

PERSISTENCE OF SUBSPECIFIC TYPES OF *XANTHIUM*  
IN THE FIELD

BY

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## ABSTRACT

Attention is called to the unhappy situation in the taxonomy of the genus *Xanthium* caused by the disagreement between recent monographs on this group. Evidence is presented to show that some of the forms which are considered of sub-specific rank by the monographers are capable of maintaining themselves as distinct entities under field conditions.

The species described some years ago as *X. globosum* and included under this name in Millspaugh and Sherff's<sup>1</sup> monograph, was grown a number of years, and maintained itself as a distinct form. Widder<sup>2</sup> considers this species a form of *X. pungens*. Evidence in regard to variability in seed size in *X. globosum* and *X. pungens* indicates that the two are quite distinct. In length, breadth, and weight of seeds, color of seed coats, time of blooming, color and armature of burr these two are distinct enough to retain *X. globosum* as of species rank.

Another form of sub-specific rank, *X. chinense globuliforme*<sup>3</sup> has been maintaining itself under field conditions for six years, and seems capable of becoming an independent and permanent multiple seeded form of *Xanthium*. There has never been any apparent tendency for it to split up into other forms. It is very prolific, and all plants are fertile. Volunteer plants propagate it year after year without difficulty. In nature it could become a very persistent weed.

A third sub-specific type is *X. pennsylvanicum laciniatum*<sup>4</sup> which was discovered by the late Mr. Crevecoeur of Onaga, Kansas, several years ago. These lacinate forms have been maintaining themselves by volunteer propagation, and 100 per cent of the offspring came true to type in a test embracing nearly 400 individuals. There was no evidence of hybridization, and the lacinate type of leaf seems fixed in this form.

The origin of these sub-specific types is not known. They have arisen suddenly as if by mutation, although the multiple seeded form may be of hybrid origin. But they are apparently not any less stable than those forms that are regarded as true species, and can maintain themselves unaided in the field. Such forms raise the question as to what constitutes a species, and as to what constitutes good taxonomy, that which concerns itself only with dried herbarium specimens, often immature, or that which gathers evidence of stability and persistence in nature on the basis of breeding and field tests. Certainly those forms that cannot persist and remain stable in character should not be called species; those that arise in nature, which can and do persist, and remain permanently stable seem worthy of consideration as true species.

<sup>1</sup> Millspaugh, C. F., and Sherff, E. E., Revision of the North American species of the genus *Xanthium*. Field Museum of Natural History Pub. no. 204. 1919.

<sup>2</sup> Widder, F., Die Arten der Gattung *Xanthium*. Repertorium specierum novarum regni vegetabilis. Boh. lfd. XX Berlin, 1923.

<sup>3</sup> Millspaugh, C. F., and Sherff, E. E., *Xanthium*. North American Flora 33:37-14. 1922.

<sup>4</sup> Sherff, E. E., New or otherwise noteworthy Compositae. Bot. Gaz. 92:202-209. 1931. (See pp. 208-209.)