Trepocarpus aethusae Nutt. (Apiaceae) in Illinois

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ABSTRACT

The first known occurrence in Illinois of Trepocarpus aethusae Nutt. is documented. Trepocarpus aethusae, an annual species (family Apiaceae) that is uncommon throughout much of its southeastern United States range, was discovered in July 1994 at the edge of a floodplain forest near the Ohio River in Massac County, Illinois. Several colonies were observed in degraded and undegraded habitats during 1994 and 1996. This taxon appears to be a native species adapted to periodic disturbances in floodplain habitats.

INTRODUCTION

Trepocarpus aethusae Nutt., a plant species previously unreported in Illinois, was discovered near the town of Metropolis in Massac County, Illinois in 1994. Several distinct colonies occurred at the edge of a young to sub-mature (estimated age from 40 to 60 years) floodplain forest. Specimens (Taft #1205, 1315-1318) are preserved in the herbarium collection of the Illinois Natural History Survey, Champaign, Illinois (ILLS).

METHODS

Trepocarpus aethusae was discovered in July 1994 by the senior author during a biological survey and wetland delineation for the Illinois Department of Transportation (IDOT) related to proposed improvements to U.S. Route 45 (Keene and Wilm 1995). The junior author made population estimates and described the habitat and associate species of T. aethusae in August 1994 and May and August 1996, during a botanical survey emphasizing threatened and endangered species and natural areas for the same IDOT project (Taft 1995, 1997). Botanical nomenclature for this report follows Mohlenbrock (1986) and Gleason and Croquist (1991).

RESULTS AND DISCUSSION

Trepocarpus aethusae is a monotypic herb that ranges across the southeastern United States, from Texas and Oklahoma to South Carolina (Small 1972, Radford et al. 1968). The previous northern range limit known for this species is in western Kentucky (Gleason and Cronquist 1991, Medley 1993). This species is considered rare throughout...
its range (Gleason and Cronquist 1991) and it is listed as endangered in at least one state (Kentucky State Nature Preserves Commission 1996).

_Trepocarpus aethusae_ is a glabrous, tap-rooted, annual species with an erect growth form to 0.6 m tall. Leaves are pinnately decompound; the ultimate leaf segments are linear with mucronulate tips. The plants have a distinctive and somewhat pleasant turpentine-like odor. The inflorescence is a compound umbel subtended by a few foliaceous involucral bracts. The fruit is an oblong, sharply ribbed schizocarp 8-10 mm long containing two thick-walled mericarps. Mericarps containing one seed each remain attached near the stylodium at the top of the fruit at least until late August in southern Illinois. Mericarps of _T. aethusae_ float in water for at least one week (pers. obs.), suggesting that water may be an important dispersal mechanism for this species.

_Trepocarpus aethusae_ blooms in the primary portions of its range from May to June (Gleason and Cronquist 1991). However, in Illinois it blooms until early August and plants observed and collected on 30 May 1996 had not begun to flower. This suggests that plants in the northern portion of this species’ range may bloom later, perhaps from late June to early August. Most plants in southern Illinois had fruits on 7 August 1996 and fruits were still attached on more senescent plants observed on 23 August 1994.

_Trepocarpus aethusae_ is known to occur on both dry and moist soils and is classified as a facultative wetland species by the U.S. Fish and Wildlife Service (Reed 1988). Similarly, it has been reported from a variety of mostly wetland habitats, including moist low ground, margins of swamp forests, margins of streams, sandy river bottoms, floodplain forests, lake margins, marshy meadows, moist-to-wet clearings, and various roadside habitats (Radford et al. 1968, Godfrey and Wooten 1981, Gleason and Cronquist 1991, Medley 1993). A total of five colonies, numbering 500 to 1,000 plants each, have been found in and adjacent to Fort Massac State Park, in a local area adjacent to the floodplain of Massac Creek and near U.S. Route 45. One colony on private land was nearly destroyed recently; only three plants remained in 1996. _Trepocarpus aethusae_ tolerates full sun, but is most abundant in the partial shade of forest openings. Colonies consistently occurred in a narrow contour interval just above a zone of frequent flooding. The nearby highway embankment provides this contour interval and numerous plants were established on this disturbed habitat in 1994 and 1996. Within the park, _T. aethusae_ occurs on undisturbed soils at the edge of floodplain forest habitat.

Associate tree species in the floodplain forest habitat include _Quercus pagoda_ and _Quercus palustris_ as canopy dominants. Occasional forest canopy species include _Acer saccharinum, Fraxinus pennsylvanica, Platanus occidentalis, Robinia pseudoacacia, and Ulmus americana_. Subcanopy species include _Crataegus mollis, Diospyros virginiana, Prunus serotina_, and _Ulmus alata_. Shrubs and vines present include _Amorpha fruticosa, Aristolochia tomentosa, Campsis radicans, Lonicera japonica, Parthenocissus quinquefolia, Rhus copallina, Rosa multiflora, Rubus allegheniensis, Symphoricarpos orbiculatus, and Toxicodendron radicans_. Herbaceous associates include _Carex caroliniana, C. muskingumensis, C. typhina, Chaerophyllum procumbens, Cicuta maculata, Elymus virginicus, Galactia mohlenbrockii_ (listed by the Illinois Endangered Species Protection Board as an endangered species (Herkert 1991)), _Geranium carolinianum, Helianthus tuberosus, Solidago gigantea_, and _Valeriana radiata_. Some colonies extend into old field
habitat. Associate species include *Allium vineale*, *Andropogon virginicus*, *Danthonia spicata*, *Daucus carota*, *Festuca pratensis*, *Kummerowia striata*, *Lespedeza stuevei*, *Lonicera japonica*, *Parthenocissus quinquefolia*, *Rubus allegheniensis*, *Solidago canadensis*, *S. nemoralis*, and *Tridens flavus*.

These habitat descriptions suggest that *Trepocarpus aethusae* is native to Illinois and, like many annuals, has some tolerance for disturbance. The autecology of this taxon may be somewhat similar to that of *Boltonia decurrens* (Asteraceae), a federal and Illinois-listed threatened species (Herkert 1991), in that both are rare taxa that appear dependent on flooding dynamics for dispersal to open habitats where they can sort into sites free, at least temporarily, from intense competition. The association with natural communities in Illinois and very local occurrence indicate that *Trepocarpus aethusae* should be considered for listing as an endangered species by the Illinois Endangered Species Protection Board. Highway construction activities may result in destruction of portions of most Illinois colonies. Attempts at population restoration are tentatively planned for any colonies of *Trepocarpus aethusae* destroyed at this site.

**ACKNOWLEDGMENTS**

We thank Steven R. Hill of the Illinois Natural History Survey (INHS) for confirmation of the identity of the species. We also thank Drs. Hill and Loy R. Phillippe (INHS) for comments on an early draft of this manuscript. Financial support was provided by a grant from the Illinois Department of Transportation.

**LITERATURE CITED**


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