COUNTY RECORDS AND MAJOR RANGE EXTENSIONS OF VASCULAR PLANTS FROM ERATH COUNTY, TEXAS

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Abstract.–Published data on the vascular flora of Erath County, Texas, is limited. In this investigation, data were obtained from vascular plant specimens deposited in the Tarleton State University Herbarium (TAC). Sixty-six new county records were recorded for Erath County. Major range extensions were documented for forty species, these having previously been known from at least one county away distant from the border of Erath County. Fourteen of the species are non-native while 52 species are native; only one of these, *Yucca rupicola* Scheele (Texas yucca), is endemic to Texas. No rare, threatened, endangered or state-listed noxious species were found.

Keywords: plant distribution, floristics

Knowledge of regional Texas floras is crucial for understanding species composition for the state. In addition, such knowledge is important for the management and preservation of individual plant species and ecoregions across the state. Floristic data for Erath County, located in the southwestern portion of the West Cross Timbers, is poorly known. Having an updated list of vascular plants for a county is important for documenting changes in species distributions over time. This knowledge can be used in management plans for conserving endangered species, documenting the spread of invasive plants, and to improve the use of native species in restoration projects.

The Cross Timbers occur from Kansas to Texas, extending south into Texas about 256 km (Diggs et al. 1999). This forest dominated by post oak (*Quercus stellata*) and blackjack oak (*Q. marilandica*) grows

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on mildly acidic, sandy soils (Diggs et al. 1999). Poor agricultural practices and the suppression of fires has led to increased dominance of woody species and a loss of native grasses and climax understory vegetation (Dyksterhuis 1948). Invasions of woody plants such as mesquite (*Prosopis glandulosa*) and juniper (*Juniperus ashei*) in some native grasslands and forests throughout the region have occurred (Van Auken & Bush 1988).

When the Cross Timbers reaches the north-central boundary of Texas, it separates into two portions: the East and West Cross Timbers (Dyksterhuis 1948). The West Cross Timbers extends from the Grand Prairie west to the start of the Rolling Plains and contains timbered areas mixed with grasslands (Diggs et al. 1999). Erath County occurs in the southwestern portion of the West Cross Timbers, which has had few floristic studies in the past. The objective of this investigation were to inventory the vascular flora based on collections in the Tarleton State University Herbarium (TAC) that were not included in field investigations over the last decade (Harsley & Nelson 2010; Cowley et al. 2017; Cotton & Nelson 2018).

MATERIALS & METHODS

Vascular plant specimens from the Tarleton State University Herbarium were examined from Erath County. Each specimen was classified as native, endemic, or introduced using *Shinners and Mahler's Illustrated Flora of North Central Texas* (Diggs et al. 1999). Plants from Erath County were compared to those which occur on the Texas state-listed noxious weeds list (USDA 2019), state threatened and endangered plant species list (TPWD 2020), and rare plants of Texas (Poole et al. 2007). Distributions of taxa were compared to those published in the *Atlas of the Vascular Plants of Texas* (Turner et al. 2003a; 2003b). Based on data from the atlas, we categorized our specimens as documenting major range extensions (taxa collected in Erath County but not known from adjacent counties.

RESULTS & DISCUSSION

Sixty-six species representing 25 families were identified as new records from Erath County. Fifty-two taxa are native or endemic and 14 are introduced species. *Yucca rupicola* Scheele (Texas yucca) was the single endemic species collected. No species were found that were included on the state noxious weeds list (USDA 2019). There were no rare (Poole et al. 2007), threatened, endangered, or state-listed plant species (TPWD 2020).

Of the 66 species identified, 26 are considered new county records for Erath County but also are found in adjacent counties (Table 1). We report major range extensions for forty taxa (Table 1), which are discussed individually in the following paragraphs. These taxa have not previously been reported from Erath County or from adjacent counties.

AGAVACEAE

Yucca rupicola Scheele—Texas yucca is endemic to Texas on limestone ledges and prairies (Diggs et al. 1999). Our specimen extends the known range southward from the nearest locality in Tarrant County (Turner et al. 2003b).

ALISMATACEAE

Sagittaria latifolia Willd.—Common arrowhead is a native species that occurs in wet areas such as lakes and streams (Diggs et al. 1999). Our specimen extends the known range southwestward from its closest locality in Tarrant County (Turner et al. 2003b).

ASTERACEAE

Crepis pulchra L.—Showy hawk's-beard is an introduced weed reported from only five counties in Texas (Turner et al. 2003a). This Eurasian native occurs in disturbed areas (Diggs et al. 1999) and our specimen represents its expansion into a sixth county in the state.

Table 1. Specimens collected from Erath County, Texas. Floral records have also been included for counties surrounding Erath County (Turner et al. 2003a; 2003b), with the following abbreviations: Bosque (B), Comanche (C), Eastland (E), Hamilton (Ha), Hood (Ho), Palo Pinto (P), Somervell (S). Common names are included in brackets. Plants are listed as native (N), endemic to Texas (E), or introduced (I) (Diggs et al. 1999). Tarleton State University Herbarium (TAC) accession numbers are included as well. Major range extensions are abbreviated MRE.

Family/Species/Common name	Bordering Counties	N/E/I	TAC
Agavaceae			
Yucca rupicola Scheele (Texas yucca)	MRE	E	5209
Alismataceae			
Sagittaria latifolia Willd. (common arrowhead)	MRE	N	370
Amaranthaceae			
Amaranthus blitoides L. (prostrate pigweed)	C	N	6
Asteraceae			
Coreopsis tinctoria Nutt. (plains coreopsis)	C,P,Ho	N	835
Crepis pulchra L. (showy hawk's-beard)	MRE	I	4402
Gamochaeta falcata (Lam.) Cabrera	P	I	938
Lactuca ludoviciana (Nutt.) Riddell (western wild lettuce)	C	N	61
Townsendia exscapa (Richardson) Porter (Easter daisy)	Ha,Ho		1181
Eupatorium coelestinum L. (mistflower)	MRE	N	858
Krigia cespitosa (Raf.) K. L. Chambers var. *cespitosa* (weedy dwarf-dandelion)	MRE	N	1004
Sonchus oleraceus L. (common sow thistle)	MRE	I	3947
Brassicaceae			
Descurainia pinnata (Walter) Britton subsp. *pinnata* (pinnate tansy-mustard)	MRE	N	3951
Draba platycarpa Torr. & A. Gray (broad-pod draba)	C,E,Ha,S	N	1335

Table 1 Cont.

Family/Species/Common name	Bordering Counties	N/E/I	TAC
Lesquerella gordonii (A. Gray) S. Watson (popweed)	B,C,E,S	N	1379
Matthiola longipetala (Vent.) DC. (eveningstock)	MRE	I	1386
Raphanus sativus L. (radish)	MRE	I	1389
Rorippa nasturtium-aquaticum (L.) All. (watercress)	MRE	N	1395
Berberidaceae			
Berberis trifoliolata Moric (agarito)	P,S	N	523
Cactaceae			
Opuntia humifusa (Raf.) Raf. (eastern prickly-pear)	MRE	N	5898
Caprifoliaceae			
Lonicera maackii (Rupr.) Maxim. (bush honeysuckle)	MRE	I	569
Caryophyllaceae			
Minuartia drummondii (Shinners) McNeill (Drummond's sandwort)	MRE	N	605
Silene antirrhina L. (sleepy catchfly)	E,S	N	104
Cyperaceae			
Carex granularis Muhl. *ex* Willd. (granular caric sedge)	MRE	N	5883
C. gravida L. H. Bailey (heavy fruit caric sedge)	H,P	N	1418
Euphorbiaceae			
Chamaesyce stictospora (Engelm.) Small (slim-seed euphorbia)	MRE	N	137
Fabaceae			
Acacia roemeriana Scheele (catclaw)	MRE	N	6572
Baptisia bracteata Muhl. *ex* Elliott var. *leucophaea* (Nutt.) Kartesz & Gandhi (plains wild indigo)	MRE	N	2357
Dalea purpurea Vent. (purple prairie-clover)	MRE	N	4297

Table 1 Cont.

Family/Species/Common name	Bordering Counties	N/E/I	TAC
Desmanthus leptolobus Torr. & A. Gray (prairie bundle-flower)	B,E	N	4299
Lespedeza texana Britton (Texas bush-clover)	H,S	N	2449
Oxytropis lambertii Pursh (locoweed)	C	N	2559
Psoralidium tenuiflorum (Pursh) Rydb. (slim-leaf scurf –pea)	P	N	2510
Rhynchosia latifolia Nutt. *ex* Torr. & A. Gray— (broad-leaf snout-bean)	MRE	N	180
Trifolium repens L. (white clover)	MRE	I	3959
T. vesiculosum Savi (arrow-leaf clover)	MRE	I	2602
Fagaceae			
Quercus margarettae Ashe *ex* Small (sand post oak)	C,E,P	N	5897
Q. sinuata Walter var. *breviloba* (Torr.) C. H. Müll. (scrub oak)	E,P,S	N	189
Juncaceae			
Juncus dudleyi Wiegand	MRE	N	2145
Lamiaceae			
Calamintha arkansana (Nutt.) Shinners (Ozark savory)	MRE	N	2172
Salvia greggii A. Gray (Gregg's sage)	MRE	I	6748
S. farinacea Benth. (mealy sage)	P, E	N	5746
S. lyrata L. (lyre-leaf sage)	MRE	N	2257
Linaceae			
Linum sulcatum Riddell (grooved flax)	MRE	N	223
Loasaceae			
Mentzelia nuda (Pursh.) Torr. & A. Gray (bractless mentzelia)	P	N	2746

Table 1 Cont.

Family/Species/Common name	Bordering Counties	N/E/I	TAC
Lythraceae			
Lythrum californicum Torr. & A. Gray (California loosestrife)	MRE	N	2761
Malvaceae			
Callirhoe alcaeoides (Michx.) A. Gray (plains winecup)	E	N	225
Onagraceae			
Gaura longiflora Spach (tall gaura)	MRE	N	2879
Poaceae			
Aristida purpurascens Poir. (arrow grass)	MRE	N	6855
A. purpurea Nutt. var. *wrightii* (Nash) Allred (Wright's threeawn)	MRE	N	1783
Bromus secalinus L. (rye brome)	MRE	I	1765
B. pubescens Muhl. *ex* Willd. (hairy woodland brome)	C,Ha	N	5803
Leptochloa dubia (Kunth) Nees (green sprangletop)	B,Ho,P	N	1872
Sphenopholis obtusata (Michx.) Scribn. (prairie wedgescale)	MRE	N	4021
Tridens muticus (Torr.) Nash var. *muticus* (slim tridens)	C,Ha,Ho,P	N	2039
Triplasis purpurea (Walter) Chapm. (purple sand grass)	S	N	6857
Urochloa texana (Buckl.) R. Webster (Texas signalgrass)	E,Ha	N	1924
Platanaceae			
Platanus occidentalis L. (American sycamore)	MRE	N	6811
Ranunculaceae			
Consolida ajacis (L.) Schur. (annual larkspur)	S	I	3260
Ranunculus parviflorus L. (sticktight buttercup)	MRE	I	3284
Rosaceae			
Rosa multiflora Thunb. *ex* Murr. (Japanese rose)	MRE	I	3331
R. setigera Michx. var. *tomentosa* Torr. & A. Gray (prairie rose)	MRE	N	3332

Table 1 Cont.

Family/Species/Common name	Bordering Counties	N/E/I	TAC
Scrophulariaceae			
Veronica polita Fr. (speedwell)	MRE	I	3609
Solanaceae			
Chamaesaracha sordida (Dunal) A. Gray (hairy false nightshade)	C,E,Ha	N	3622
Physalis longifolia Nutt. var. *longifolia* (common ground-cherry)	MRE	N	3639
Smilacaceae			
Smilax tamnoides L. (bristle greenbrier)	MRE	N	6901

Eupatorium coelestinum L.—Mistflower is a native species found in moist, sandy or calcareous soils usually in woody areas (Diggs et al. 1999). The closest-known collection locality is from Parker County and it the species generally occurs in the eastern one-half of Texas (Turner et al. 2003a).

Krigia cespitosa (Raf.) K. L. Chambers var. *cespitosa*—Weedy dwarf-dandelion is a native species that occurs in sandy soil along stream banks, in damp woods, and disturbed areas (Diggs et al. 1999). It has previously been reported from east and north central Texas (Turner et al. 2003a); Our specimen documents its presence in Erath County within the southwestern Cross Timbers.

Sonchus oleraceus L.—Common sow thistle is native to Eurasia and occurs in disturbed areas throughout Texas (Diggs et al. 1999), but its closest locality to Erath County is Brown County (Turner et al. 2003a). Our specimen extends the known range to the northeast of Brown County.

BRASSICACEAE

Descurainia pinnata (Walter) Britton subsp. *pinnata*—Pinnate tansy-mustard is a native member of the mustard family that occurs in sandy soils in a variety of habitats (Diggs et al. 1999). It has previously been known from counties surrounding Erath County but

not bordering it directly (Turner et al. 2003a); our specimen indicates its range extension into that gap.

Matthiola longipetala (Vent.) DC.—Eveningstock is an introduced species that escapes cultivation (Diggs et al. 1999) with its only previously known locality in Bell County (Turner et al. 2003a). Our specimen, from Erath County, extends its range northward into the southwestern Cross Timbers.

Raphanus sativus L.—Radish is a cultivated species that can become naturalized when it escapes from garden plots (Diggs et al. 1999). It is known from scattered localities in the southern part of the state (Turner et al. 2003a); our specimen from Erath County extends its range northward into the southwestern Cross Timbers.

Rorippa nasturtium-aquaticum (L.) All.—Watercress is a native species that occurs in shallow, fairly clear streams or springs and is sometimes stranded in mud (Diggs et al. 1999). The known range for watercress is scattered across the state (Turner et al. 2003a) and our specimen extends its known range into Erath County along the Paluxey River.

CACTACEAE

Opuntia humifusa (Raf.) Raf.—Eastern prickly-pear is a native cactus that occurs in open, dry areas (Diggs et al. 1999). This specimen was found in openings of a sand post oak (*Q. margarettae*) community. According to Turner et al. (2003a) the closest known locality is Brown County; our specimen extends the distribution eastward.

CAPRIFOLIACEAE

Lonicera maackii (Rupr.) Maxim.—Bush honeysuckle is an introduced honeysuckle previously reported from Brazos, Dallas, and Tarrant counties (Turner et al. 2003a). Our specimen increases the number of counties from which this plant is known in Texas.

CARYOPHYLLACEAE

Minuartia drummondii (Shinners) McNeill—Drummond's sandwort is a native sandwort that occurs in sandy or sandy-clay soils of disturbed areas mainly in southeast and east Texas (Diggs et al. 1999). It has been reported mainly from the eastern half of Texas and our specimen extends its range to Erath County (Turner et al. 2003a).

CYPERACEAE

Carex granularis Muhl. *ex* Willd.—Granular caric sedge is a native species previously known only from northeast Texas (Turner et al. 2003a). Our specimen extends its range southwest into Erath County.

EUPHORBIACEAE

Chamaesyce stictospora (Engelm.) Small—Slim-seed euphorbia is a native spurge found in clay soils on limestone slopes, prairies, and disturbed sites primarily in west Texas but with scattered localities eastward to the East Cross Timbers and Dallas County (Diggs et al. 1999). Our specimen adds Erath County to the known distribution of the species.

FABACEAE

Acacia roemeriana Scheele—Catclaw is a native small tree or shrub that occurs in rocky or sandy areas (Diggs et al. 1999) primarily in central and west Texas (Turner et al. 2003a). Our specimen extends the range of catclaw to the northeast.

Baptisia bracteata Muhl. *ex* Elliott var. *leucophaea* (Nutt.) Kartesz & Gandhi—Plain's wild indigo is a native herb that occurs in sandy areas (Diggs et al. 1999). It is known from East Texas (Turner et al. 2003a) and our specimen extends its known range westward into Erath County.

Dalea purpurea Vent.—Purple prairie-clover is native and found on sandy prairies west of Erath County and to Tarrant County (Diggs

et al. 1999). Turner et al. (2003a) show scattered occurrences across the state with known localities in Mills, Parker and Tarrant counties. Our specimen from Erath County is between these known localities.

Rhynchosia latifolia Nutt. *ex* Torr. & A. Gray—Broad-leaf snout-bean is a native snout-bean that occurs in sandy woods and roadsides (Diggs et al. 1999) that has been reported from the eastern third of Texas and a far western locality in Hardeman County (Turner et al. 2003a). Our specimen documents another western extension of its known range into Erath County.

Trifolium repens L.—White clover is an introduced species that occurs in disturbed areas (Diggs et al. 1999). Our specimen extends the known range of the species into Erath County.

Trifolium vesiculosum Savi—Arrow-leaf clover is another introduced clover that occurs in sandy openings (Diggs et al. 1999) and is known from scattered localities in East Texas (Turner et al. 2003a); our specimen extends its known range westward into Erath County.

JUNCACEAE

Juncus dudleyi Wiegand is a native rush that occurs in low areas (Diggs et al. 1999). Its known distribution is scattered over the state with Llano County being the previously-reported site closest to Erath County (Turner et al. 2003a). Our specimen provides evidence for its presence in Erath County.

LAMIACEAE

Calamintha arkansana (Nutt.) Shinners—Ozark savory is a native mint that occurs on calcareous rock outcrops (Diggs et al. 1999). It is known from east and south of Erath County (Turner et al. 2003a). Our specimen extends its range northwestward from known locations.

Salvia greggii A. Gray—Gregg's sage is a native species that occurs in rocky soils, primarily in the Trans-Pecos and Edwards Plateau (Diggs et al 1999). Our specimen extends its known range

(Turner et al. 2003a) north and eastward into Erath County. The plant was collected in a riparian area of a city park surrounded by housing additions. We hypothesize that it was introduced from landscaping in the area and is becoming naturalized.

Salvia lyrata L.—Lyre-leaf sage is a native mint that occurs in sandy woods and low ground (Diggs et al. 1999) and is reported from approximately the eastern third of Texas (Turner et al. 2003a). Our specimen documents a western extension of its known range into Erath County.

LINACEAE

Linum sulcatum Riddell—Grooved flax is a native herb that occurs in sandy, open woods and prairies (Diggs et al. 1999) and is reported from approximately the eastern third of Texas (Turner et al. 2003a). Our specimen documents a western extension of its known range into Erath County.

LYTHRACEAE

Lythrum californicum Torr. & A. Gray—California loosestrife is a native species that occurs in low, moist soils (Diggs et al. 1999) and is reported from the western two-thirds of Texas with several notable distribution gaps. The closest previously reported locality is Brown County and our specimen from Erath County helps to fill one of these gaps in the known distribution (Turner et al. 2003a).

ONAGRACEAE

Gaura longiflora Spach—Tall gaura is a native herb that occurs in disturbed soils (Diggs et al. 1999) and has been collected in counties occurring in the eastern third of Texas. The closest locality is Wise County and our specimen increases its known range southward (Turner et al. 2003a).

POACEAE

Aristida purpurascens Poir.—Arrow grass is a native grass that has been collected in Parker County (Turner et al. 2003b). It is usually found on sandy soils in a variety of habitats (Diggs et al. 1999) and our specimen extends its range southward into Erath County.

Aristida purpurea Nutt. var. *wrightii* (Nash) Allred—Wright's threeawn is a native grass that has been reported from Brown County (Turner et al. 2003b) and is known to occur in calcareous soils in the Blackland Prairie (Diggs et al. 1999). Our specimen extends its range westward into Erath County.

Bromus secalinus L.—Rye brome is native to Europe and widespread in Texas (Diggs et al. 1999). Our specimen fills a gap in the known range of the species, the closest previously known locality being Tarrant County (Turner et al. 2003b).

Sphenopholis obtusata (Michx.) Scribn.—Prairie wedgescale is a native grass previously known from as close as Brown County (Turner et al. 2003b); our specimen extends its range eastward into Erath County.

PLATANACEAE

Platanus occidentalis L.—American sycamore is a native tree found in stream bottoms and as a planted tree (Diggs et al. 1999). The closest locality from which American sycamore is reported is Coryell County to the south, although it is also known from Tarrant County to the northeast (Turner et al. 2003a). Our specimen fills in the distribution gap between these localities to the northeast and south.

RANUNCULACEAE

Ranunculus parviflorus L.—Sticktight buttercup is native to Europe and occurs on damp soils (Diggs et al. 1999). It has been reported mostly from East Texas but has been collected as far west as Gillespie County (Turner et al. 2003a). Our specimen extends the known range of sticktight buttercup in Texas.

ROSACEAE

Rosa multiflora Thunb. *ex* Murr.—Japanese rose is an introduced rose from Asia that occurs in weedy areas (Diggs et al. 1999). It is known from Tarrant County to the northeast and Lampasas County to the south (Turner et al. 2003a) and our specimen documents its occurrence in Erath County.

Rosa setigera Michx. var. *tomentosa* Torr. & A. Gray—Prairie rose is a native rose that occurs in thickets and open woods, primarily in East Texas (Diggs et al. 1999; Turner et al. 2003a). Our specimen extends its known range westward to Erath County.

SCROPHULARIACEAE

Veronica polita Fr.—Speedwell is an introduced herb from Europe and that occurs in lawns and other disturbed areas (Diggs et al. 1999). Our specimen extends the known range in East Texas (Turner et al. 2003a) westward to Erath County.

SOLANACEAE

Physalis longifolia Nutt. var. *longifolia*—Common ground-cherry is a native species that occurs in open woods and prairies throughout most of Texas (Diggs et al. 1999). However, it has not been reported from Erath or surrounding counties, and our specimen connects disjunct eastern and western ranges (Turner et al. 2003a).

SMILACACEAE

Smilax tamnoides L.--Bristle greenbrier is a native greenbrier that occurs in stream bottom woods (Diggs et al. 1999). It has been reported from Coryell County (Turner et al. 2003b) and our specimen extends its range northward into Erath County.

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