CUSCUTA POLYGONORUM ENGELM. NEW TO LOUISIANA AND COMMENTS ABOUT ITS ANTESTAMINAL SCALES

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While the authors were making a study of the Cuscuta from Louisiana on deposit in the Northeast Louisiana University Herbarium (NLU), they identified two of the specimens as C. polygonorum Englem. This species has not been previously reported from the state and was not included in the recent checklist of the dicotyledons of Louisiana (Thomas and Allen 1982). Correll and Johnston (1970) gave its range as being from New England and Ontario west and southwest to Nebraska, Arkansas and Texas. Both specimens were collected along river banks and were growing on Xanthium strumarium. Citations are:

> EAST BATON ROUGE--Along the Mississippi River at the junction of Stadium Drive and La. 327 at Louisiana State University garbage dump, Baton Rouge, Secs. 61 and 65, T7N, R1W. R. Dale Thomas, 78758, 5 October 1981.
> OUACHITA---Along eastern bank of Ouachita River between levee and water at Louisville Avenue Bridge in Monroe. R. Dale Thomas, 67265, 5 September 1979.

While examining the specimens of C. polygonorum, the authors found that the antestaminal scales were of morphological interest. Yunker, in his monograph on Cuscuta (1921), cited the morphological views of Engelmann (scales are the dilatations of the lowermost part of the filaments), Cunningham (scales are corolline in nature and are duplications of petals), Babington (scales are staminodes) and A. Braun (basically the same as that of Engelmann). Yunker agreed with the views of Engelmann. This paper provides an account of the developmental sequence of the scales. The authors also discuss other variations in the flowers of C. polygonorum.

The antestaminal scales are so small that they are very difficult to locate in the floral bud (figure 1). As the bud develops further, the scales are initiated at the bases of the filaments (figure 2, this is a 'typical' Cuscuta flower). In due course the scales are

well differentiated from the filaments. The laterals of adjacent scales may remain distinct but they often join at their extreme bases to form a ring. The scales are not uniform in size and shape; some are truncate, toothed, bifid, trifid, acute, etc. Such variations often occur within one flower. The scales never reach the anthers (figure 3).

The following variations were observed in the specimens of C. polygonorum from East Baton Rouge Parish (Thomas 78758). Two stamens were developed between two corolla lobes and each stamen had its own trace and scale (figure 4). Between two other corolla lobes on another flower the expected stamen along with its scale and trace was absent. (The absence of the stamen and scale is denoted by the mark 'x' in figure 5). Between the two corolla lobes of another flower the stamen was not in the expected place but the anther was found attached to the lateral margin of the corolla lobe. The staminal trace was present and there was a common scale for this sessile stamen and the adjacent stamen (figure 5). In another flower the bases of two adjacent stamens were fused and there was a common scale subtending them (figure 6).

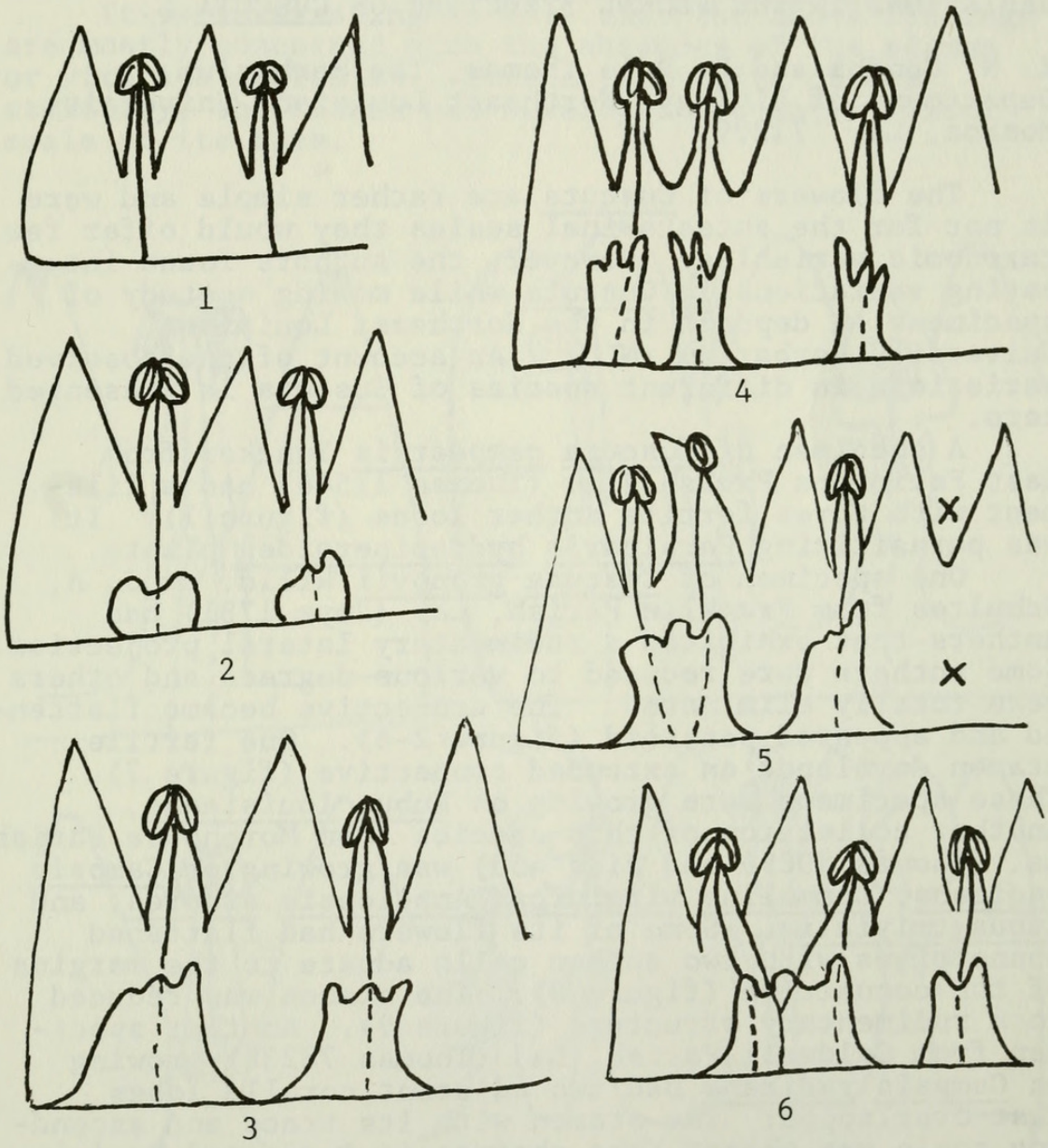
The authors feel that the above variations are morphologically significant. The absence of the scale when the stamen is absent (figure 5), the presence of two scales for two separate stamens found between two corolla lobes (figure 4), and the development of a common scale for two adjacent stamens whose bases are fused (figure 6) are all evidences supporting Engelmann's views that the scales are dilations of the lowermost part of the filaments. If the scales were to be corolline in origin or staminodal in nature, they should have developed at the base of the corolla even at the failure of the filament to develop.

Literature Cited

Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1255 pp.

Thomas, R. D. and C. M. Allen. 1982. A preliminary checklist of the dicotyledons of Louisiana. Contributions of the Herbarium of Northeast Louisiana University 3: 1-129.

Yuncker, T. G. 1921. North American and West Indian species of Cuscuta. Illinois Biological Monographs 6 (2 & 3) : 1-141. Reprinted in 1970 by Johnson Reprint Company, New York.



Figures 1-3 : Developmental sequence of antestaminal scales in C. polygonorum.
Figures 4-6 : Variations in C. polygonorum flowers.