; one collection of three sheets from Comanche County, 2 May; rooted on saturated clay loam banks of shallow stream, Lake Eanes.

A. CANNABINUM L., var. HYPERICIFOLIUM Gray; one collection of 5 sheets from Hamilton County, 1 May; in tight clay of seepage areas.

## VINCA

V. MAJOR L.; established along steep slopes of creek in disturbed soil, collected once but observed on several occasions along open creek valleys; 3 sheets. COUNTIES: Hamilton.

## ASCLEPIADACEAE

(Shinners, 1950; Woodson, 1941)

## ASCLEPIAS

(Woodson, 1954)

A. ASPERULA (Dcne.) Woodson, var. DECUMBENS (Nutt.) Shinners (Asclepidora capricornu Woods., A. decumbens Nutt.); widespread, on sands, clay, sandstone, and limestone soils of prairies and rolling hills; April to early May; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

A. ENGELMANNIANA Woodson (A. auriculata (Engelm.) Holz., Acertes auriculata Engelm.); limestone and calcareous soils of hillsides; July and August; 4 sheets.

COUNTIES: Hamilton.

A. OENOTHEROIDES Cham. and Schlecht.; limestone soils of prairies and rocky hillsides; April through May; 6 sheets. COUNTIES: Brown, Hamilton.

A. TUBEROSA L.; sands and yellow calcareous soils of open woods and river valleys; May through mid July; 3 sheets. COUNTIES: Brown (Ellis 199), Comanche, Hamilton.

A. VIRIDIFLORA Raf., var. VIRIDIFLORA (Acerates viridiflora (Raf.) Eaton); deep sands, calcareous clay, and limestone loams of prairie ridges and margins of open woods; June; 5 sheets. COUNTIES: Brown, Hamilton.

A. VIRIDIS Walt. (Asclepiodora viridis (Walt.) Gray); calcareous clay and limestone soils of stony upland prairies and open woods; May through mid July. 6 sheets. COUNTIES: Hamilton.

CYNANCHUM  
(Shinners, 1964)

C. LAEVA (Michx.) Pers. (Gonolobus laevis Michx.); rare, scandent vine of creek valleys; August through September; 6 sheets. COUNTIES: Brown.

C. UNIFARIUM (Scheele) Woodson; one collection from Brown County, 11 June; scandent on lower branches of oak and pecan, dry woods along the Colorado River; 4 sheets.

MATELEA  
(Shinners, 1964)

M. BIFLORA (Raf.) Woodson (Vincetoxicum biflorum



(Raf.) Heller); calcareous clay and limestone soils of dry prairies and hillsides; April to early May; 13 sheets. COUNTIES: Brown, Hamilton.

M. GONOCARPA (Walt.) Shinnery; one collection of 3 sheets from Brown County; labeled scandent vine on fences, Riverside Park, Brownwood; April.

M. RETICULATA (Engelm.) Woodson (Vincetoxicum reticulatum (Engelm.) Heller); widespread scandent vine of woods; late May through August; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

SARCOSTEMMA  
(Shinnery, 1964; Holm, 1950)

S. CRISPUM Benth. (incl. S. heterophyllum Engelm.); scandent vine, on fence rows and low shrubs of prairies and slopes; May through mid June; 2 sheets. COUNTIES: Brown, Hamilton (Folkner 31).

S. CYNANCHOIDES Decne.; reported by Holm (1950) from Brown County on the Jim Ned Creek as *J. Reverchon* sin. num., no date. The author has seen no material keying to this species.

CONVOLVULACEAE

CONVOLVULUS

C. HERMANNIOIDES Gray; sands, calcareous clay, and limestone soils of disturbed prairies, fields, and valleys; April through mid July; 13 sheets. COUNTIES:

Brown, Comanche, Hamilton.

C. INCANUS Vahl; occasional in calcareous and sandy loams on disturbed sites; April through May; 4 sheets.

COUNTIES: Brown.

CUSCUTA  
(Yuncker, 1943)

C. GLABRIOR (Engelm.) Yuncker, var. GLABRIOR; one collection of three sheets from Brown County, 20 October; parasite on Solanum, in sand of creek valley.

C. GLABRIOR (Engelm.) Yuncker, var. PUBESCENS (Engelm.) Yuncker; widespread, throughout area, parasitic on perennial herbs on prairies and disturbed grounds; May through August; 4 sheets. COUNTIES: Brown (Ellis 145), Comanche.

C. INDECORA Choisy, var. INDECORA; one collection made from Brown County; parasitic on Acacia Roemeriana on steep slopes of eroded hillside; 27 June.

DICHONDRA  
(Tharp and Johnston, 1961)

D. CAROLINENSIS Michx. (D. repens Forst., var. carolinensis (Michx.) Choisy); in Brown County, this species is representative only as a lawn weed. In Hamilton County, it has spread into creek valleys along the rocky grass covered creek banks; May through June; 10 sheets. COUNTIES: Brown, Hamilton.

## EVOLVULUS

E. NUTTALLIANUS R. and S. (E. pilosus Nutt., E. mollis Small); sandy loams, yellow calcareous clays, and limestone soils of prairies; April through early May; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

E. SERICEUS Swartz (incl. var. discolor (Benth.) Gray); infrequent on sandstone and sandy soils of slopes and wooded valleys; May to early September; 6 sheets. COUNTIES: Brown.

## IPOMOEA

(House, 1908; Shinners, 1953)

I. LACUNOSA L.; infrequent but locally abundant in sandy pecan woods along the Leon River; one collection of 4 sheets from Hamilton County, 25 October.

I. NIL Roth.; weedy annual, scandent on shrubs and fences; one collection from Brown County, 8 May.

I. PURPUREA (L.) Roth.; waste grounds, widespread; one collection from Brown County; 9 November.

I. TRICHOCARPA Ell., var. TRICHOCARPA Ell., (I. commutata R. & S., I. caroliniana, and I. trifida of authors); sands and limestone loam soils of creek valleys and fence rows; September to early October; 3 sheets. COUNTIES: Brown (Strother 9), Hamilton.

I. TRICHOCARPA Ell., var. TORREYANA (Gray) Shinners (I. trifida, var. Torreyana Gray); climbing vine, in clay and alluvial marls of creek valleys; September to mid

October; 4 sheets. COUNTIES: Brown (Foster sin. num.), Hamilton.

POLEMONIACEAE

GILIA

(Grant, 1956; Shinnars, 1963;  
Wherry, 1964, 1966)

G. RUBRA L. (Ipomopsis rubra (L.) Wherry); sands, sandstone, and limestone soils of prairie ridges and rolling hills; late April to mid July; 10 sheets. COUNTIES: Brown (Ellis 182), Comanche, Hamilton.

PHLOX

(Whitehouse, 1935, 1945; Wherry, 1955;  
Erbe & Turner, 1962; Shinnars, 1951)

P. DRUMMONDII Hook., var. MCALLISTERI (Whitehouse) Shinnars (incl. var. peregrina Shinnars); this taxon is represented in Central Texas by several color forms including magenta, pink, purple, white, and cream; sandy soils of roadsides and grasslands; April through mid July; 15 sheets. COUNTIES: Brown, Comanche (also cited by Wherry as Correll 16705, Tharp sin. num., and Brownlee 22 as var. peregrina).

P. PILOSA Michx.; (The author made no attempt to separate this taxon into the ssp. of Wherry, 1955.); locally abundant on sands, red clay, and limestone loams of open woods, prairie ridges, and creek banks; April to early May; 9 sheets. COUNTIES: Comanche, Hamilton.

*P. ROEMERIANA* Scheele; infrequent but abundant locally on sands and limestone loam soils; March to mid June; 6 sheets. COUNTIES: Brown (also cited by Wherry (1955) as Palmer 11730, J. Reverchon 2150, Tharp sin. num., Vaughn sin. num.), Hamilton.

#### HYDROPHYLLACEAE

#### NAMA (Hitchcock, 1933)

*N. HISPIDUM* Gray; sands and calcareous clay of prairies, fields, and waste grounds; May to July; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

*N. JAMAICENSE* L.; rare on sandstone soils of dry elm-oak woods and disturbed grounds; 6 sheets. COUNTIES: Brown.

#### NEMOPHILA

*N. PHACELIOIDES* Nutt.; wet meadows and rich woods of river valley; late March to mid May; 6 sheets. COUNTIES: Hamilton.

#### PHACELIA

*P. CONGESTA* Hook.; limestone soils of hills, prairie ridges, and bluffs; May through late June; 8 sheets. COUNTIES: Brown, Comanche.

*P. HIRSUTA* Nutt.; one collection of one sheet from Brown County, 14 April; sandy loam of open dry woods near the Colorado River.

*P. STRICTIFLORA* (Engelm. & Gray) Gray, var.

LUNDELLIANA Constance; deep loose sands of oak woods, occasional in rich woods of river valley; March to mid April; 6 sheets. COUNTIES: Brown.

BORAGINACEAE  
(Johnston, 1964)

HELIOTROPIUM

H. CURASSAVICUM L.; one sheet from Brown County, 19 October; in sand, 2 miles northwest of May.

H. TENELLUM (Nutt.) Torr.; sands, calcareous clay, and rocky limestone soils of dry prairies and sparse woods; late June through July; 10 sheets. COUNTIES: Comanche, Hamilton.

LAPPULA

L. TEXANA (Scheele) Britton; sandstone and calcareous soils of upland prairies and open wooded hillsides; April to mid May; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

LITHOSPERMUM

L. ARVENSE L. (Buglossoides arvensis (L.) I. M. Johnston); deep, loose humus of open river valleys; April to early May; 5 sheets. COUNTIES: Hamilton.

L. INCISUM Lehm.; widespread throughout area in various soils of prairies, hillsides, and open woods; mid March through April; 9 sheets. COUNTIES: Brown,

Comanche, Hamilton.

VERBENACEAE  
(Moldenke, 1942)

ALOYSIA

A. LYCIOIDES Cham. (A. ligustrina of many authors not (Lag.) Small); infrequent but very abundant locally, particularly in sand and clay soils of areas disturbed by the removal of mesquite and juniper; April; 6 sheets. COUNTIES: Brown (also cited by Moldenke (1942) as C. S. Newhall sin. num. and J. Reverchon 691).

LANTANA

L. HORRIDA H. B. K.; occasional throughout area on sandy soils of prairies and roadsides; 5 sheets. COUNTIES: Brown (Weathermon 127), Comanche, Hamilton.

PHYLA  
(Lippia p.p.)

P. INCISA Small; widespread throughout area about margins of ponds, streams, and lakes, occasional along roadsides in moist ditches; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. NODIFLORA (L.) Greene, var. NODIFLORA; rare, collected once in Hamilton County along banks and adjacent woods of Cowhouse Creek, September. 2 sheets.

P. NODIFLORA (L.) Greene, var. REPTANS (H. B. K.) Moldenke. Shinnars (1958) indicates that Texas material

identified as P. nodiflora is actually a hybrid between P. lanceolata and P. incisa. However, this author has assigned the name P. nodiflora according to Moldenke (1942) because he has failed to ever encounter P. lanceolata anywhere in the three county area. This species may introgress with P. incisa which is the most abundant species of Phyla in Central Texas. Plants collected along clay banks of drying stock pond, 1 mile west of Winchell, Brown County, 31 July. Moldenke (1942) also cited this taxon from Comanche County as F. J. Lindheimer 1071.

VERBENA  
(Perry, 1933)

V. BIPINNATIFIDA Nutt.; widespread throughout area in sands, clay, and limestone soils of prairies, slopes, and many disturbed situations; April through mid October (sporadically); 26 sheets. COUNTIES: Brown, Comanche (cited by Moldenke (1942) as Wild Flower Contest sin. num.), Hamilton.

V. CANADENSIS (L.) Britt.; rarely collected, may be more widespread than indicated here due to close resemblance to V. bipinnatifida. One collection from Brown County, 20 October; on limestone outcrop.

V. CANESCENS H. B. K., var. ROEMERIANA (Scheele) Perry; shallow sands, clay, and limestone soils of rolling hills, eroded hillsides, and slopes above river valleys; late April through October; 8 sheets. COUNTIES: Brown



(also cited by Moldenke (1942) as Palmer 29535 and J. Reverchon sin. num.), Comanche, Hamilton.

V. CILIATA Benth., var. LONGIDENTATA Perry; reported by Moldenke (1942) from Hamilton County as W. Trelease sin. num. The author has not assigned any Central Texas material to this species.

V. HALEI Small; widespread throughout area on sands, yellow clay and limestone soils of prairies, woods, field borders, and roadsides; April through mid July; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

V. HALEI Small, forma ALBIFLORA L. I. Davis; infrequent but locally abundant on sands and loam soils of open woodlands; May and June. COUNTIES: Brown, Hamilton.

V. PLICATA Greene; rocky sandstone soils of grasslands and open woods; late March to late May; 6 sheets. COUNTIES: Brown.

V. PUMILA Rydb.; sands and clay soils of stony prairies, hillsides, and river valleys; March to early May; 7 sheets. COUNTIES: Brown, Comanche, Hamilton.

V. SCABRA Vahl; reported by Perry (1933) from the Leon River, October, 1850, collected by Bigelow (sheet in Gray Herbarium). This could be within the confines of either Comanche or Hamilton Counties. None seen, but to be expected.

#### VITEX

V. AGNUS-CASTUS L.; spreading from abandoned dwellings

into nearby woods; one sheet from Comanche County, 22 July (in fruit). Also cited by Moldenke (1942) from Brown County as E. J. Palmer 29537.

#### LABIATAE

#### BRAZORIA (Lundell, 1969)

B. SCUTELLARIOIDES (Hook.) Engelm. and Gray; restricted distribution, occasional on limestone prairies and slopes; mid May through mid July; 12 sheets. COUNTIES: Comanche, Hamilton (also cited by Lundell (1969) as Correll & Correll 32848 and Cory 53798).

#### HEDEOMA (Epling and Stewart, 1939)

H. ACINOIDES Scheele; limestone and clay soils of clearings, open woods, and stony prairies; mid April to early May; 12 sheets. COUNTIES: Brown, Hamilton.

H. DRUMMONDII Benth., var. DRUMMONDII; widespread throughout the area on sands, caliche, and limestone soils of prairies, hills, and disturbed grounds; late April through August; 19 sheets. COUNTIES: Brown, Comanche, Hamilton.

H. DRUMMONDII Benth., var. REVERCHONII Gray (H. lata Small); restricted distribution on limestone soils of low wooded hills; June through early September; 6 sheets. COUNTIES: Brown, Hamilton.

## LAMIUM

L. AMPLEXICAULE L.; various soils of waste grounds, lawns, and fields; March, sporadically throughout the year; 6 sheets. COUNTIES: Brown, Comanche, Hamilton.

## MARRUBIUM

M. VULGARE L.; widespread about farm and ranch buildings, fields, and roadsides; April and May, fruit persisting through summer; 7 sheets. COUNTIES: Brown, Comanche (Beach 145), Hamilton.

## MENTHA

M. SPICATA L.; one sheet from Brown County, 14 July; infrequent along shaded stream.

## MONARDA

(McClintock & Epling, 1942; Shinnars, 1953)

M. CITRIODORA Cerv.; widespread on sandstone, clay, and limestone soils of prairies and eroded slopes of wooded hills; May to early June; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

M. CLINOPODIOIDES Gray; sands and sandstone soils of prairies and open woods; May; 9 sheets. COUNTIES: Brown, Comanche.

M. PUNCTATA L., var. INTERMEDIA (McClintock & Epling) Waterfall; deep sands of prairies, fields, and roadsides; late April through June; 8 sheets. COUNTIES:

Brown, Comanche, Hamilton.

M. PUNCTATA L., var. OCCIDENTALIS (Epling) Palmer and Steyerf.; sands and sandstone soils of prairies, open woods, and roadsides; May; 7 sheets. COUNTIES: Brown, Comanche.

SALVIA  
(Epling, 1940)

S. AZUREA Lam., var. GRANDIFLORA Benth.; limestone prairies and margins of woods; late August and September; 6 sheets. COUNTIES: Hamilton.

S. ENGELMANNII Gray; limestone prairies; April through May, fruiting plant persisting through October; 20 sheets. COUNTIES: Hamilton.

S. FARINACEA Benth.; limestone soils of prairies and clearings of woods; April to early May; 6 sheets. COUNTIES: Hamilton.

S. GREGGII Gray; persisting about old military housing (abandoned for at least 20 years); one collection from Camp Bowie, Brown County, 1 April.

S. REFLEXA Hornem.; weed about fields and overgrazed pastures; October; 9 sheets. COUNTIES: Brown, Hamilton.

S. TEXANA (Scheele) Torr.; widespread on limestone prairies and caliche outcrops; April to mid June; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

SCUTELLARIA  
(Epling, 1942)

S. DRUMMONDII Benth.; sandy and sandstone soils of prairies and margins of woods; April and May; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

S. WRIGHTII Gray (incl. S. resinosa p.p.); sands, sandstone, and calcareous clay soils of prairies and eroded hills; April and May; 13 sheets. COUNTIES: Brown, Comanche, Hamilton.

STACHYS

S. AGRARIA Cham. & Schlecht.; sands and dark clay loam soils of river valleys and open prairie ravines; April through May; 6 sheets. COUNTIES: Brown, Hamilton.

TEUCRIUM  
(McClintock & Epling, 1946)

T. CANADENSIS L., var. CANADENSIS; sands and clay soils of woods, in creek and river valleys; late June through August; 17 sheets. COUNTIES: Brown, Comanche, Hamilton.

T. LACINIATUM Torr.; grasslands and open woods; late May through June; 6 sheets. COUNTIES: Brown, Comanche, Hamilton.

SOLANACEAE

## CHAMAESARACHE

C. CONIOIDES (Moric.) Britt.; sands and sandy clay soils of river valleys and wooded hills; April through August; 18 sheets. COUNTIES: Brown, Comanche, Hamilton.

## DATURA

D. METELOIDES DC. (incl. D. Wrightii Regel); river valleys and disturbed sandy grounds; July through August; 6 sheets. COUNTIES: Brown (Ivy sin. num.), Hamilton.

PHYSALIS  
(Waterfall, 1958)

P. ANGULATA L., var. PENDULA (Rydb.) Waterfall; sands and silty clay soils of moist woods and river valleys; June through August; 9 sheets. COUNTIES: Brown, Hamilton.

P. HETEROPHYLLA Nees vel. aff. Waterfall has pointed out to the author that all of the material assigned to this species from Central Texas is anomalous and needs further study. Four of the collections represented here (Stanford 804, 1015, 3622, and Beach 118) appear to intergrade with P. hederaefolia. Two additional collections from this same site appear more like P. heterophylla. None of the material examined by the author is clearly either one or the other. Restricted to thin, eroded limestone and sandstone hills; April through May; 24 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. LOBATA Torr.; widespread on disturbed soils of roadsides, woods, and river valleys; March to early June; 5 sheets. COUNTIES: Brown.

P. LOBATA Torr., forma ALBIFLORA Waterfall; fifth known collection from the United States, including the second from Texas. This very interesting white corolla form was collected in Riverside Park, Brownwood, Brown County, by the author and several of his students on 23 April, 1968. Later that same year, the habitat was destroyed by the city maintenance crew, and the plant has not been collected again. 5 sheets.

P. PUBESCENS L., var. PUBESCENS; infrequent but locally abundant in sandy pecan woods, one collection of two sheets from Hamilton County, 25 October.

P. VIRGINIANA Mill., var. TEXANA (Rydb.) Waterfall; one sheet from Comanche County, 30 September, labeled in sandy loam, 5 miles east of Democrat.

P. VISCOSA L., var. CINERASCENS (Dunal) Waterfall (incl. material approaching var. mollis); widespread throughout Central Texas on sands, clay, sandstone, and limestone soils of valleys, prairies, ridges of hills, and disturbed soils of roadsides and city lots; late April to early September; 18 sheets. COUNTIES: Brown, Comanche, Hamilton.

SOLANUM  
(Correll, 1952)

S. ELAEAGNIFOLIUM Cav., forma ELAEAGNIFOLIUM; widespread throughout area, principally on disturbed grounds; April through July; 17 sheets. COUNTIES: Brown, Hamilton (Geeslin 119).

S. ELAEAGNIFOLIUM Cav., forma ALBIFLORUM Cockerell; rare, collected once in Comanche County, 22 July; in dark sandy humus bordering old field in rich creek valley. 1 sheet.

S. NIGRUM L., var. AMERICANUM (Mill.) Schulz; infrequent on sands and clays about dry woods of creek and river valleys; October; 1 sheet from Brown County.

S. ROSTRATUM Dunal; common on sands, clay, and limestone soils of disturbance, particularly about old fields; May through August; 3 sheets. COUNTIES: Brown (Ellis 177), Comanche, Hamilton.

S. TORREYI Gray (S. dimidatum Raf.); widespread, occurring with S. elaeagnifolium throughout the area; late April through August; 6 sheets. COUNTIES: Brown, Hamilton.

S. TRIQUETRUM Cav.; common in thin upland soils beneath shrubs and low trees; 5 sheets. COUNTIES: Brown.

SCROPHULARIACEAE  
(Pennell, 1935)



## BACOPA

B. ACUMINATA (Walt.) Robinson (Mecardonia acuminata (Walt.) Small Pagesia acuminata (Walt.) Pennell); rare, collected twice in Hamilton County; rocky, moist creek beds; July and August; 4 sheets.

B. PROCUMBENS (Mill.) Greenm., var. PEDUNCULARIS (Benth.) Fern.; infrequent along rocky ledges over Adams Branch Creek, one collection of two sheets from Brown County, 1 September.

## CASTILLEJA

C. INDIVISA Engelm.; deep sands, flats about Proctor Lake, Comanche County; also collected once in red clay on lower slopes of hill, Brown County (Roberts 11); April, sporadically to early August; 11 sheets.

C. PURPUREA (Nutt.) G. Don. The Central Texas paintbrushes assigned to this taxon include conservatively three color forms with numerous intermediates. The author has chosen to represent this complex group as follows:

C. PURPUREA (Nutt.) G. Don (no forms determined). Stanford 2005 is a composite sheet of seven color forms ranging from deep purple to lighter shades of lavender to coral, yellowish, and creamy white. Additional collections from Brown County indicate intermediates also which have not been delimited.

C. PURPUREA (Nutt.) G. Don, var. PURPUREA; occurring on stony grasslands; some forms easily var. purpurea,

others intergrading with other forms; April; 4 sheets.

COUNTIES: Brown, Comanche (Seale 45), Hamilton.

C. PURPUREA (Nutt.) G. Don, var. CITRINA (Pennell) Shinnery. This variety has not been encountered in the research area, but it is widespread on limestone hills of surrounding counties with the type being F. W. Pennell 10516, stony limestone knoll, Talpa, Coleman County, Texas, collected in flower and fruit May 20, 1920 (Pennell, 1935).

C. PURPUREA (Nutt.) G. Don, forma CORALLINA Waterfall; sands and yellow calcareous soils of prairies and overgrazed grasslands; late March to early May; 7 sheets.  
COUNTIES: Brown, Hamilton.

C. PURPUREA (Nutt.) G. Don, var. LINDHEIMERI (Gray) Shinnery; sands, clay, and limestone soils of prairies and limestone ridges; April to early May; 10 sheets.  
COUNTIES: Brown, Comanche (cited by Pennell (1935) as Eggert, no date or location), Hamilton.

#### CONOBEA

C. MULTIFIDA (Michx.) Benth.; widespread about prairie depressions, bank of ponds, streams and rivers, and areas of disturbance; June through August; 16 sheets.  
COUNTIES: Brown, Comanche, Hamilton.

#### GERARDIA

G. DENSIFLORA Benth. (Tomanthera densiflora (Benth.)

Pennell); rare, occurring on limestone ridges of prairies; late August through mid October; 9 sheets. COUNTIES: Brown (Ellis 21), Hamilton.

LINARIA  
(Kral, 1955)

L. CANADENSIS (L.) Dumont, var. TEXANA (Scheele)  
Pennell; sands, about fields, prairies, and open sandy woods; April to mid May; 8 sheets. COUNTIES: Brown, Comanche.

MIMULUS  
(Grant, 1925)

M. GLABRATUS H. B. K.; one collection of two sheets from Brown County, 29 April; moist black clay, edge of dense woods of creek valley.

PENSTEMON

P. COBAEA Nutt.; sandy loam, yellow clay, and limestone soils of prairies, slopes, and roadsides; April to early May; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. FENDLERI T. & G.; one collection of four sheets from Brown County, 21 April; sandy loam soil of prairie.

P. GUADALUPENSIS Heller; frequent on sandstone, clay, and limestone soils of prairie ridges, open slopes, and ditches along roads; April to early May; 12 sheets. COUNTIES: Brown, Comanche.

*P. LAXIFLORUS* Pennell; deep sands bordering oak woods; May; 7 sheets. COUNTIES: Comanche (cited by Pennell (1935) as Mrs. J. I. Philipp sin. num.), Hamilton.

#### VERONICA

*V. ANAGALLIS-AQUATICA* L.; rare, known only from a single site in Hamilton County, along Pecan Creek, rooted in and about shallow water, but surviving after stream dries up; April through early May; 9 sheets.

*V. PEREGRINA* L., var. *XALAPENSIS* (H. B. K.) St. John and Warren; widespread, in sands and clay loams about ponds, watercourses, and areas of disturbance; late March through early May; 18 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### BIGNONIACEAE

##### CAMPSIS

*C. RADICANS* (L.) Seem.; spreading along fences into woods, becoming rather common; June through mid July; 5 sheets. COUNTIES: Brown (Rathke 83, Richmond 45), Comanche.

##### CATALPA

*C. SPECIOSA* Warder; Formerly widely cultivated as a shade tree, persistent in yards of abandoned farm dwellings; one sheet from Brown County (Beach 149a), 19 April.

## CHILOPSIS

C. LINEARIS (Cav.) DC.; occasionally planted by highway department, rarely found at old farm sites, persisting but not reproducing naturally. One collection from Hamilton County, September.

## MARTYNIACEAE

## PROBOSCIDEA

P. LOUISIANACA (Mill.) Thel. (Martynia louisianica Mill.); sands, black clay loams, and limy soils of cultivation and disturbance, occasional in open woods of river valleys; May through October; 4 sheets. COUNTIES: Brown, Hamilton.

OROBANCHACEAE  
(Thieret, 1969)

## OROBANCHE

O. LUDOVICIANA Nutt. (O. multiflora Nutt.); rare, only known from one site in Hamilton County, parasitic on Chrysopsis roots, limestone prairie; June; 5 sheets.

ACANTHACEAE  
(Wasshausen, 1966)

## DICLIPTERA

D. BRACHIATA (Pursh) Spreng.; rare, in dense woods of Leon River; July; 5 sheets. COUNTIES: Comanche, Hamilton.

## DYSCHORISTE

D. LINEARIS (T. & G.) Kntz.; common in sands, clay, and limy soils of upland prairies and eroded hillsides; April through early June; 9 sheets. COUNTIES: Brown (cited by Wasshausen (1966) as F. Gould 5668, Palmer 26823), Comanche (also cited as H. Eggert sin. num., Shinners 26253), Hamilton (also cited as Correll & Correll 19001, Gould 6843, Lundell and Lundell 9126).

## JUSTICIA

J. AMERICANA (L.) Vahl (Dianthera americana L.); abundant along margins of ponds, shallow streams and lakes, throughout the area; late April to mid June; 9 sheets. COUNTIES: Brown, Comanche, Hamilton (Leach 26; also cited by Wasshausen (1966) as R. R. Innes and B. Moon 1322).

## RUELLIA

(Tharp and Barkley, 1949)

R. DRUMMONDIANA (Nees) Gray; restricted to woods along river valleys; late August to early September; 7 sheets. COUNTIES: Hamilton.

R. HUMILIS Nutt., var. EXPANSA Fern.; cited by Wasshausen (1966) from Comanche County as B. C. Tharp sin. num.

R. HUMILIS Nutt., var. FRONDOSA Fern.; one sheet from Comanche County, 27 August; open woods on gravel slopes above Lake Nabors.

R. HUMILIS Nutt., var. LONGIFLORA (Gray) Fern.; rare, two sheets from single site in Hamilton County; 15 June; slopes of wooded limestone hill in moist depressions.

R. METZAE Tharp; frequent in clay and limestone soils of stony prairies, eroded slopes, and disturbed areas; late April to early September; 7 sheets. COUNTIES: Brown (also cited by Wasshausen (1966) as Reverchon 835); Hamilton.

R. NUDIFLORA (Gray) Urban; occasional in sand on prairies and roadsides; April through mid May; 2 sheets. COUNTIES: Brown (also cited by Wasshausen (1966) as J. Reverchon 835).

R. STREPENS L., var. CLEISTANTHA Gray; rare, occurring in loose sands of disturbed areas and river valleys; 5 sheets. COUNTIES: Brown, Hamilton.

#### SIPHONOGLOSSA

S. PILOSELLA (Nees) Torr. (S. dipteracantha (Nees) Heller); sands and clay soils of grasslands, eroded hills, and open woods; April through early May; 2 sheets. COUNTIES: Brown.

#### PLANTAGINACEAE

##### PLANTAGO (Shinners, 1950)

P. ELONGATA Pursh; rare, collected once in Comanche County in tight silty clay of moist meadow at edge of

woods; 6 April; 5 sheets.

P. HELLERI Small; sandy, clay, and limestone soils of prairies and open woods; April to early May; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. LANCEOLATA L.; adventive, lawns and adjacent alleys and vacant lots, one collection from Brown County, 16 May. 3 sheets.

P. PURSHII R. and S., var. BREVISCAPA Shinners; one collection of one sheet from Brown County, 28 April; sandy loam soil of rolling prairie.

P. PURSHII R. and S., var. SPINULOSA (Dcne.) Shinners; limestone and clay soils of prairies, hills, and disturbed roadbeds; April through early May; 5 sheets. COUNTIES: Brown.

P. RHODOSPERMA Dcne.; sands and calcareous soils of river valleys and areas of disturbance; April through May; 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

P. WRIGHTIANA Dcne. (incl. forms with leaves glabrous above and below); sandy loams, clay, and limestone soils of prairies and brushy hills; May through June; 11 sheets. COUNTIES: Brown, Hamilton.

#### RUBIACEAE

#### CEPHALANTHUS

C. OCCIDENTALIS L.; sands and clay loam soils of prairie ravines and along streams; May to early September; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.



## DIODA

D. TERES Walt., var. SETIFERA Fern. and Grisc.; deep sands of prairies, woods, and borders of fields; May through August. 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

## GALIUM

G. APARINE L.; sands and sandy loam soils of wooded river valleys and disturbed grounds; late March through May; 9 sheets. COUNTIES: Brown, Hamilton.

G. PILOSUM Ait., var. PUNCTICULOSUM (Michx.) T. & G.; one collection of four sheets from Comanche County, 30 June; fine sands along roadside and adjacent pasture.

G. TEXENSE Gray; brushy hillside about limestone boulders in underbrush; April; 6 sheets. COUNTIES: Comanche, Hamilton.

G. VIRGATUM Nutt.; yellow clays and limestone soils of hillsides, about boulders, occasional on stony prairies; April to mid May; 9 sheets. COUNTIES: Brown, Hamilton.

## HEDYOTIS

H. CRASSIFOLIA Raf. (Houstonia pusilla Schoeph., H. patens Ell., H. minima Beck.); silty clay and sandy soils of prairie meadows and flats adjacent to oak woods; February to early March; 7 sheets. COUNTIES: Brown, Comanche.

H. NIGRICANS (Lam.) Fosb. (incl. var. nigricans and var. rigiduiscula Gray); widespread throughout area, in sands, clay, sandstone, and limestone soils of prairies, ridges, eroded hills, and roadsides; 23 sheets. COUNTIES: Brown, Comanche.

#### CAPRIFOLIACEAE

##### LONICERA

L. ALBIFLORA T. & G., var. ALBIFLORA; frequent in open woods of eroded hills and rocky creek beds; April, fruit maturing through September; 15 sheets. COUNTIES: Brown, Comanche, Hamilton.

L. JAPONICA Thunb.; trailing and scandent vine in woods of river and creek valleys; May through July; 8 sheets. COUNTIES: Brown, Comanche.

##### SAMBUCUS

S. CANADENSIS L., var. CANADENSIS; rich woods of river valleys; one collection of two sheets from Hamilton County, 13 May.

S. CANADENSIS L., var. SUBMOLLIS Rehder; woods of river and creek valleys, also occasionally found as an escape from cultivation; May through June; 4 sheets. COUNTIES: Brown (Wyatt 43, Neal 384), Hamilton.

##### VIBURNUM

V. PRUNIFOLIUM L., var. FERRUGINEUM T. & G. (v.

rufidulum Raf.); frequent in sands and dark loam soils about woods of creek and river valleys and moist prairie ravines; early April, fruit maturing through August; 23 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### VALERIANACEAE

##### VALERIANELLA (Dyal, 1938)

V. AMARELLA (Lindh.) Krok.; frequent in sands, clay, and thin limestone soils of prairies and open woodlands; April to mid May; 20 sheets. COUNTIES: Brown, Comanche, Hamilton.

V. RADIATA Dufur.; one collection of two sheets from Hamilton County, 4 May; dark limestone soil of gentle slopes of hillside.

V. STENOCARPA (Engelm.) Krok., var. PARVIFLORA Dyal; rich humus and sands of open grassy woods near river valleys; April; 5 sheets. COUNTIES: Brown, Hamilton.

#### CUCURBITACEAE

##### CUCURBITA

C. FOETIDISSIMA H. B. K.; common weed in sands and clay soils of stony prairies, river valleys, and roadsides; April through July; 6 sheets. COUNTIES: Brown, Comanche.

C. TEXANA (Scheele) Gray; sands of alluvial wash, seen once in Hamilton County, 18 July, scrambling over

driftwood and low shrubs of sandbar, Leon River; 12 sheets.

#### IBERVILLEA

I. LINDHEIMERI (Gray) Greene; sands, yellow clays, and limestone loam soils of woods and field borders; April and early May, fruit persisting through mid September; 18 sheets. COUNTIES: Brown, Hamilton.

#### MELOTHRIA

M. PENDULA L.; rare, collected once in Hamilton County, 21 July; in rich woods of river valley; 5 sheets.

#### SICYOS

S. ANGULATA L.; one collection of one sheet from Brown County, 24 June; open woodland, in deep sand.

#### CAMPANULACEAE (McVaugh, 1951)

#### SPECULARIA (Triodanis of Authors)

S. BIFLORA (R. & P.) Fisch. & Mey.; sands and red sandstone and shale soils of eroded, dry slopes, prairies, and roadsides; April and May; 15 sheets. COUNTIES: Brown, Comanche.

S. HOLZINGERI (McVaugh) Fern.; sands and sandstone soils of prairies and woodlands; May; 9 sheets. COUNTIES: Brown, Comanche.

S. LEPTOCARPA (Nutt.) Gray; sandstone soils of open

mesquite-oak woodlands and eroded, brushy hills; May; 4 sheets. COUNTIES: Brown.

S. PERFOLIATA (L.) A. DC.; rich loam soils of river and creek valleys; May; 4 sheets. COUNTIES: Brown, Hamilton.

#### COMPOSITAE

##### ACHILLEA

A. LANULOSA Nutt., forma LANULOSA; prairies and open woodlands in sand and clay soils; April through May; 4 sheets. COUNTIES: Brown.

##### AMBLYOLEPIS

A. SETIGERA DC.; abundant in sands of river and creek valleys, occasional on stony prairies; late March to early May; 6 sheets. COUNTIES: Brown.

##### AMBROSIA

A. ARTEMISIIFOLIA L., var. ELATIOR (L.) Descourtils; infrequent on rough, stony prairies, especially on disturbed grounds; October; 2 sheets. COUNTIES: Brown.

A. PSILOSTACHYA DC., var. LINDHEIMERIANA (Scheele) Blankenship; widespread on sands, clay, and limestone soils of prairies and areas of disturbance, October; 2 sheets. COUNTIES: Brown.

A. TRIFIDA L., var. TEXANA Scheele; sands and dark clay loam soils of river and stream valleys; mid July to

mid October; 9 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### APHANOSTEPHUS

(Shinners in Correll and Johnston, 1970)

A. KIDDERI Blake; one collection of a single sheet from Brown County, in mesquite-oak association in broken sandstone soil, 6 May. This species may intergrade with A. ramosissimus in Central Texas.

A. RAMOSISSIMUS DC.; infrequent along humus terraces above river valley; one collection of a single sheet from Hamilton County, 4 May.

A. SKIRRHOBASIS (DC.) Trel.; widespread on sands, sandstone, and gravelly soils of river valleys and margins of dry woods; early May to mid July; 7 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### ARTEMISIA

A. LUDOVICIANA Nutt., var. LUDOVICIANA; sands and clay soils of flood plains, disturbed prairies, and open woodlands; October; 3 sheets. COUNTIES: Brown.

A. LUDOVICIANA Nutt., var. MEXICANA (Willd.) Fern. (A. mexicana Willd. and A. Lindheimeriana Scheele); apparently rare, collected once on limestone outcrop of prairie, Brown County, 11 October.

#### ASTER

A. ERICOIDES L. (incl. A. hebecladus DC. and A.

multiflorus Ait.); common on grasslands and areas of disturbance caused by overgrazing; late June to mid November; 13 sheets. COUNTIES: Brown, Comanche.

A. LEUCELENE Blake (A. ericaefolius Roth. and Leuceleene ericoides (Torr.) Greene); rare on dry hills about low shrubs; late April through August; 3 sheets. COUNTIES: Brown, Comanche.

A. OBLONGIFOLIUM Nutt.; sands, clay, and yellow calcareous soils of prairies and valleys, abundant along roadsides; October; 14 sheets. COUNTIES: Brown, Comanche.

A. PATENS Ait. (incl var. gracilis Hook.); sands of low woods, infrequent; late September through October; 2 sheets. COUNTIES: Brown, Comanche.

A. PRAELTUS Poir. (incl. A. salicifolius Lam.); sands and dark clay loam soils of river valleys and prairie ravines; October to early September; 7 sheets. COUNTIES: Brown, Hamilton.

A. SIMPLEX Willd. (A. paniculatus of Texas authors); infrequent about woods along streams; October; 5 sheets. COUNTIES: Brown. This species combines some of the characteristics of A. praeltus, var. texicola Wieg. and perhaps could be assigned to that taxon. The author decided upon this name, however, because of the distinctly oblongish areolae of the leaves.

A. SPINOSUS Benth.; primarily in sands and tight clay soils of open wooded river valleys, localized prairie depressions, and old fields; May to early September;

10 sheets. COUNTIES: Brown, Hamilton.

A. SUBULATUS Michx., var. LIGULATUS Shinnars (incl. A. exilis of authors); weedy annual, widespread in various disturbed areas; October; 7 sheets. COUNTIES: Brown.

A. TEXANUS Burgess; collected once in Hamilton County, 25 October; infrequent on sand in pecan woods, 3 sheets.

ASTRANTHIUM  
(DeJong, 1965)

A. INTEGRIFOLIUM (Michx.) Nutt., var. CILIATUM (Raf.) Larsen; one collection of 4 sheets from Comanche County, 30 March; clearing of oak woods in tight clay.

BACCHARIS  
(Mahler & Waterfall, 1964)

B. NEGLECTA Britt.; infrequent but locally abundant primarily in disturbed areas, rare in open mesquite grasslands; October; 14 sheets. COUNTIES: Brown, Comanche.

B. TEXANA (T. & G.) Gray; various limestone and sandstone soils on open, stony prairies and oak covered rolling hills and slopes; late August through September. 15 sheets. COUNTIES: Brown, Comanche, Hamilton.

BERLANDIERA

B. LYRATA Benth., var. LYRATA; one sheet from Brown County, 21 April; limestone hills, apparently very rare in Central Texas.



## CACALIA

C. PLANTAGINEA (Raf.) Rob.; rare, observed and collected once in Hamilton County, 5 June; moist limestone prairie meadow; 4 sheets.

## CALYPTOCARPUS

C. VIALIS Less.; rare but abundant as a weed on St. Augustine grass lawns in Brown County; flowering nearly year round; 6 sheets.

## CENTAUREA

C. AMERICANA Nutt.; throughout in various soils of prairies, open woodlands, and valleys; late April to mid June; 4 sheets. COUNTIES: Brown, Hamilton.

C. CYANUS L.; spreading along roadsides from cultivation, widespread; one sheet examined from Brown County; 4 May.

C. MELITENSIS L.; deep sands, sands and clay soils, especially on disturbed slopes and roadsides; April through May; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

CHAETOPAPPA  
(Shinners, 1946)

C. ASTEROIDES DC.; widespread on rocky wooded slopes, rocky prairies, and stream terraces; April through mid July; 12 sheets. COUNTIES: Comanche, Hamilton.

CHRYSOPIS  
(Heterotheca p.p.)

C. VILLOSA (Pursh) Nutt., var. CANESCENS Gray (Heterotheca canescens (DC.) Shinnery); throughout on prairies and open, dry woods of slopes; August; 11 sheets. COUNTIES: Brown, Comanche, Hamilton.

CIRSIUM  
(Howell, 1943, 1959)

C. TEXANUM Buckl.; limestone, clay, and sandy soils of prairies, dry oak woods, and open wooded valleys, spreading onto disturbed situations; May through June; 10 sheets. COUNTIES: Brown, Hamilton.

C. UNDULATUM (Nutt.) Spreng.; limestone, silty sand, and sandy loam soils throughout; late May to mid October; 7 sheets. COUNTIES: Brown, Comanche, Hamilton.

CONYZA  
(Shinnery, 1949)

C. CANADENSIS (L.) Cronquist, var. GLABRATA (Gray) Cronq.; various soils, widespread on disturbed situations, primarily on overgrazed grasslands and fallow fields; May to early September; 5 sheets. COUNTIES: Brown, Comanche, Hamilton.

COREOPSIS  
(Sherff and Alexander, 1955)

C. BASALIS (Otto and Dietr.) Blake, var. WRIGHTII (Gray) Blake; gravel slopes and margins of small lake,

one collection of a single sheet from Comanche County, 18 July.

C. CARDAMINEFOLIA (DC.) Nutt.; throughout on moist grounds, primarily wet prairie depressions, moist slopes, and ditches; May; 7 sheets. COUNTIES: Brown.

C. NUECENSIS A. Heller; rare, but very abundant locally; one collection of 3 sheets from Comanche County, 25 April, occurring in deep sandy flats and margins of woods.

DISSODIA  
(Johnston, 1956)

D. PENTACHAETA (DC.) Robs.; sands, clay loam, and stony limestone soils of prairies and slopes; mid April to late November; 14 sheets. COUNTIES: Brown.

D. TAGETOIDES T. & G.; calcareous clay and loose sandy soils of dry prairies and wooded hillsides; June through mid August; 6 sheets. COUNTIES: Hamilton.

D. TENUILOBA (DC.) Robs.; one collection of 2 sheets from Hamilton County; 11 May; slopes of eroded sandstone and shale hillside beneath low shrubs.

ECHINACEA  
(Sharp, 1935)

E. ANGUSTIFOLIA DC.; locally abundant on slopes of hills and along steep, eroded roadsides; June; 10 sheets. COUNTIES: Brown, Comanche.

## ECLIPTA

E. ALBA (L.) Hassk.; moist creek beds and adjacent margins of woods; July to early September; 14 sheets.

COUNTIES: Brown, Hamilton.

## ELEPHANTOPUS

E. CAROLINIANUS Willd.; rare, one collection of 6 sheets from pecan woods, Leon River, in Hamilton County, 4 September.

## ENGELMANNIA

E. PINNATIFIDA T. & G.; various soils of prairies, woodlands, and roadsides, very common; March through April or later; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

## ERIGERON

(Cronquist, 1947; Correll & Johnston, 1970)

E. ANNUUS (L.) Pers.; rare on limestone ridges of hills; one collection from Brown County, 23 April.

E. GEISERI Shinnery; abundant on clay and sandstone soils of prairies and open woodlands; April; 6 sheets.

COUNTIES: Brown, Comanche.

E. MODESTUS Gray (incl. E. divergens T. & G., var. cinereus Gray, E. nudiflorus Buckl., and E. plateauensis Cronq.); widespread in various limestone and sandy soils of prairies, woodlands, and moist valleys; late March and April, sporadically to October; 13 sheets. COUNTIES:

Brown, Comanche, Hamilton.

E. PHILADELPHICUS L.; calcareous clay and dark limestone soils of prairies; April; 6 sheets. COUNTIES: Comanche, Hamilton.

E. STRIGOSUS Muhl.; throughout on various soils of prairies, hillsides, and open valleys; late April through May; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### EUPATORIUM

E. SEROTINUM Michx.; rich woods along streams and rivers; late June through September; 6 sheets. COUNTIES: Brown, Hamilton.

#### FILAGO (Shinners, 1951, 1964)

F. NUTTALLII Shinners (Evax prolifera DC.); locally abundant on sands and yellow clay soils of grasslands and open wooded slopes; May; 5 sheets. COUNTIES: Brown, Comanche.

F. VERNA (Raf.) Shinners (Evax multicaulis DC., E. niva Small); commonly occurring with F. Nuttallii, throughout; late March to early June; 6 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### GAILLARDIA (Biddulph, 1944)

G. PULCHELLA Foug.; throughout on sand, clay, and limestone soils of grasslands, wooded slopes and stream

valleys; especially increasing under disturbance situations; April through May; 17 sheets. COUNTIES: Brown, Comanche.

G. SUAVIS (Gray and Engelm.) Britt. and Rusby; sand, clay, and limestone soils of prairies, margins of woods and roadsides; April and May; 15 sheets. COUNTIES: Brown, Comanche, Hamilton.

GNAPHALIUM  
(Correll & Johnston, 1970)

G. CHILENSE Spreng.; observed and collected once in Brown County; 29 September; eroded sandstone hillside; 5 sheets.

G. FALCATUM Lam.; thin yellow calcareous soil of open woods on hillside; one collection from Comanche County, 5 May.

G. PURPUREUM L.; locally abundant on sand and clay soils of river valleys and wooded hillsides; mid April through June; 5 sheets. COUNTIES: Brown, Comanche, Hamilton.

GRINDELIA  
(Steyermark in Correll & Johnston, 1970)

G. LANCEOLATA Nutt. (incl. G. texana Scheele); silty clay and thin, rocky calcareous soils primarily on disturbed grounds; late May through August; 10 sheets. COUNTIES: Brown, Comanche, Hamilton.

G. SQUARROSA (Pursh) Dunal, var. SQUARROSA; rare, on

calcareous clay soils of upland prairie; one collection of 2 sheets from Hamilton County, 29 June.

G. SQUARROSA (Pursh) Dunal, var. NUDA Wood; loose sand, clay, and limestone soils of open woods, disturbed hillsides and roadways; October; 6 sheets. COUNTIES: Brown, Comanche.

GUTIERREZIA  
(Solbrig, 1960; Solbrig  
in Correll and Johnston, 1970)

The author has assigned all the members of this taxon to the following species with reservations. The Central Texas plants are not consistent with the key characteristics of Solbrig as adapted by Correll and Johnston (1970).

G. DRACUNCULOIDES (DC.) Blake (incl. Xanthocephalum amoenum Shinnery and var. intermedium Shinnery); local throughout on overgrazed ranges; mid August to mid October; 20 sheets. COUNTIES: Brown, Comanche, Hamilton.

G. SAROTHRAE (Pursh) Britt. and Rusby; two very dissimilar plants are placed here based on key characteristics, both inhabiting different floristic associations. One, Stanford 1512, is from an eroded hillside; the other, Stanford 680a, is from a rich, sandy river valley; late September through October; 4 sheets. COUNTIES: Brown.

G. TEXANA (DC.) T. & G.; widespread, increasing enormously where abusive overstocking is practiced; August through mid November; 6 sheets. COUNTIES: Brown, Comanche, Hamilton.

HAPLOPAPPUS  
(Smith, 1965)

H. CILIATUS (Nutt.) DC. (Prionopsis ciliatus Nutt.); sandy and limestone soils of prairies and rocky terraces above river valleys; October to early November; 6 sheets. COUNTIES: Brown.

H. DIVARICATUS (Nutt.) Gray, var. HOOKERIANUS (T. & G.) Waterfall; rare, one collection of three sheets from Hamilton County, 17 August; deep sands of fallow fields in broad valley.

HELENIUM

H. AMARUM Raf., var. AMARUM; sandy, gravelly and loamy soils of river valleys, increasing with overgrazing; late June through August; 7 sheets. COUNTIES: Hamilton.

H. AMARUM Raf., var. BADIUM (Gray) Waterfall; restricted to stony grasslands and eroded sandstone and shale hills; mid April through May, sporadically until early November; 12 sheets. COUNTIES: Brown, Comanche.

H. ELEGANS DC.; moist silty soils in wooded stream valleys and about spring seepage areas; June; 3 sheets. COUNTIES: Brown, Hamilton.

H. MICROCEPHALUM DC.; low sandy depressions and in seasonal pools about prairie ravines, also abundant on flood plains of the Colorado River; late May through October; 6 sheets. COUNTIES: Brown, Comanche.

H. QUADRIDENTATUM Labill.; locally abundant on sands



and clay soils that retain spring moisture through mid summer; June; 7 sheets. COUNTIES: Comanche, Hamilton.

HELIANTHUS  
(Watson, 1929)

H. ANNUUS L.; widespread throughout, primarily on abandoned fields, roadsides, and similar disturbed situations; June; 4 sheets. COUNTIES: Brown (Rathke 104), Comanche.

H. CILIARIS DC.; areas of disturbance, increasing on moist lowlands and roadsides; May; 3 sheets. COUNTIES: Brown.

H. MAXIMILIANA Schrad.; moist sands and clay soils of prairies, stream banks, and roadsides; August through October; 6 sheets. COUNTIES: Brown, Comanche.

H. PETIOLARIS Nutt.; sand and clay soils of grasslands and old fields, increasing with disturbance; June; 5 sheets. COUNTIES: Brown.

HETEROTHECA  
(Shinners, 1951; Wagenknecht, 1960)

H. LATIFOLIA Buckl.; sands, clay, and loamy soils of wooded creek valleys, prairie ravines, and roadsides, widespread; late June through October; 10 sheets. COUNTIES: Brown, Comanche.

HYMENOPAPPUS  
(Turner, 1956)

H. ARTEMISIAEFOLIUS DC., var. ARTEMISIAEFOLIUS;

collected only 3 times and from two sites in Brown County; limestone and sandy soils along railroad and sandy soils of creek valley; mid April through May; 17 sheets.

H. SCABIOSAEUS L'Her., var. CORYMBOSUS (T. & G.)

Turner; throughout on clay and stony limestone soils of prairies and open woods; late April through May; 16 sheets.

COUNTIES: Brown, Comanche.

H. TENUIFOLIUS Pursh; limestone soils of hillsides;

May and June; 4 sheets. COUNTIES: Brown, Comanche, Hamilton (Leach 58, Folkner 46).

#### HYMENOXYIS

(Parker in Correll & Johnston, 1970)

H. LINEARIFOLIA Hook.; occasional on sandy prairies and slopes of ravines; late April and May; 6 sheets.

COUNTIES: Brown, Hamilton.

H. ODORATA DC.; rare, one sheet examined from Brown County (Spence 52); fertile loam of open woods; 14 April.

H. SCAPOSA (DC.) Parker, var. LINEARIS (Nutt.) Parker; various soils of prairies, woods, slopes, and valleys; mid March through October; 28 sheets. COUNTIES: Brown, Comanche, Hamilton.

#### IVA

(Jackson, 1960)

I. ANGUSTIFOLIA Nutt.; stony prairies and ditches; one collection of 3 sheets from Hamilton County, 28 August.

I. CILIATA Willd.; sand and clay margins of ponds,

streams, and rocky prairie ravines; mid August to mid October; 11 sheets. COUNTIES: Brown (McCart 9209, Foster sin. num.), Hamilton.

KRIGIA  
(Shinners, 1947)

K. OPPOSITIFOLIA Raf.; known from a single location in Comanche County, moist meadow in silty clay soil; 6 April; 5 sheets.

K. VIRGINICA (L.) Willd.; known from a single collection of two sheets in Comanche County, in tight clay soil of oak-mesquite grassland; 30 March.

KUHNI  
(Shinners, 1946)

K. EUPATORIODES L., var. CORMBULOSA T. & G., loam soils of prairies and dry creek beds; June through October; 13 sheets. COUNTIES: Brown, Comanche (McCart 9291), Hamilton.

LACTUCA

L. CANADENSIS L., var. LATIFOLIA Ktze.; black clay soils of wooded stream valley; one sheet from Comanche County, 28 June.

L. LUDOVICIANA (Nutt.) Ridd., forma LUDOVICIANA; sandy loam and black clay soils of fertile stream valleys; May and June; 5 sheets. COUNTIES: Brown, Comanche.

L. LUDOVICIANA (Nutt.) DC., forma CAMPESTRIS (Greene)

Fern.; one collection of two sheets from Brown County, dry woods in stream valley, 25 May.

L. SCARIOLA L., forma SCARIOLA (L. serriola L. fide Correll and Johnston, 1970); disturbed sites, single sheet from Brown County (Spence 180), 22 June.

L. SCARIOLA L., forma INTEGRIFOLIA (Bogenh.) G. Beck; one collection of 3 sheets from Comanche County; moist banks of Lake Eanes; 11 July.

LIATRIS  
(Gaiser, 1946)

L. MUCRONATA DC.; widespread on grasslands and open oak and mesquite woods; August through October; 3 sheets.  
COUNTIES: Brown, Comanche.

L. PUNCTATA Hook.; rare, known only from the northwestern part of Brown County from 2 collections. The author collected this species (Stanford 1241) on 26 June 1967 from a tight sandy prairie. V. L. Cory collected this species in late September, 1950, and reported it to be "frequent on roadsides," 9 miles northwest of Brownwood.

LINDHEIMERA

L. TEXANA Engelm. and Gray; locally abundant on sandy prairies and mesquite grasslands, late March through April; 10 sheets. COUNTIES: Brown, Comanche, Hamilton. The author's Comanche County collection (Stanford, 2084) is peculiar in that the apical half of each ray flower is very pale yellow drying white. This condition has been

observed on 2 additional occasions in Comanche County, but these specimens were not collected. There are no published accounts of any bicolor forms of this species (Gray and Engelman, 1847). The author will continue to make field and herbarium studies of this taxon to determine its status.

LYGODESMIA  
(Shinners, 1950)

L. APHYLLA DC., var. TEXANA T. & G.; common on limestone soils of prairies and dry hillsides; late April to early September; 13 sheets. COUNTIES: Brown, Hamilton.

MARSHALLIA  
(Channell, in Correll & Johnston, 1970)

M. CAESPITOSA Nutt. ex DC., var. SIGNATA Beadle and Boynt.; infrequent, but very abundant locally, restricted to dry prairie ridges and slopes on limestone and calcareous soils; mid April through May; 15 sheets. COUNTIES: Brown, Comanche, Hamilton.

MELAMPODIUM

M. LEUCANTHUS T. & G.; throughout, primarily on limestone soils, but also occurring on sands and clay; April to early October; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

## PALAFOXIA

(Cory, 1946; Baltzer, 1944; Shinnars, 1952)

P. CALLOSA (Nutt.) T. & G., var. CALLOSA; restricted to limestone outcrops of prairies and stony hillsides; late June to mid October; 13 sheets. COUNTIES: Brown, Hamilton.

P. CALLOSA (Nutt.) T. & G., var. BELLA (Cory) Shinnars; known from Comanche County from a single Cory collection (Cory 58116); infrequent along dry channel of Leon River.

P. TEXANA DC., var. TEXANA; one collection of 2 sheets from Brown County; deep sandy soil of wooded upland, 24 June.

## PARTHENIUM

P. HYSTEROPHORUS L.; locally abundant, especially on disturbed grounds; mid August to mid November; 10 sheets. COUNTIES: Brown, Hamilton.

## PINAROPAPPUS

P. ROSEUS Less.; infrequent, but usually locally abundant on sandy and calcareous soils of mesquite grasslands, meadows, and protected sites along roadsides; April; 9 sheets. COUNTIES: Brown, Comanche.

## PLUCHEA

(Godfrey, 1952)

P. PURPURASCENS (Sw.) DC.; about seepages from ponds,

retaining dams, and moist woods along streams; late June through August; 12 sheets. COUNTIES: Brown, Hamilton.

PYRRHOPAPPUS  
(Shinners, 1951)

P. GEISERI Shinners (P. multicaulis DC.); occasional throughout on various soils, especially on limestone and clay loam prairies and along ditches; April and May; 6 sheets. COUNTIES: Brown, Hamilton.

P. SCAPOSUS DC. (P. grandiflorus (Nutt.) Nutt.); infrequent on prairies and along sandy streams; April; 2 sheets. COUNTIES: Brown (McChesney 99), Hamilton.

RATIBIDA  
(Richards, 1968)

R. COLUMNIFERA (Nutt.) Woot. and Standl., forma COLUMNIFERA; sands, clay, and loamy soils of prairies, eroded slopes, and areas of disturbance; May and June; 5 sheets. COUNTIES: Brown, Comanche (Rodman 62), Hamilton.

R. COLUMNIFERA (Nutt.) Woot. and Standl., forma PULCHERRIMA (DC.) Fern.; occurring throughout with the yellow rayed form; late May through mid October; 5 sheets. COUNTIES: Brown.

RUDBECKIA  
(Perdue, 1957)

R. AMPLEXICAULIS Vahl. (Dracopis amplexicaulis (Vahl.) Cass); moist sands and clay loam soils of stream valleys; also occasional in moist roadside ditches; late May to mid

June; 8 sheets. COUNTIES: Brown, Comanche, Hamilton.

R. HIRTA L., var. PULCHERRIMA Farwell; sandy, clay, and limestone soils of prairies and open dry woods; May through June; 10 sheets. COUNTIES: Brown, Comanche.

#### SENECIO

S. AMPULLACEUS Hook.; restricted to sandy soils along roadsides and adjacent grasslands; late March to mid April; 10 sheets. COUNTIES: Brown, Comanche.

S. IMPARIPINNATUS Klatt.; infrequent, but locally abundant in tight dark clay depressions of prairies and open live oak woods, occasional along moist ditches; April and May; 8 sheets. COUNTIES: Hamilton.

S. PLATTENSIS Nutt.; sands and sandy loam soils of wooded creek valley, occasional about margins of upland woods; April; 4 sheets. COUNTIES: Comanche.

#### SILPHIUM

A. ALBIFLORUM Gray; restricted to limestone and calcareous soils of stony prairies and lower slopes of eroded hills; mid June through August; 6 sheets. COUNTIES: Brown, Comanche, Hamilton.

S. ASTERISCUS L. (incl. S. asperrimum Hook.); known from a single site in Hamilton County; dense woods of deep rocky creek valley; July; 3 sheets.



## SIMSIA

S. CALVA (Engelm. & Gray) Gray; rare, occurring beneath the protection of low shrubs on eroded slopes and roadsides; April through mid October; 6 sheets. COUNTIES: Brown, Comanche. This species decreases under increased grazing because it is extremely palatable to livestock.

SOLIDAGO  
(Shinners, 1951)

S. GIGANTEA Ait., var. LEIOPHYLLA Fern. (S. serotina Ait.); stream banks and flood plains of the Leon River and Pecan Bayou; late August through October. 12 sheets. COUNTIES: Brown, Comanche, Hamilton.

S. NEMORALIS Ait.; one collection of 5 sheets from Brown County; eroded sandstone hillside; 29 September.

S. RADULA Nutt. (incl. var. stenolepis, S. rotundifolia DC.); limestone and sandy soils of prairies and margins of woods, throughout; October; 3 sheets. COUNTIES: Brown (Ellis 4, Sutterfield 3), Comanche (Snipes 24).

## SONCHUS

S. ASPER (L.) Hill, forma ASPER; collected from disturbed grounds around Howard Payne College campus, Brownwood, 11 November.

S. ASPER (L.) Hill, forma GLANDULOSA Beckh.; weedy annual, widespread, primarily on disturbed situations; mid April through May; 7 sheets. COUNTIES: Brown,

Comanche (Strasner sin. num.), Hamilton.

S. ASPER (L.) Hill, forma INERMIS (Bisch.) G. Beckh.; collected once from Brown County; disturbed area; 9 November.

S. OLERACEUS L.; weedy annual, widespread throughout on disturbed grounds; late March to early November; 7 sheets. COUNTIES: Brown.

#### TARAXACUM

T. ERYTHROSPERMUM Andrz.; lawn weed, also spreading along roadsides and other favorable disturbed sites; flowering from March through late fall; one sheet from Brown County.

#### THELESPERMA (Shinners, 1950)

T. AMBIGUUM Gray (incl. T. intermedium p.p.); known from a single collection site in Brown County, base and lower slopes of steep hill in waste grounds; April; 4 sheets. In the course of examining these four sheets, the author has noted that the phyllaries are all black or deep red glandular. Also, a collection of L. H. Shinners (7229 from Burnet County, Texas) in the Oklahoma State University herbarium has similar markings. Of 60 additional sheets that were examined, none had glandular phyllaries. Gray (1883) did not mention the presence of involucre glands in the original description or in his Synoptical Flora of North America (Gray, 1884).

Additional field and herbarium studies will be made by the author to determine the status of this recent discovery.

T. FILIFOLIUM (Hook.) Gray (incl. T. intermedium p.p.); widespread throughout on various soils; limestone ridges of prairies, hilltops and slopes, field borders, and other areas of disturbance; mid April to late October; 21 sheets. COUNTIES: Brown, Comanche (Schrank 25), Hamilton.

T. MEGAPOTAMICUM (Spreng.) Kuntze; apparently rare, one collection of a single sheet from Brown County (Fuller 5) in black, rocky soil near lake.

T. SIMPLICIFOLIUM Gray; limestone and yellow calcareous clay soils, primarily of upland prairies, hillsides, and along dry creek beds; late April to early September; 14 sheets. COUNTIES: Brown, Comanche, Hamilton.

TOWNSENDIA  
(Beaman, 1957)

T. EXSCAPA (Richards.) Porter; very restricted distribution, but usually abundant locally on limestone rises and hillsides; late February to mid March; 7 sheets. COUNTIES: Brown, Comanche. This species was observed in Hamilton County on a stony limestone prairie ridge in March, 1964, but not collected. Several repeated efforts to collect this plant at this site have proven futile.

VERBESINA  
(Coleman, 1966)

V. ENCELIOIDES (Cav.) Benth. and Hook. (incl. subsp. exauriculata (Robs. and Greenm.) Coleman which is hardly separable in two of the specimens examined); throughout on various soils, especially highly disturbed grounds; late May through October; 10 sheets. COUNTIES: Brown, Hamilton.

V. VIRGINICA L.; rich loamy soils of wooded creek and river valleys, occasional in drier upland woods; late August through October; 8 sheets. COUNTIES: Brown (Sutterfield 24), Comanche (Turney 21), Hamilton.

VERNONIA

V. BALDWINII Torr., var. BALDWINII (incl. var. interior (Small) Schub. which intergrades with it); abundant on sands, yellow clays, and stony limestone soils of overgrazed grasslands and also frequent near margins of wooded creek valleys; late June through October; 16 sheets. COUNTIES: Brown, Comanche, Hamilton.

V. LINDHEIMERI Gray & Engelm.; restricted to limestone soils of stony prairies and dry hillsides; late June through October; 11 sheets. COUNTIES: Comanche, Hamilton.

XANTHISMA

X. TEXANUM DC., var. DRUMMONDII (T. & G.) Gray;

widespread on sands and clay soils of river valleys and prairies; May to early October; 6 sheets. COUNTIES: Brown.

#### XANTHIUM

X. ITALICUM Moretti (incl. X. orientale L., X. chinense Hill., and X. speciosum Kearney, all of which intergrade completely (Correll & Johnston, 1970)); usually abundant on waste grounds, low areas of cultivated fields, ravines, and roadsides; August through October; 4 sheets. COUNTIES: Brown (Roan 20), Comanche (Snipes 25), Hamilton.

#### ZINNIA (Torres, 1963)

Z. GRANDIFLORA Nutt.; known from a single collection in Brown County, from disturbed upland prairie grassland in yellow calcareous clay soil; June; 5 sheets.

## CHAPTER VII

### TABULAR VIEW OF THE FAMILIES

The following is a tabulation of the taxa compiled in Chapter VI:

<u>Family</u>	<u>Genera</u>	<u>Subgeneric Taxa</u>
Selaginellaceae	1	1
Isoetaceae	1	1
Ophioglossaceae	1	1
Marsileaceae	1	2
Polypodiaceae	6	11
Pinaceae	1	2
Gnetaceae	1	2
Typhaceae	1	2
Zosteraceae	2	3
Najadaceae	1	1
Alismataceae	2	4
Hydrocharitaceae	1	1
Gramineae	42	118
Cyperaceae	6	24
Araceae	1	1
Lemnaceae	2	3
Commelinaceae	2	8
Pontederiaceae	2	2

Juncaceae	1	6
Liliaceae	11	20
Amaryllidaceae	1	2
Iridaceae	2	4
Orchidaceae	1	1
Salicaceae	2	3
Juglandaceae	2	2
Fagaceae	1	11
Ulmaceae	2	6
Moraceae	3	4
Urticaceae	2	3
Loranthaceae	1	1
Rafflesiaceae	1	1
Polygonaceae	3	15
Chenopodiaceae	6	9
Amaranthaceae	4	11
Nyctaginaceae	2	7
Phytolaccaceae	2	2
Aizoaceae	1	1
Portulacaceae	2	5
Caryophyllaceae	5	7
Illecebraceae	1	1
Nymphaeaceae	2	2
Ceratophyllaceae	1	1
Ranunculaceae	5	7
Berberidaceae	1	1
Menispermaceae	1	1

Papaveraceae	2	4
Fumariaceae	1	3
Cruciferae	15	30
Capparidaceae	1	1
Crassulaceae	1	1
Platanaceae	1	1
Rosaceae	5	14
Leguminosae	37	86
Geraniaceae	2	3
Oxalidaceae	1	2
Linaceae	1	4
Zygophyllaceae	2	3
Rutaceae	3	3
Simaroubaceae	1	1
Meliaceae	1	1
Polygalaceae	1	2
Euphorbiaceae	8	31
Anacardiaceae	1	9
Aquifoliaceae	1	1
Hippocastanaceae	1	1
Sapindaceae	3	3
Rhamnaceae	4	4
Vitaceae	4	6
Malvaceae	6	15
Guttiferae	1	1
Elatinaceae	1	1
Tamaricaceae	1	1



Cistaceae	2	5
Violaceae	2	2
Loasaceae	1	1
Cactaceae	6	17
Lythraceae	2	3
Onagraceae	5	23
Haloragidaceae	1	2
Umbelliferae	15	19
Cornaceae	1	1
Primulaceae	2	2
Sapotaceae	1	1
Ebenaceae	1	2
Oleaceae	4	7
Loganiaceae	2	2
Gentianaceae	3	6
Apocynaceae	3	5
Asclepiadaceae	4	11
Convolvulaceae	5	13
Polemoniaceae	2	4
Hydrophyllaceae	3	6
Boraginaceae	3	5
Verbenaceae	5	15
Labiatae	10	22
Solanaceae	4	15
Scrophulariaceae	8	19
Bignoniaceae	3	3
Martyniaceae	1	1

Orobanchaceae	1	1
Acanthaceae	5	11
Plantaginaceae	1	7
Rubiaceae	4	8
Caprifoliaceae	3	5
Valerianaceae	1	3
Cucurbitaceae	4	5
Campanulaceae	1	4
Compositae	64	134

TOTALSFamilies

108

Genera

429

Subgeneric Taxa

943

## CHAPTER VIII

### SUMMARY

The author's interest in the vegetation of Central Texas began with a few interesting collections from flood plains of the Leon River in Hamilton County in 1964. The majority of the collections for this investigation were made from August, 1966, to early January, 1971. These collections have been supplemented by examination of selected student collections and those of other workers, notably V. L. Cory and William L. McCart.

Standard herbarium procedures were employed through the use of appropriate monographic treatises, revisions, and other taxonomic literature in the Oklahoma State University Library and the personal library of Dr. U. T. Waterfall.

Examination of over 6500 sheets has led to the identification of a total of 108 families, consisting of 429 genera and 943 subgeneric taxa. Approximately 52% of the taxa were from 9 families: Compositae 134, Gramineae 118, Leguminosae 86, Euphorbiaceae 31; Cruciferae 30, Cyperaceae 24, Onagraceae 23, Labiatae 22, and Liliaceae 20.

One taxon was reported as an addition to the flora of the state. Seventh-three taxa are represented in this

study as major range extensions. Nine taxa were considered as being of special interest, including several potential new varieties.

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VITA<sup>3</sup>

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