

CYPRIPEDIUM CANDIDUM (ORCHIDACEAE) DISCOVERED IN ARKANSAS, U.S.A.

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ABSTRACT

We report the first documentation of *Cypripedium candidum* Muhl. ex Willd. from Arkansas, USA, and provide details of the discovery, occurrence, and habitat.

RESUMEN

Informamos sobre la primera documentación de *Cypripedium candidum* Muhl. ex Willd. de Arkansas, EE. UU., y proporcionamos detalles del descubrimiento, aparición y hábitat.

INTRODUCTION

In April 2024, a small, previously unknown population of *Cypripedium candidum* Muhl. ex Willd. (small white lady's-slipper, Orchidaceae) was discovered by Diann Dennis in the Central Plateau Ecoregion (aka Salem Plateau) of the Ozark Highlands in Sharp County, Arkansas (Fig. 1). The small patch of three stems each with a single small, pure white flower was found on a gentle west facing slope at the upper margin of a small, streamside fen, in gravelly soil over dolomite. Closely associated taxa growing in the same habitat at the site of this population included *Aesculus pavia* L., *Cardamine bulbosa* (Schreb. ex Muhl.) Britton, Sterns, & Poggenb., *Carex hystericina* Muhl. ex Willd., *Castilleja coccinea* (L.) Spreng., *Dichanthelium boscii* (Poir.) Gould & C.A. Clark, *Dioscorea villosa* L., *Fuirena simplex* Vahl var. *simplex*, *Lindera benzoin* (L.) Blume, *Mitreola petiolata* (J.F. Gmel.) Torr. & A. Gray, *Nasturtium officinale* W.T. Aiton, *Packera aurea* (L.) Á. Löve & D. Löve, *Physostegia virginiana* (L.) Benth., *Pycnanthemum virginianum* (L.) T. Durand & B.D. Jacks. ex B.L. Rob. & Fernald, *Rudbeckia palustris* Eggert ex C.L. Boynton & Beadle, *Saururus cernuus* L., *Silphium perfoliatum* L., *Toxicodendron radicans* (L.) Kuntze, *Parthenocissus quinquefolia* (L.) Planch., *Salix eriocephala* Michx., and *Thalictrum amphibolum* E.L. Greene.

Following the population's discovery, and within the flowering period of the species, two additional field surveys of surrounding habitat were conducted in an attempt to locate additional individuals, but no additional plants were found.

This discovery marks the first legitimate occurrence of *C. candidum* in Arkansas (Gentry et al. 2013) and an extension of the known range of the species from southern Missouri, where it is known from seepy dolomite bluffs and glades in Howell and Shannon counties (Yatskievych 1999). Previously, a *Cypripedium* specimen (S.L. Timme 2434; UARK053129) collected from Benton County, Arkansas, was reported to be *C. candidum* (Smith 1983). Later inspection of this specimen revealed it to be a misidentified pale-flowered

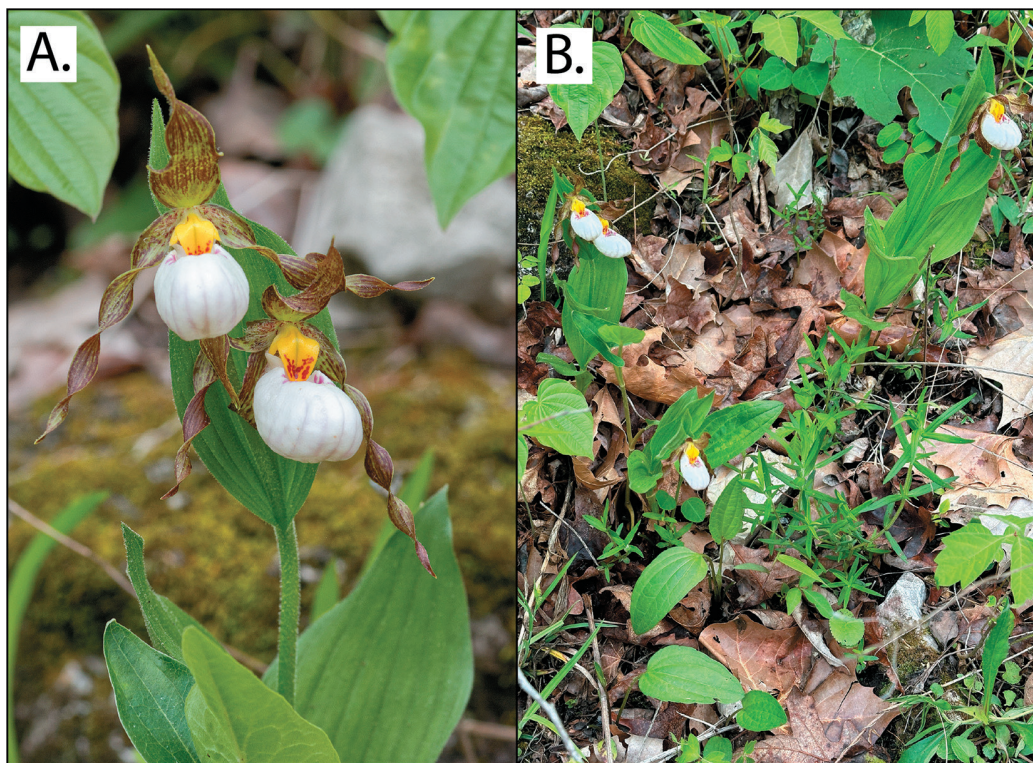


FIG. 1. *Cyripedium candidum* in Sharp County, Arkansas, April 2024. **A.** Flowers from one of the three individuals observed. Photo courtesy of Paul Barnard. **B.** Population extent and local habitat on the margin of a small streamside fen. Photo courtesy of Jim Keesling.

morph of *Cyripedium parviflorum* Salisb. var. *parviflorum*, which typically has flowers with yellow or pale yellow to creamy white lips, compared to the flowers with pure white lips on *C. candidum* (Weakley et al. 2025). Correct identification of *C. candidum* can also be informed by its smaller flower (1.5–2.5 cm long) with acute apical orifice margins, compared to the larger flowers of *C. parviflorum* var. *parviflorum* (2.2–6.3 cm) with rounded apical orifice margins.

Conservation status.—*Cyripedium candidum* has a global conservation status rank of G3G4 (vulnerable), is rare across its range, and is designated as a species of conservation concern in every U.S. state and Canadian province where it is known to occur (NatureServe 2025). NatureServe (2025) lists its conservation status as S1 (critically imperiled) in Alabama, Kentucky, Maryland, Missouri, Nebraska, New Jersey, New York, Ontario, South Dakota, and Virginia; S2 (imperiled) in Illinois, Manitoba, Michigan, North Dakota, Ohio, and Wisconsin; S3 (vulnerable) in Indiana, Iowa, and Minnesota; SH (historical) in Saskatchewan; and SX (extirpated) in Pennsylvania. Following the recent discovery in Arkansas described here, the species was added to the Arkansas Natural Heritage Commission's list of species of state conservation concern with a conservation status rank of S1.

Due to the conservative nature of *C. candidum*, the small size of the Arkansas population, and the sensitivity of its habitat, no specimens were collected, and the occurrence was documented with a photographic voucher.

Voucher Specimen: **ARKANSAS, Sharp Co.:** Central Plateau Ecoregion, in partial shade at the edge of small calcareous streamside fen over dolomite bedrock of the Cotter Dolomite formation, SPECIFIC LOCALITY WITHHELD TO PROTECT POPULATION AND SENSITIVE HABITAT, Apr 2024, Diann Dennis s.n. (ANHC).

TABLE 1. Characteristic shrubs, graminoids, forbs, and ferns associated with Ozark fen habitat. Not all of these species occur at any single site with several of them occurring together likely include appropriate habitat for *Cypripedium candidum*. Nomenclature according to Flora of the Southeastern United States (Weakley et al. 2025).

Species Closely Associated With Ozark Fens	Growth Form	Species Closely Associated With Ozark Fens	Growth Form
<i>Acer rubrum</i> L.	Tree	<i>Helenium autumnale</i> L.	Forb
<i>Salix nigra</i> Marshall	Tree	<i>Impatiens capensis</i> Meerb.	Forb
<i>Alnus serrulata</i> (Aiton) Willd.	Shrub	<i>Liatris pycnostachya</i> Michx.	Forb
<i>Cephalanthus occidentalis</i> L.	Shrub	<i>Linum floridanum</i> (Planch.) Trel.	Forb
<i>Physocarpus opulifolius</i> (L.) Maxim. var. <i>intermedius</i>	Shrub	<i>Lobelia siphilitica</i> L.	Forb
<i>Salix caroliniana</i> Michx.	Shrub	<i>Ludwigia microcarpa</i> Michx.	Forb
<i>Salix eriocephala</i> Michx.	Shrub	<i>Menyanthes trifoliata</i> L.	Forb
<i>Swida obliqua</i> Raf. Moldenke	Shrub	<i>Mimulus ringens</i> L. var. <i>ringens</i>	Forb
<i>Andropogon gerardi</i> Vitman	Graminoid	<i>Mitreola petiolata</i> (J.F. Gmel.) Torr. & A. Gray	Forb
<i>Carex granularis</i> Muhl. ex Willd.	Graminoid	<i>Nasturtium officinale</i> W.T. Aiton.	Forb
<i>Carex hystericina</i> Muhl. ex Willd.	Graminoid	<i>Oxypolis rigidior</i> (L.) Raf.	Forb
<i>Carex interior</i> L.H. Bailey	Graminoid	<i>Packera aurea</i> (L.) Á. Löve & D. Löve	Forb
<i>Carex leptalea</i> Wahlenb. var. <i>harperi</i> (Fernald) W. Stone	Graminoid	<i>Parnassia grandifolia</i> DC.	Forb
<i>Carex lurida</i> Wahlenb.	Graminoid	<i>Pedicularis lanceolata</i> Michx.	Forb
<i>Carex sterilis</i> Willd.	Graminoid	<i>Phlox glaberrima</i> L.	Forb
<i>Carex stricta</i> Lam.	Graminoid	<i>Physostegia virginiana</i> (L.) Benth.	Forb
<i>Carex suberecta</i> (Olney) Britton	Graminoid	<i>Pogonia ophioglossoides</i> (L.) Ker Gawl.	Forb
<i>Carex tetanica</i> Schkuhr	Graminoid	<i>Pycnanthemum virginianum</i> (L.) T. Durand & B.D. Jacks. ex B.L. Rob. & Fernald	Forb
<i>Carex vulpinoidea</i> Michx.	Graminoid	<i>Rudbeckia palustris</i> Eggert ex C.L. Boynton & Beadle	Forb
<i>Eleocharis palustris</i> (L.) Roem. & Schult.	Graminoid	<i>Saururus cernuus</i> L.	Forb
<i>Fuirena simplex</i> Vahl var. <i>simplex</i>	Graminoid	<i>Silphium terebinthinaceum</i> Jacq.	Forb
<i>Glyceria striata</i> (Lam.) Hitchc.	Graminoid	<i>Solidago riddellii</i> Frank	Forb
<i>Juncus dudleyi</i> Wiegand	Graminoid	<i>Spiranthes lucida</i> (H.H. Eaton) Ames	Forb
<i>Juncus subcaudatus</i> (Engelm.) Coville & S.F. Blake	Graminoid	<i>Steironema quadriflorum</i> (Sims) A.S. Hitch.	Forb
<i>Panicum virgatum</i> L.	Graminoid	<i>Symphyotrichum lanceolatum</i> (Willd.) G.L. Nesom	Forb
<i>Rhynchospora capillacea</i> Torr.	Graminoid	<i>Symphyotrichum novae-angliae</i> (L.) G.L. Nesom	Forb
<i>Rhynchospora stiletto</i> Naczi & Cifré	Graminoid	<i>Symphyotrichum puniceum</i> (L.) Á. Löve & D. Löve var. <i>puniceum</i>	Forb
<i>Schoenoplectus pungens</i> (Vahl) Palla	Graminoid	<i>Thalictrum amphibolum</i> E.L. Greene	Forb
<i>Scirpus atrovirens</i> Willd.	Graminoid	<i>Utricularia minor</i> L.	Forb
<i>Scirpus pendulus</i> Muhl.	Graminoid	<i>Utricularia subulata</i> L.	Forb
<i>Scleria verticillata</i> Muhl. ex Willd.	Graminoid	<i>Vernonia missurica</i> Raf.	Forb
<i>Apios americana</i> Medik.	Herbaceous Vine	<i>Viola cucullata</i> Aiton	Forb
<i>Calopogon tuberosus</i> (L.) Britton, Sterns, & Poggenb.	Forb	<i>Selaginella eclipses</i> W.R. Buck	Fern or Fern Ally
<i>Cardamine bulbosa</i> (Schreb. ex Muhl.) Britton, Sterns, & Poggenb.	Forb	<i>Thelypteris palustris</i> Schott var. <i>pubescens</i> (G. Lawson) Holub	Fern or Fern Ally
<i>Castilleja coccinea</i> (L.) Spreng.	Forb		
<i>Eupatorium perfoliatum</i> L.	Forb		

DISCUSSION

The habitat at this locality has been described as an Ozark Fen (Nelson 2010), Streamside Seepage Fen (Orzell 1984; Orzell et al. 1985), Ozark-Ouachita Fen (Comer et al. 2003-present), or Ozark Seepage Fen (USNVC 2025). It is a habitat of state conservation concern with multiple occurrences known in the eastern Ozarks, especially in the Central Plateau Ecoregion. This habitat is known to support a number of characteristic species (Table 1).

This discovery highlights the importance of regularly monitoring well-documented and high-quality areas. The fen in which this population was discovered, which is approximately half a hectare in area, has been recognized for its floristic quality and has been the subject of intensive botanical surveys since the 1980s. Despite its relatively small size and long history of botanical surveys, this site continues to produce interesting discoveries.

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