A Comparison of Köppen-Thornthwaite Semiarid Boundaries

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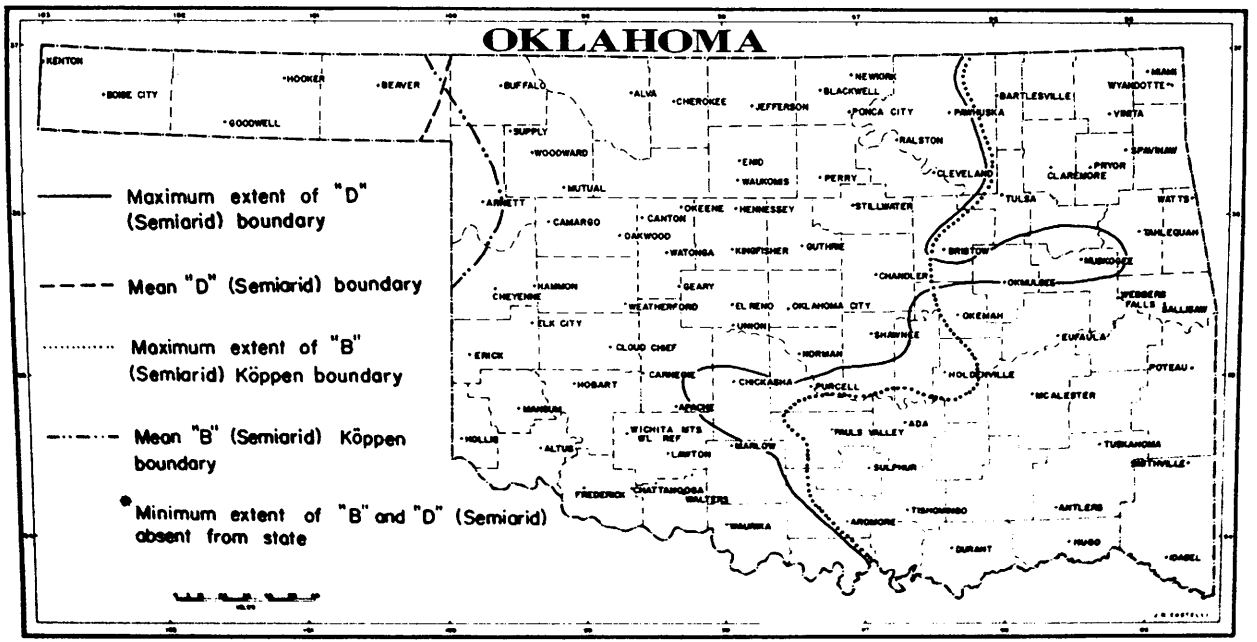
During the period 1923-1958 Oklahoma experienced two periods of climatic austerity and two more humid times. An examination of 89 stations, normally spaced less than 40 miles apart reveals considerable variation of climatic conditions from year to year.

About two-thirds of the state experienced drought conditions (B-Köppen; D-Thornthwaite) during the period. An examination of maximum and mean extent of the humid-dry boundary reveals a very close similarity. (Fig. 1)

The Thornthwaite dry tongue reaches east to include Okmulgee and Muskogee, but on its southern part the Köppen line extends further to the east to include Holdenville and Purcell. Much of the boundary in the extreme north and extreme south is coincidental.

Similarly, mean conditions are closely related with the Thornthwaite semi-arid area being somewhat more extensive than the Köppen. In short, inspection of the dry boundaries of Köppen and Thornthwaite shows a surprisingly close correspondence and reveals that the Oklahoma Panhandle is an area of considerable climatic risk, that about two-thirds of the state experiences some risk, and that only about the eastern one-third experiences little or no climatic risk.

THORNTHWAITE AND KOPPEN SEMIARID BOUNDARIES



Based on data for 1923 - 1958

Fig. 1. Map showing maximum and mean extent of Köppen and Thornthwaite humid-dry boundaries.