

CROCUS FLAVUS: A NEW GENUS AND SPECIES OF NON-NATIVE
IRIDACEAE FOR THE ARKANSAS (U.S.A.) FLORA

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ABSTRACT

Crocus flavus Weston (including *C. × luteus* Lam.) is reported here as new to the Arkansas flora. This record also is the first documented occurrence of the genus *Crocus* outside of cultivation in the state and apparently only the second record of *C. flavus* in the U.S.A. flora. In 2003, about four-dozen escaped plants of *C. flavus* were documented from among six sites in six Arkansas counties: Garland, Grant, Hot Spring, Jefferson, Pulaski, and Saline. *Crocus* plants from all six locations were sterile and discovered growing along disturbed roadsides; however, no apparent evidence of prior cultivation was observed at any of the sites. Photographs of selected specimens are provided.

RESUMEN

Crocus flavus Weston (including *C. × luteus* Lam.) se cita aquí como nuevo para la flora Arkansas. Esta cita es también la primera ocurrencia documentada del género *Crocus* fuera de cultivo en el estado y aparentemente solo la segunda cita de *C. flavus* en la flora de U.S.A. En 2003, unas cuatro docenas de plantas escapadas de *C. flavus* se documentaron de seis sitios en seis condados de Arkansas: Garland, Grant, Hot Spring, Jefferson, Pulaski, y Saline. Las plantas de *Crocus* de las seis localizaciones eran estériles y se descubrieron creciendo a lo largo de bordes de carretera alterados; sin embargo, no se observaron pruebas de cultivo previas en ninguno de los sitios. Se aportan fotografías de especímenes selectos.

INTRODUCTION

Crocus is a genus of about 130 species of herbaceous, cormose, and occasionally rhizomatous, monocotyledonous herbs distributed over central and southern Europe, northwestern Africa, the Middle East, and Asia, with the center of species diversity in Asia Minor and the Balkan Peninsula (Mathew 1980, 1982; Zhao et al. 2000; Rukšāns 2010; Harpke et al. 2013; Rukšāns 2014). A number of new *Crocus* species have been described in the past decade (Kerndorff & Pasche 2011; Kerndorff et al. 2011, 2012; Randelovi et al. 2012; Kerndorff et al. 2013; Rukšāns 2013; Schneider 2014; Yüzbaşıoğlu et al. 2015). Several species in the genus are cultivated as ornamentals for their colorful and sometimes profuse display of flowers in fall or early spring (Bailey & Bailey 1976; Mathew 1982; Rukšāns 2010). Some of the more frequently cultivated *Crocus* taxa include the Dutch crocus, which is typically a series of hybrid selections of *C. vernus* (L.) Hill, sometimes referred to as *C. × cultorum* Bergman, *C. tommasinianus* Herb., and the golden yellow crocus, *C. × luteus* Lam. (Rukšāns 2010). The flowers (specifically, the styles and stigmas) of *C. sativus* L. are the source of commercial saffron and are used for the production of saffron dye (Zhao et al. 2000; Rukšāns 2010).

In the U.S.A., the genus is only sparingly represented in the flora outside of cultivation, with seemingly most records represented by a single species, *C. vernus*, which has been documented from eight states (Kartesz 2015; USDA, NRCS 2016). Goldblatt (2002) does not include *Crocus* in the Iridaceae treatment for North

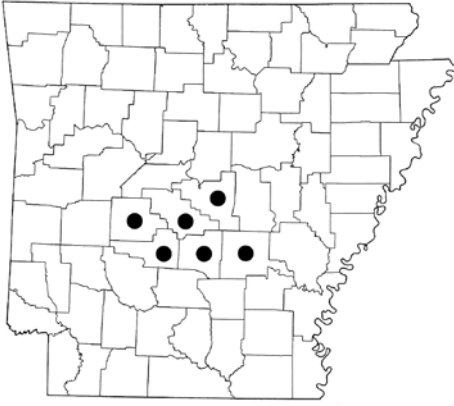


FIG. 1. Known Arkansas distribution of *Crocus flavus*.

collected were sterile and present along disturbed roadsides. No evidence of cultivation was observed at any of the locations, nor were cultivated *C. flavus* plants observed in the vicinity.

Although reproductive structures are typically important for the identification of *Crocus* species, the corm tunics vary so significantly among taxa that they also are often important features for species identification (Rukšāns 2010). The Arkansas specimens have corm tunics that are comprised of long-persistent, parallel fibers that separate with age but remain attached at the base of the corm, and persistent, brown-colored necks (comprised of cataphylls) that extend for several centimeters above the apex of the corm (Fig. 2). This relatively unique combination of characters may be used to distinguish sterile *C. flavus* from most other species of *Crocus* (Mathew 1982; Rukšāns 2010), and as a result, the Arkansas specimens are identifiable as *C. flavus* (including *C. × luteus* — see Fig. 3 for representative specimens from Hot Spring and Jefferson counties).

America, other than to mention that it, along with a number of other non-native Iridaceae taxa, are frequently cultivated in warmer regions and often persist subsequent to cultivation practices and may successfully show evidence of reproduction. Weakley (2015) lists two species, *C. tommasianus* and *C. vernus*, as long-persistent subsequent to cultivation, with *C. tommasianus* naturalized in Delaware. Welsh et al. (1987) document *C. flavus* from the Utah flora, but apparently as only long-persistent from cultivation; therefore, our record of *C. flavus* may perhaps represent the first documented occurrence of naturalized plants of this species in the U.S.A. flora.

In 2003, about four-dozen escaped/spontaneous plants of *C. flavus* were discovered from six locations in six Arkansas counties: Garland, Grant, Hot Spring, Jefferson, Pulaski, and Saline (Fig. 1). All plants observed and

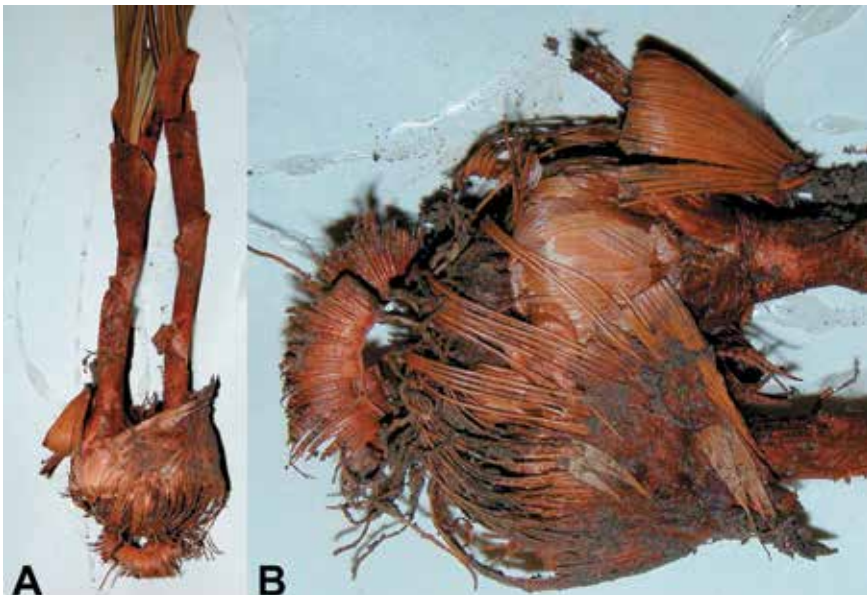


FIG. 2. *Crocus flavus*. **A.** Corm and neck of cataphylls (two necks are present). **B.** Close-up of tunic showing parallel fibers.



Fig. 3. Representative *Crocus flavus* specimens. **A.** Specimen from Hot Spring County. **B.** Specimen from Jefferson County.

ADDITION TO THE ARKANSAS FLORA

Crocus flavus Weston (Iridaceae), yellow crocus. *Crocus flavus* is native to Europe and some portions of the Middle East (Mathew 1980, 1982; Rukšāns 2010). Within its native range, it occurs in dry grasslands, scrub, and open woods (Mathew 1980, 1982). It is one of the *Crocus* species that is relatively common in the horticultural trade and easily grown under favorable conditions (Rukšāns 2010). However, much of what is labeled and actually sold as *C. flavus* is, in fact, the interspecific hybrid between *C. flavus* and *C. angustifolius* Weston, *C. × luteus*. *Crocus × luteus*, also referred to by the cultivar names of ‘Golden Yellow’, ‘Dutch Yellow’, ‘Yellow Giant’, and ‘Yellow Mammoth’, is a sterile, triploid of garden origin that has been known for over 200 years (Rukšāns 2010). *Crocus × luteus* is frequently cultivated in the U.S.A. and is often included with *C. vernus* in the spring crocus mix packages that are readily available via the horticultural trade. Because of its close morphological similarity to *C. flavus*, it has sometimes been treated as only a variety or form of *C. flavus* (Sabine 1829; Mathew 1982).

In Arkansas, *C. flavus* may be distinguished from other Iridaceae by the combination of its relatively large (ca. 4–7 cm wide), actinomorphic, yellow-colored flowers, leaves with a conspicuous central stripe of white or pale coloration (owed to parenchyma cells without chloroplasts), corms with persistent tunics of parallel fibers, and cataphylls that extend several centimeters from the apex of the corm to form a neck.

Voucher specimens: **Arkansas, Garland Co.:** plants along roadside, Carpenter Dam Rd., Hot Springs, 20 Apr 2003, Peck 2003023 (HEND). **Grant Co.:** plants along roadside, US Highway 270, 1 mi W of Prattsville, 22 Apr 2003, Peck 2003025 (HEND). **Hot Spring Co.:** plants along roadside, US Highway 270, 3 mi NW of Malvern, 21 Apr 2003, Peck 2003021 (HEND). **Jefferson Co.:** plants along roadside, US Highway 65, 4 mi NW of Pine Bluff, 13 Apr 2003, Peck 2003052 (HEND). **Pulaski Co.:** escaped plants along roadside, Boyle Park, Little Rock, 22 Apr 2003, Peck 2003033 (HEND). **Saline Co.:** plants along roadside, Fairplay Rd. along Caney Creek, 2 mi S of US Highway 70, 4 mi SW of Benton, 13 Apr 2003, Peck 2003043 (HEND).

ACKNOWLEDGMENTS

We are extremely grateful to Jānis Rukšāns, *Crocus* and rare bulb expert, Rare Bulb Nursery, Latvia, for his assistance with identification of *Crocus* specimens. We also thank Brent Baker (ANHC) and one anonymous reviewer for their excellent suggestions for improvement of this paper. Additionally, we thank the Henderson State University Biology Department and Ellis College of Arts and Sciences for supporting this work.

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