

In an old field, open ground, poor eroded and gravelly soil, six miles west of Bell Smith Springs. October 28, 1950, *Voigt 455*; on roadside shoulder about two miles north of Delwood, near the county line, November 4, 1950, *Voigt 458*. JOHNSON Co.: Roadside shoulder about 1 mile east of Ozark, November 4, 1950, *Voigt 460*. SALINE Co.: Roadside shoulder about 1 mile south of Rudement, November 4, 1950, *Voigt 459*. UNION Co.: Field alongside the road in Giant City State Park, November 17, 1950, *Voigt 461*.

MORE ADDITIONS TO THE OKLAHOMA FLORA

U. T. WATERFALL

FIELD and herbarium studies made during the past year have provided additional data concerning plants little-known in our flora, or whose distribution the author finds previously recorded in floras and monographs from areas outside our state. Names of the latter are prefixed with an asterisk in this account. There are 17 such taxons recorded here.

The specimens cited in this paper may be found either in our herbarium at Oklahoma A. & M. College, or in the herbarium of the University of Oklahoma at Norman, or in both herbaria.

**CYPTOPTERIS FRAGILIS* (L.) Bernh., forma *DENTATA* (Dickson) Clute. The form in which most of the pinnae are undivided, or merely lobed, is represented by *Waterfall 9569*, Dripping Springs Canyon, 6 miles west of state line, west of Siloam Springs, Delaware County, July 7, 1950.

**AIRA CARYOPHYLLEA* L. was collected as *Waterfall 9537*, Camp Gruber, 1½ miles northeast of Braggs, Muskogee County, June 30, 1950. Two other introduced species were found in the same general area, possibly brought in with Bermuda grass or clover seed when the site was an army camp. They are *Vulpia myuros* and *Trifolium resupinatum*.

**VULPIA MYUROS* (L.) K. C. Gmel. was collected as *Featherly, sin. num.*, Camp Gruber area, 1 mile north of Braggs, Muskogee County, June 12, 1950. According to Fernald (*Gray's Manual*, ed. 8: 108. 1950) it has been collected from "s. Me. to Wis. s. to Fla., La., and Tex."

**CAREX JOORI* Bailey. This species was collected as *Waterfall 8499*, edges of cypress (*Taxodium*) swamp, 9 miles east and 2½ miles south of Broken Bow, McCurtain County, Aug. 8, 1948. Fernald (*Gray's Manual*, ed. 8: 347. 1950) states that the western limit of the species' range is "... Texas ... se. Mo." In the *N. Am. Fl.* 18 (6): 345. 1935, essentially the same western limit is given: "Louisiana, Texas, Arkansas ... southeastern Missouri."

SMILACINA RACEMOSA (L.) Desf., var. *CYLINDRATA* Fern. *RHODORA* 40: 406. 1938. Fernald (*loc. cit*) includes "Kansas and Colorado" as the southern limit of his range citation for var. *cylindrata*. Our material of this species is referable to the variety with long peduncles and rather cylindrical racemes. However this is as should be expected, since var. *cylindrata* is the southern variety.

**SELINOCARPUS DIFFUSUS* Gray. So referred is *Waterfall* 9001, shallow silty soil on gypsum, 6 miles south of Hollis, Harmon Co., June 15, 1949; *Waterfall* 9405, same locality, May 13, 1950; *Waterfall* 9431, 3 miles east and 7½ miles south of Hollis, Harmon Co., May 13, 1950. All of these collections have only cleistogamous flowers. Moreover the author examined hundreds of plants in this vicinity and found only cleistogamous flowers on all of them. Gray (*Am. Journ. Sci.* 15: 262. 1853) in describing the species stated: "The unopened perigonium of the precociously fructified flowers, which persists until the fruit is ripe, does not exceed a line in length; while the fully developed flowers are an inch and a half long." Standley (*Contr. U. S. Natl. Herb.* 12: 388) says "The flowers of the species are often cleistogamous, but on specimens of the species proper fully developed flowers can almost always be found." Plants were dug up for further observation. One of them flowered in the greenhouse in September, 1950. It had on it fully developed flowers 4 centimeters in length. Johnston (*Journ. Arn. Arb.* 25: 162. 1944) states that the species is known from the bluffs along the Rio Grande, "central Texas, northern trans-Pecos Texas, and northwestward through New Mexico".

**CLAYTONIA VIRGINICA* L., forma *MICROPETALA* Fern. *RHODORA* 40: 415. 1938. The small-flowered form of *C. virginica* was collected as *Waterfall* 9274, prairie, 16 miles southeast of Ada, in Coal County, April 15, 1950.

**CLEMATIS CRISPA* L. This erect little *Clematis* with the upper third of the sepals dilated into broad, crisped, petaloid margins was found in open oak woods, on flats with palmettos, 3 miles south of Tom, McCurtain County, on April 16, 1950. It was collected as *Waterfall* 9294. Fernald (*Gray's Manual*, ed. 8: 665) states that the range of this species is "Fla. to Tex., n. to se. Va., s. Ill. and s. Mo."

**THALICTRUM ARKANSANUM* Boivin. So referred is *Waterfall* 9308, in woods, edge of swamps, 4 miles south and 2 west of Tom, McCurtain Co., April 16, 1950. This collection has the tuberous, fascicled roots, the ellipsoid, or oblong-ellipsoid fruits with 5 or 6 nerves on each side as described for *T. arkansanum*. Boivin¹ cites material from Arkansas only, two of the collections being from nearby Texarkana and Fulton.

**DRABA CUNEIFOLIA* Nutt., var. *HELLERI* (Small) O. E. Schultz. So referred are *Rotha Bull* 38, (O. U.) Wichita Mountains, March 7, 1931 and *Milton Hopkins*, southwest slopes of granite boulders in the Wichita Mountains, Comanche County, April 24, 1938. This material has the strigose, ellipsoid-oblong siliques of var. *Helleri*: however, on *Rotha Bull's*

¹ Boivin, Bernard. *American Thalictra and their Old World Allies.* *RHODORA* 46: 433. 1944.

collections the pedicels are as long as 8 mm., rather than only 3 mm. as Fernald describes that variety.²

ROSA SETIGERA Michx., var. *TOMENTOSA* T. & G. So referred is *Waterfall* 9604, forming dense clumps in prairie openings in woods, 2 miles east of Braggs, Muskogee County, June 17, 1950. Fernald (*Gray's Manual*, ed. 8: 870. 1950) says the variety extends from "W. Ga. to e. Tex., n. to s. Ont., Ohio, n. Ind., Ill., and Neb." In the *N. Am. Fl.* 22 (6): 491, the western limit of the range (as *R. rubifolia* R. Br.) is given as "Texas and Nebraska."

**TRIFOLIUM RESUPINATUM* L. This little clover with purplish flowers having the standard turned outward, and with swollen, reticulate, pubescent fruiting calyces was collected in the Camp Gruber area, 1 mile north of Braggs, Muskogee County, May 6, 1950. It was taken as *Waterfall* 9386.

SPHAERALCEA ANGUSTA (Gray) Fern. In *Gray's Manual*, ed. 8, 1003. 1950, this species is said to range from "Ill. and Ia. to Ala., Mo., and Kansas". Stemen and Myers (*Okla. Flora*: 317. 1937) include it, merely stating "Dry soil. Summer". We have it as: *Waterfall* 8894, growing with *Sida procumbens* on shallow soil on limestone, 3½ miles east of Idabel, McCurtain County, June 7, 1947; *Waterfall* 9260, open post oak—black jack woods, 3 miles south of Kingston, Marshall County, August 27, 1949.

**THASPIUM TRIFOLIATUM* (L.) Gray, var. *FLAVUM* Blake. In the herbarium of Oklahoma A. & M. College is one sheet so referable. It is *Kirby* 72, limestone soil, 5½ miles south of Jay, Delaware Co., Sept. 22, 1940. In the *North American Flora*, 28B (2): 188. 1945, the distribution is given as "Pennsylvania and North Carolina, west to Ontario and Arkansas."

**SWERTIA CAROLINIENSIS* (Walt.) Ktze. is represented in our herbarium by *Sooter* 174, oak-pine forest in bottom of Mountain Fork River, State Game Preserve, 21 miles north and 10 miles east of Broken Bow, McCurtain Co., July 19, 1950. In *Gray's Manual*, ed. 8, the range is given as "Ga. to La., n. to w. N. Y., s. Ont., Mich. and Wisc."

**SARCOSTEMMA CRISPUM* Benth. This crisp-leaved species of *Sarcostemma* is represented by *Waterfall* 7772, gypsum hills along the Elm Fork of the Red River, 3 miles west and 14 south of Erick in Harmon County, June 3, 1947. Cory (*Catalogue of the Flora of Texas*. 83. 1938) lists the species from areas 3, 5 and 6, Rio Grande Plains, Edwards Plateau and the Trans-Pecos Area. It is not listed from the Plains country between the Edwards Plateau and southwestern Oklahoma, but undoubtedly must occur in some of the rougher parts of this area, particularly in the "breaks" near rivers, or sites where *Juniperus Pinchoti* is to be found.

**KICKXIA ELATINE* (L.) Dumort was collected as *Waterfall* 9660 along small stream running through wooded limestone and shale hills, 2 miles

²Fernald, M. L., *Draba in Temperate Northeastern America*. RHODORA 36: 367. 1934.

east of Tahlequah, Cherokee Co., July 31, 1950. Pennell³ records the species as "extending inland to Indiana and Missouri."

**BERLANDIERA TOMENTOSA* Nutt., var. *DEALBATA* T. & G. So referred are: *Waterfall* 7038 from prairie alternating with woods, 3 miles west and 2 north of Siloam Springs, Delaware County, June 8, 1947; *Waterfall* 9582, wooded valley, 3 miles south of Kansas, Adair County, July 7, 1950. This material has the pannose tomentum, stems branched at the summit, and leaves whitened with tomentum beneath, with the upper ones becoming deltoid in outline, as described for var. *dealbata* (T. & G., *Flora of North America* 2: 282. 1843; Gray, *Synoptical Flora of North America*. 1 (2): 243. 1886). Torrey and Gray (*l. c.*) cited Nuttall's material from Arkansas and Drummond's from Texas.

**COREOPSIS TINCTORIA* Nutt., forma *ATROPURPUREA* (Hook.) Fern. The form with purplish-brown rays was collected as *Waterfall* 9527, edge of woods, 2 miles north of Ft. Gibson, Cherokee County, June 30, 1950.

**POLYMNIA CANADENSIS* L., forma *RADIATA* (Gray) Fassett. The form with well-developed rays was collected as *Waterfall* 9589, small canyon in mountains, 5 miles northeast of Tahlequah, Cherokee Co., July 7, 1950. All the material seen in this area, where it was fairly common, had well-developed rays.

DEPARTMENT OF BOTANY AND PLANT PATHOLOGY

OKLAHOMA A. & M. COLLEGE, STILLWATER, OKLAHOMA

A GLABROUS VARIETY OF *SILPHIUM TEREBINTHINACEUM*.—At the close of the Columbus, Ohio meetings of the American Institute of Biological Sciences in September, 1950, the author participated in a two-day field trip planned by the Ecological Society of America in conjunction with the Systematic Section of the Botanical Society of America and the American Society of Plant Taxonomists. Capably conducted by Dr. E. Lucy Braun of the University of Cincinnati and Dr. John N. Wolfe of Ohio State University, the company of botanists was led to various interesting sections of Adams and Hocking counties in unglaciated southern Ohio.

At one of the last stations on the trip scheduled for inspection, Dr. Braun called our attention to an unusual natural prairie in Adams County. Here, among a number of other species, were pointed out many plants of *Silphium terebinthinaceum* in which the upper leaf surface was glabrous. Dr. Braun explained that

³ Pennell, Francis W. *The Scrophulariaceae of Eastern Temperate North America*. Acad. Nat. Sci. Phil. Monog. 1. 1935.



Waterfall, U. T. 1951. "More additions to the Oklahoma flora." *Rhodora* 53, 130–133.

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