

**SUPERIOR NATIVE TEXAS WOODY ORNAMENTAL PLANTS  
WEST OF THE 98TH MERIDIAN**

BENNY J. SIMPSON

*Texas Agricultural Experiment Station  
Texas A & M University Research Center  
17360 Coit Road, Dallas, Texas 75252*

Except for the east Texas forests and the basin and range land of the Trans-Pecos, Texas is a prairie state. In the timberlands to the east are pocket prairies of a few to several hundred acres. All but the highest areas of the west-Texas mountains were once a rich grassland (1, 2, 4, 7, 12, 18). Texas is a state rich and diverse in its floral canopy. However, many more species of trees are found in eastern Texas, while coastal, central and western Texas abound in grasses, shrubs, and various herbaceous annual and perennial wild flowers.

In other words, Texas has a rather distinct "eastern" and "western" flora, and the boundaries of these two plant regions occur at an almost mystical line of demarcation—the 98th meridian. To the east of the 98th lie Dallas, Fort Worth, and Austin; to the west, Wichita Falls and San Antonio, while the city of Lampassas sits astride. Curtis Fletcher Marbut's line (11) closely parallels this meridian and to the east of that line (to the Atlantic Ocean) the soils will generally be high in sesquioxides of iron and aluminum, will have no layer of lime carbonate in their profile, and will usually have a strong acid reaction. These soils were termed "Pedalfers" by Marbut. To the west of Marbut's soil division line, the profiles contain a layer of lime carbonate, are basic in their reaction and are called "Pedocals."

The 98th meridian is also a dividing line on rainfall, with over 30 in. annually east and less than 30 in. annually west (15). Here then, for practical purposes, the forests, and even woodlands, are found only in protected valleys or higher mountain slopes. Tallgrass prairies give way to midgrass prairies to shortgrass prairies to desert brushlands (12). The animals are different. There are more jackrabbits west than cottontails, and squirrels nest in the ground instead of trees (24).

Relative humidity becomes low and surface evaporation far exceeds the annual rainfall. Webb even considered the 98th as an institutional fault line. Ways of life and living changed. To the east prosperity was built around land, water, and timber, but in this grassland only the land was readily available. Buffalo chips were gathered for fuel, and completely different water laws had to be written. In Montana short grass would grow on 14 in. of rainfall; in Colorado it required 17, while 21 in were needed in Texas.

Although many reasons can be given for why a prairie exists instead of woodland, the explanations usually are controversial (23). There is little doubt, however, that Marbut's line exists because there is not enough rainfall to leach the lime-carbonate layer out of the soil profile.

Moisture becomes more critical as one heads west of the 98th, and in the El Paso area there is a mere 6 to 8 inches of rainfall annually. Plants become more drought tolerant, and, to some, more interesting. As one crosses the 100th meridian, going west, leaves become smaller, sometimes are shed at the first hint of low rainfall, become hairy, change to gray instead of green, and are sometimes resin-coated. They are usually shorter, will be protected from browsers with thorns or prickles, and are widely spaced. All of the above help the plants escape the ravages of recurring droughts.

Researchers and nurseries are selecting these plants because of their beauty and desirability as well as their reputed drought tolerance. Care must be taken for these plants have growth requirements not easily met in higher rainfall areas. They generally need excellent drainage, minimum irrigation and soil fertility. They grow best with a low relative humidity, sharp air movement, and full sunlight. Almost certainly, unless carefully regulated, automatic lawn sprinklers are their death knell.

Propagation of these western plants is no more difficult than with plants in the trade today (14). Many tools are available to assist in understanding this more western flora. For help in identification and ecology needs at the 98th meridian see references (10, 19); at the 100th meridian see references (5, 6, 9). For the Trans-Pecos, Warnock's (20, 21, 22) works are outstanding. Soils and geology are covered by (1, 3, 16), the oaks are elucidated by Muller and Simpson (13, 17, 18) with a synopsis of the flora statewide in (2, 4, 8).

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