

**A naturally occurring hybrid between *Asclepias syriaca* L. and *A. purpurascens* L.
(Apocynaceae, Asclepiadoideae)**

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ABSTRACT

In 2012 a naturally occurring hybrid between *A. syriaca* L. and *A. purpurascens* L. was found growing along a roadside in Dent Co., MO. It was photographed and the flowers compared with those of its parent species. Hybridization between these two species has not been previously reported. Published on-line **www.phytologia.org** *Phytologia* 96(2): 130-134 (April 1, 2014). ISSN 030319430

KEY WORDS *Asclepias syriaca*, *Asclepias purpurascens*, Hybrid, Apocynaceae, Asclepiadoideae, Dent Co., Missouri

Hybridization seems to be rare between species of *Asclepias*, judging by the few reports available in the literature and the general failure of attempts to produce hybrids artificially (pers. obsv.). Charles Robertson (1887) noted that "the modifications of the floral structure of different species [of *Asclepias*] enable the plants to avoid competition for the same insects, or for the same parts of the same insects. Thus, bumble-bees have pollinia of *A. sullivantii* on their claws, of *A. verticillata* on their tarsal hairs, and of *A. longifolia* on the hairs of the ventral surface." Variation in coronal structure is a way to prevent hybridization. Even so, over the years a few observant people have noticed milkweed plants growing naturally that had characters outside the normal parameters for the species it most resembled, and that such plants often seemed to be intermediate between two species growing fairly close to each other. Usually it was just a single plant. In some cases these plants were considered merely as anomalies, but in others they were described as new species, even when these single plants were recognized as probable hybrids. Vail (1904) described three new species of *Asclepias*. The first, *A. kansana*, from Riley Co. in east-central Kansas, was probably a natural hybrid between *A. syriaca* and *A. speciosa*. In my own field studies, I found that hybrids between those two species are fairly common in central Kansas where their ranges overlap, the hybrids there have the tomentum and erect, fewer-flowered umbels of *A. speciosa* with the shorter coronas of *A. syriaca*. Vail's description is a good match for the hybrids I saw there. The other two she cited as possible hybrids of *A. syriaca*, one with *A. amplexicaulis*, which she named *A. intermedia*, and another with either *A. amplexicaulis* or *A. exaltata* which she named *A. bicknellii*. Unfortunately, Vail did not seem to realize that a single hybrid plant is not a new species until it forms part of a reproducing community of similar plants. Moreover, she presented no evidence that this was the case with the specimens she was describing. Churchill (1918) found a smooth-podded form of *A. syriaca* in Berkshire Co., MA, that he named *A. syriaca* forma *inermis*. Woodson (1926) cited a specimen collected in Marshall Co., IN as a possible hybrid between *A. syriaca* and *A. viridiflora*. It was included in a herbarium search in which he found 9 possible hybrids (including the two of Vail's), none of them between the two species dealt with here. No hybridization between *A. syriaca* and *A. purpurascens* has been reported previously.

Brown (1906), reported on a natural hybrid between *Ceropegia sandersonii* and *C. similis*, which he named *C. hybrida*. Stephan Vogel (1960) reported on natural hybrids between *C. sandersonii* and *C. nilotica*. Broyles (2002) noted that "natural hybridization occurs throughout areas of sympatry for the

North American milkweeds, *Asclepias exaltata* and *A. syriaca*" even though the formation of F₁ hybrid seed is a rare event.

OBSERVATIONS & CONCLUSIONS

In the fall of 2012 in Dent Co., MO, Karen Diane Smith found what appeared to be plants of *A. syriaca* with smooth pods similar to those of *A. purpurascens* which was growing nearby. In Jun of 2013 an examination of the flowers showed them to be a probable hybrid between the two species. The cluster of plants maintained the tall habit (nearly 2 m) of *A. syriaca* with its multiple lateral umbels of pink flowers (normally on somewhat nodding pedicels), but the latter had fewer, erect flowers that were similar in size & shape to those of *A. purpurascens*. The anther wings were like those of *A. syriaca* but the pollinaria were similar to those of *A. purpurascens*. The leaves were intermediate between the two species. The plants also maintained the gemmiferous roots of *A. syriaca*, resulting in a cloned colony of multiple stems within about a 3 m length of ditch. Though the gynostegia of *A. syriaca* and *A. purpurascens* are similar, the hoods of the former are considerably shorter than those of the latter and this may contribute to the scarcity of hybridization between these two species. It seems probable that the flowers of this clone will be pollinated predominantly by pollinia from normal plants of *A. syriaca* and that these intermediate characters will eventually be absorbed back into the greater population. It is likely that interspecific hybridization may account for the variation that is often found within many of the species of *Asclepias*.

Seeds were collected from the hybrid plants in the fall of 2012 and stored over the winter at room temperature. The following spring the seeds were placed on moist sand in petri dishes and subjected to 30 days of 35° cold treatment. Returned to room temperature, germination was high (80%) and numerous seedlings resulted.

Finally, it should be noted that more recent workers have reported on the existence of natural hybrids among species of *Asclepias*, including *A. syriaca* (Broyles, 2002).

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Figure 1. *Asclepias syriaca* x *A. purpurascens*. Hybrid flowers. Inset shows the pollinarium.



Figure 2. *Asclepias syriaca* x *A. purpurascens*. Hybrid with smooth fruits.

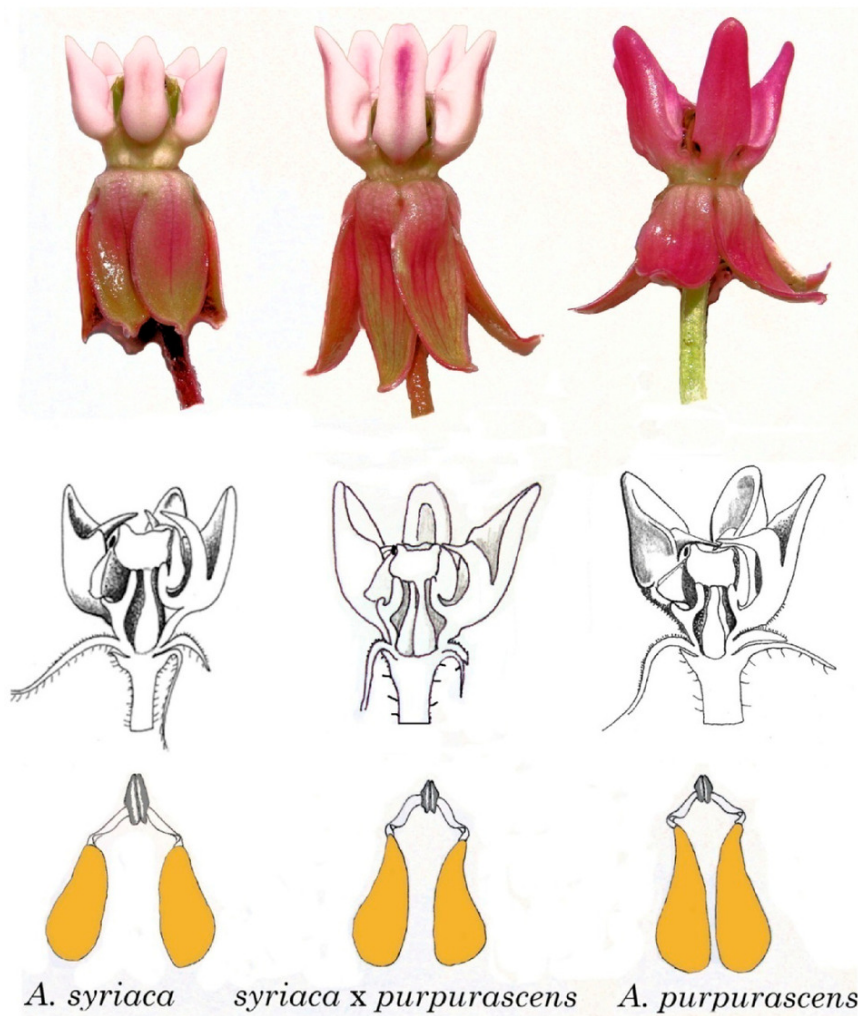


Figure 3. *Asclepias syriaca* x *A. purpurascens*. A comparison of the three flowers. Note in the flower diagrams and in the pollinaria, the hybrid flowers favor *A. purpurascens*, but in the preceding photos the habit of the plant favors *A. syriaca*.



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