

***ACER PALMATUM* (SAPINDACEAE)
NATURALIZED IN THE ARKANSAS FLORA**

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ABSTRACT

Acer palmatum is reported here as a first naturalized occurrence in Arkansas. A large, naturalized population consisting of over 1000 plants was documented in Garland County from a highly disturbed, urban greenbelt habitat within the city of Hot Springs. The population was established via seeds produced from cultivated *A. palmatum* plants. Photographs of *A. palmatum* in habitat, its current distribution in the state, and characteristics for distinguishing it from the other *Acer* species currently known from the Arkansas flora are provided.

In 2022, a large, naturalized population of *Acer palmatum* Thunb. (Japanese maple), of more than 1000 plants, was documented from a highly disturbed, urban greenbelt habitat and surrounding area in Garland Co., Arkansas (Figs. 1–7). Most individuals were small juveniles less than 1.5 m tall (Figs. 1–4), but at least 15–20 plants were ca. 2–3 m (Figs. 5–7). No naturalized plants were observed with reproductive structures. Plants were distributed on both sides of a small drainage ditch and parallel unkempt area along a distance of several tens of meters. The site occurred within and extended to the edge of the property of a local nursery and landscape business in the city of Hot Springs. Seeds from cultivated plants of *A. palmatum* at the location are the source of the naturalized population, which has been present and expanding along the drainage and immediate surrounding area for many years.

Voucher specimens. Arkansas. Garland Co.: Hot Springs, W of Central Ave., immediately S of the intersection of Franklin St. and Normandy St., well over 1000 naturalized plants, none observed with reproductive structures, within and at edge of nursery property, plants distributed along several tens of meters of a narrow drainage ditch and highly disturbed, urban greenbelt, 23 Jul 2022, *Serviss 8759* (HEND, ANHC).

Acer palmatum is a deciduous shrub or small tree to 8 m tall that is native to Korea and Japan (Xu et al. 2008). This species has been documented from the floras of a number of mostly northeastern states (Kartesz 2015; Shelter & Orli 2000; USDA, NRCS 2021; Weakley 2022); it also is known from Louisiana.

In Arkansas, *Acer palmatum* previously was recorded from Clark County based on the presence of spontaneous juvenile plants produced from cultivated trees of the species (Serviss & Tumilson 2021). There also exists a 2016 specimen (*Sundell 20209*, ANHC) from Allsopp Park in Pulaski County of a single, sterile, ca. 2 m tall adventive plant along a walkway at the edge of disturbed woods. However, our record of *A. palmatum* marks the first truly naturalized occurrence of this species in Arkansas (Smith 1994; Arkansas Vascular Flora Committee 2006; Gentry et al. 2013; Ogle et al. 2020; Serviss & Tumilson 2021). Thus, to date, *A. palmatum* is known outside of cultivation from three Arkansas Counties — Clark, Garland, and Pulaski. Serviss and Tumilson (2021) mention that *A. palmatum*

should be expected outside of cultivation in disturbed habitats and/or in the vicinity of where it is cultivated, which is what has been observed with this species in the state.



Figure 1. Naturalized juvenile plant of *Acer palmatum* in Garland Co., Arkansas. This plant, less than 1 m tall, was one of many juvenile and larger plants in a population well in excess of 1000 individuals along a narrow drainage in a highly disturbed urban habitat in the city of Hot Springs.



Figure 2. Close-up of two different juvenile plants of *Acer palmatum* from a different area of the site. These plants occurred under dense shade cover at the top of the drainage.



Figure 3. Several dozen juvenile *Acer palmatum* plants naturalized at the top of a bank of a narrow drainage in rocky, gravelly soil. Many additional plants occur in the immediate area, not visible in the photograph. The plants shown were seeded from cultivated plants of the species nearby.



Figure 4. Numerous (several dozen) juvenile plants of *Acer palmatum* from a different location of the drainage than the plants shown in Figure 3. Numerous places at the site showed similar densities of seedling recruitment.

Based on our observations, *Acer palmatum* has the potential to be invasive. Although numerous cultivars of *A. palmatum* were present at and near the site of the population, only one form of the species appeared to be naturalized. These plants had small, green, deeply palmately lobed leaves, with coarsely toothed, lanceolate lobes. Some of the cultivated *A. palmatum* plants were of similar phenotype to the naturalized plants and had abundant fruit set. The schizocarps were small and greenish-yellow. In its native Japan, *A. palmatum* is widespread and occurs in wooded and thicket habitats in both lowland and mountainous areas (Ohwi 1965). It appears to be adaptable to multiple soil types and tolerates both sun and shade exposure, although most of the naturalized plants occurred in part to nearly full shade conditions and often under some canopy cover.

Acer palmatum easily can be distinguished from other species of *Acer* in Arkansas by its orbicular-shaped, deeply palmately lobed leaves, with (5–)7–9, lanceolate, coarsely-toothed lobes, and sinuses that extend one-half or more into the lamina. The native *Acer* species have either compound leaves (*A. negundo*) or simple, palmately lobed leaves without the shape and lobe characteristics described for *A. palmatum*. The only other nonnative *Acer* species currently known from the Arkansas flora is *A. ginnala* (amur maple), which can be distinguished from *A. palmatum* using the following key.

1. Leaves elliptic, rhomboid, or ovate-shaped and unlobed or with 3–5, nearly entire to coarsely toothed lobes often toward the base of the lamina (lobe width is variable); flowers whitish-cream to yellow; fruits long-persistent, often into the following growing season **Acer ginnala**
1. Leaves orbicular-shaped, deeply palmately lobed with (5–)7–9 lanceolate, coarsely toothed lobes; flowers red to reddish-green; fruits not long-persistent **Acer palmatum**



Figure 5. Escaped plants of *Acer palmatum* in Garland Co., Arkansas. While the vast majority of the more than 1000 naturalized plants at the site were small juveniles less than 1 m tall, a few plants were larger, between 2–3 m. Several of these larger plants may be seen in the photograph and were growing at the top of a narrow drainage ditch.



Figure 6. Larger *Acer palmatum* plants from a different section of the drainage than those shown in Figure 5. These plants occurred at the edge of the site adjacent to a road. Numerous smaller *A. palmatum* plants also are present in the vicinity.



Figure 7. Close-up of leaves and stems of a naturalized *Acer palmatum* plant from the site. All plants observed were phenotypically similar to the one shown here.

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