The Flora of Williamson County: What’s Here, What’s Missing

Native Plant Society of Texas
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First, a Confession…

I’m a “glass half full” person. I may be the wrong botanist to ask about missing plants. I tend to celebrate the plant species that are present rather than pine for those that are absent.
Expectations

Some plant-lovers expect every plant they see in plant books to be capable of growing everywhere.

Many of Texas’s 5700 plant taxa grow where they do for a reason.

An example from Bexar County…
Location

In the Brazos River Basin in central Texas

About equally divided between the Blackland Prairies and the Lampasas Cutplain portion of the Edwards Plateau

Tiny sliver of Oak Woods and Prairies on E tip
Soils

Eh: Hooper Formation
Emi: Midway Group
Esb: Simsboro Formation
Kau: Austin Chalk
Kbc: Bee Cave Marl
Kc: Comanche Peak Limestone
Kcp: Cedar Park Limestone
Ked: Edwards Limestone
Kgr: Glen Rose Limestone
Kknm: upper Taylor Marl
Kkv: Keys Valley Marl
Knt: Navarro & Taylor groups
Qhg: Pleistocene high gravel deposits
Edwards Plateau / Lampasas Cutplain / Blackland Prairies / Oak Woods and Prairies
Edwards Plateau / Lampasas Cutplain

Within Williamson County, the Edwards Plateau is represented mostly by nearly flat topography of the Lampasas Cutplain. Steep-sided mesic limestone canyons are absent, although low bluffs can be found along major streams.

The matrix vegetation of this part of the county is live oak savanna, with grassland dominants including Texas wintergrass, sideoats grama, meadow dropseed, etc.
Blackland Prairies

A region of gently rolling topography and deep fertile soils. Tallgrasses of the original prairie, such as big bluestem, Indiangrass and switchgrass, were long ago replaced by other tallgrasses as well as cotton. More recently, row crop agriculture has been replaced by row crop suburbia.
Oak Woods & Prairies

Like the rest of the county, the landscape in this region is gently rolling. Low soil fertility allowed the soils in this area to escape conversion to row crop agriculture, although many fields have been cleared and planted to coastal Bermudagrass. However, many examples of the matrix vegetation—post oak savanna—persist.
In 2013, the number of plant species represented by Williamson Co. specimens (at UT) was 507— a lower number of species than for all but one of the surrounding counties.

By June 2017, the Williamson County number had risen to about 900.
The Vascular Plants of Williamson County

• Retired from UCLA in 2012 and moved to Williamson County to become a cactus wrestler
• Current project: a painstaking rewriting of technical descriptions of Texas plants, beginning with those in Williamson County
• Read about Dr. Gibson’s project at http://w3.biosci.utexas.edu/prc/K12/K12-Gibson.html
• What’s missing now won’t be missing for long…
Rare Plant Species: Present and Missing
Travis County vs. Williamson County

- [See handout: Williamson G3]
- Travis County has 31 plant species ranked G3 or rarer
- Williamson County has only 7

WHY?

- Lack of collection effort?
- Wiped out by agricultural history / suburban development?
- Lack of appropriate habitat?

- I blame the County Line!
No, not this County Line.
This county line.
Williamson County’s southwestern boundary might appear to have been drawn to exclude rare plant species that occur in Edwards / Glen Rose canyons.
However, Williamson County DOES have a few “globally rare” plant species.

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Global Rank</th>
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<tbody>
<tr>
<td><em>Brickellia dentata</em></td>
<td>gravelbar brickellbush</td>
<td>G3</td>
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<tr>
<td><em>Lythrum ovalifolium</em></td>
<td>Plateau loosestrife</td>
<td>G3G4</td>
</tr>
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<td><em>Prunus minutiflora</em></td>
<td>Texas almond</td>
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<td><em>Gratiola quartermaniae</em></td>
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<td><em>Valerianella stenocarpa</em></td>
<td>Guadalupe cornsalad</td>
<td>G3</td>
</tr>
<tr>
<td><em>Lithospermum helleri</em></td>
<td>Heller’s marbleseed</td>
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<td><em>Astragalus reflexus</em></td>
<td>Texas milkvetch</td>
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</table>
Gravelbar brickellbush

*Brickellia dentata*

Asteraceae (Sunflower Family)

Found on gravel bars in and along flood-prone perennial or intermittent streams, usually in canyon bottoms.
Quarterman’s hyssop
*Gratiola quartermaniae*
Scrophulariaceae (Figwort Family)

Occurs in limestone “glades,” (sparsely vegetated wet spots on shallow soils associated with seeps and intermittent creeks.)
Heller’s marbleseed
*Lithospermum helleri*
Boraginaceae (Borage Family)

A denizen of juniper-oak-walnut woodlands on mesic canyon slopes. Williamson County report may be bogus.
Plateau loosestrife
*Lythrum ovalifolium*
Lythraceae (Loosestrife Family)

Grows in shallow water and on gravel bars and wet limestone outcrops along perennial streams.
Texas almond

*Prunus minutiflora*

Rosaceae (Rose Family)

In Williamson County, this shrub occurs in shallow-soil prairies over Austin Chalk.
Texas milkvetch
*Astragalus reflexus*
Fabaceae (Legume Family)

Most likely to be found in sparse herbaceous vegetation in early-successional sites on limestone. Rare or overlooked?

*Photo: Laura Hansen*
Wright’s milkvetch
*Astragalus wrightii*
Fabaceae (Legume Family)

Found in low herbaceous vegetation associated with juniper-oak woodlands.
Some “Missing” Rare Plant Species

Known from Travis County but probably absent from Williamson County—due to lack of appropriate habitat
Canyon mock-orange
*Philadelphus ernestii*
Hydrangeaceae (Hydrangea Family)

Typically grows from karst holes in Edwards Limestone exposed as rimrock just above contact with Glen Rose Limestone in mesic canyons.
Bracted twistflower
*Streptanthus bracteatus*
Brassicaceae (Mustard Family)

In thickets associated with oak-juniper woodlands on mesic canyon slopes, usually where protected from browsing.
Sycamore-leaf snowbell
*Styrax platanifolius*
Styracaceae (Storax Family)

Four subspecies in Texas; all occur on limestone outcrops in canyon, usually out of the reach of herbivores.
Texas amorpha
*Amorpha roemerana*
Fabaceae (Pea Family)

In many habitats; often on dry limestone bluffs above creekbottoms.
Texas barberry
*Berberis swaseyi*
Berberidaceae (Barberry Family)

Not strictly a canyon species; often found in live oak savanna on level uplands.
Texas seymeria
*Seymeria texana*
Scrophulariaceae (Figwort Family)

Hemiparasite associated with grasslands in live oak savanna on level uplands and juniper-oak woodlands in canyons.
Other “Missing”
Rare Plant Species

Known from Travis and/or neighboring counties
and missing from Williamson County--
due to lack of survey effort?
Plateau milkvine
*Matelea edwardsensis*
Asclepiadaceae (Milkweed Family)

Found across broad spectrum of woodland habitats on limestone. Probably overlooked in Williamson County.
Hall’s dalea
*Dalea hallii*
Fabaceae (Pea Family)

Occurs in grasslands on extremely shallow gravelly soils on Austin Chalk (and other formations). Gotta be here somewhere..
Netleaf bundleflower
*Desmanthus reticulatus*
Fabaceae (Pea Family)

In grasslands on level uplands in a variety of settings; probably overlooked in Williamson County.
Some “Missing”
Everyday Plant Species
Oaks Woods and Prairies
San Saba pinweed
*Lechea san-sabeana*
Cistaceae (Rockrose Family)
Atlantic pigeonwings
*Clitoria mariana*
Fabaceae (Pea Family)
Spurred butterfly-pea
*Centrosema virginianum*
Fabaceae (Pea Family)
broadleaf snoutbean
*Rhynchosia latifolia*
Fabaceae (Pea Family)
Hooker’s plantain
*Plantago hookeriana*
Plantaginaceae (Plantain Family)
wingpod portulaca
*Portulaca umbraticola*
Portulacaceae (Purslane Family)
stiff-leaf false-foxbglove
*Agalinis strictifolia*
Scrophulariaceae (Figwort Family)
hairy hydroolea
*Hydroolea ovata*
Hydrophyllaceae (Waterleaf Family)
Blackland Prairie
Big bluestem
*Andropogon gerardi*
Poaceae (Grass Family)
Edwards Plateau / Lampasas Cutplain
Virginia nailwort
*Paronychia virginica*
Caryophyllaceae (Pink Family)
Barbara’s buttons
*Marshallia caespitosa*
Aster Family (Asteraceae)
Plateau agalinis
*Agalinis edwardsiana*
Scrophulariaceae (Figwort Family)
Texas desert-rue
*Thamnosma texana*
Rutaceae (Citrus Family)
Why Does This Matter?

• Q: Who cares whether we put another dot on a county distribution map for some oddball plant species? After all, counties aren’t natural entities…

• A: Yes, getting county records IS a game. But by playing it, you’ll get into the weeds (in both the literal and figurative senses) and thereby learn a LOT about your local flora.
What You Can Do

• **Collect voucher specimens, donate them to a herbarium.**

• At present, county records are based on herbarium specimens.
• This system worked well enough for 500 years and remains indispensible in most cases. But it’s expensive, and financial support for herbaria is rapidly vanishing.
Texas Herbaria

BRIT recently passed the University of Texas Herbarium as the largest in Texas, via the acquisition of University of Louisiana Monroe Herbarium.

Other fine herbaria at A&M, Sul Ross, Angelo State, Baylor, UTEP, Texas State…
Data-Sharing in the Modern Era

• Could post Middle Ages technology be used in lieu of herbarium specimen for the documentation of county records?

• Of course! Sites like i-Naturalist are already being used for that purpose, at least informally. In many cases, a series of high-resolution photographs accompanied by precise geographic reference (a GPS point) should be acceptable.

• In many other cases, identification requires information about seeds, hairs, pappus, and other features that are not captured in ordinary photographs. But these characters can be captured with other digital equipment. Knowledge of what information to capture will be crucial, because at present one can’t dissect a digital image.
Data-Sharing in the Modern Era

• Such digital information needs to be carefully archived so that it doesn’t become forgotten or even lost altogether.

• Lists and archives need to be shared on-line so that everyone involved in the Flora of Williamson County Project can remain current.

• GOOD LUCK and HAVE FUN!
Thanks for Coming!

Credits

All distribution maps were borrowed from the Biota of North America Program (BONAP). See their website to see what else is offered by this outstanding program.

Special thanks to Dr. Art Gibson for moving here, writing excellent descriptions of plant species in Texas, and providing updates on the flora of Williamson County.