



THE DISTRIBUTION OF EPHEDRA IN OKLAHOMA*

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The genus *Ephedra*, variously known as "Morman tea," "Brigham Young weed," "Joint weed and "Whore-house tea," is represented in every continent except Australia (Stapf, 1889). There are 32 species of which 14 are to be found growing in the western hemisphere (Pearson, 1929). Six species have been reported in North America, where they inhabit the desert or semi-desert regions of Mexico, California, Nevada, Utah, Arizona, New Mexico, Colorado, Texas and Oklahoma (Wootton and Standley, 1915; Pearson, 1929; Barkley and Barkley, 1932). Because the strobili somewhat resemble the angiospermous inflorescence, the genus and its relatives have received considerable attention from plant morphologists (Pearson, 1929; Chamberlain, 1935).

The value of certain species of *Ephedra* as a source of ephedrine has long been recognized in the Asiatic countries. In North America infusions prepared from the stems, leaves and strobili have been commonly used by Mexicans and Indians in the treatment of kidney and venereal diseases (Barkley and Barkley, 1932). Recently the value of some of our southwestern species as a source of browse for cattle, sheep and goats has been emphasized (Dayton, 1931; Voth, 1934).

Collections of *Ephedra* were first made in Oklahoma by Fred and Elizabeth Barkley, from the "west slope of a gypsum cliff on the north bank of the Red River" southwest of Hollis, in Harmon County, January 28, 1932. The species was determined to be *E. antisiphilitica* Wats. However, because of an error made in preparing the manuscript, it was reported to be *E. antisiphilitica* Meyer. The accepted name for *E. antisiphilitica* Wats. is *E. nevadensis* Wats., and Mr. Barkley believes that the latter name is the one which should be applied to the Oklahoma species. In a recent letter he

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says, "While I have never had material from Oklahoma in good condition for determination, there is some immature staminate material here which Dr. Goodman and I gathered, in which the scales of the 'primitive perianth' are connate and the filaments are adnate most of their length, characters which would apparently place them definitely in *E. nevadensis* as opposed to *E. antisiphilitica* Meyer."

Other collections were made from the same region by George J. Goodman and Fred Barkley, December 16, 1933. Apparently these collections, made from the extreme southwestern part of Harmon County are the only ones previously on record for Oklahoma.

On April 17, 1936, the writer with Delzie Demaree and Norman Boke went to southwestern Oklahoma to study *Ephedra* and to collect the spring flora. Two splendid specimens of *Ephedra*, a male and a female, were found growing on a limestone outcrop just west of Creta, in Jackson County. This discovery extended the known range approximately 30 miles east. Both plants found at Creta had formed strobili. The pollen from the male plant apparently had been shed several days before, and the female was in the early stages of seed production. Photographs and collections were made (fig. 1).

A second collection from a single specimen was made on the sand dunes along the Red River in Jackson County south of Eldorado. It was not a vigorous specimen and it gave no indication of the production of strobili.

A third station was discovered seven miles east of Eldorado, on limestone and gypsum hills. About 100 plants (many producing strobili) were encountered during a two mile walk, but the full extent of the field was not investigated. The plants were in a pasture and showed unmistakable evidence of having been grazed by animals. *Opuntia leptocaulis* DeCand., various species of *Echinocereus*, two species of *Mimosa*, *Scutellaria resinosa* Torr., *Prosopis glandulosa* Torr., and a shrubby species of *Celtis* were the dominant associated plants.

On September 2, 1936, C. T. Eskew collected a small specimen of *Ephedra* from the southeastern corner of Beckham County. It was growing on a gypsum butte. There were no traces of strobili.

The literature on *Ephedra antisiphilitica* Meyer (Mexico, Texas and New Mexico) reveals some confusion concerning the authorship of the species. According to Wootton and Standley (1915) credit for describing the species should go to Meyer (1846). Pearson (1929) on the contrary lists Berlander as the author. Reference to the Index Kewensis reveals the following: *Ephedra antisiphilitica* Berland. ex C. A. Meyer, which would indicate that Berlander first described the species, perhaps in manuscript form or in a letter, but that Meyer was the first to publish a description and on this account is the accepted author.

It is perhaps worthy of note that pressed specimens of *Ephedra* rapidly lose their green color. This can be prevented by killing the specimens in a copper-formalin-acetic-alcohol color fixing preservative before they are pressed.

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