

NOTEWORTHY RECORDS OF *PISTACIA CHINENSIS* (ANACARDIACEAE) AND *ULMUS PARVIFOLIA* (ULMACEAE) IN ARKANSAS

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ABSTRACT

Pistacia chinensis Bunge and *Ulmus parvifolia* Jacq. are reported here for their second occurrences in Arkansas outside of cultivation. Both species were discovered as escaped populations of multiple individuals in Clark and Garland counties, respectively. Both sets of escaped plants were seeded from cultivated plants of the two species that were located in the vicinity. The escaped/naturalized population of *U. parvifolia* represents the first documentation of extensive reproduction and localized establishment of this species in the state.

Escaped plants of *Pistacia chinensis* Bunge (Chinese pistachio) were discovered in 2020 at the edge of disturbed, roadside woods near the outer city limits of Arkadelphia (Fig. 1). These plants were juveniles (all less than 2 meters tall) established via seeds from cultivated plants of the species that were present in the vicinity. A total of 10 escaped plants were observed, with individuals occurring on either side of W. P. Malone Drive. Plants were clustered in two locations, under trees, where (anecdotally) it appeared the seeds were deposited by roosting birds that had ingested fruits produced by the cultivated *P. chinensis* plants. McWilliams (1991) noted bird-mediated dispersal of *P. chinensis* in Texas, with similar observations to the above for occurrence and establishment of juvenile plants.

A second location from Clark County, also within the city of Arkadelphia, had 14 escaped plants that also appeared to be established via seeds deposited by birds (Fig. 2). These plants occurred in an unkempt, street side tree and shrub bed; similar establishment by *P. chinensis* also was documented by Krings (2011) in North Carolina. The closest reproductively mature *P. chinensis* plants are cultivated individuals located more than two blocks away — these are the presumed source of the escaped plants. A number of other woody, bird-dispersed species, all as juveniles, also were present at the site, including *Ampelopsis cordata*, *Parthenocissus quinquefolia*, *Podocarpus macrophyllus*, *Prunus serotina*, *Pyrus calleryana*, and *Sassafras albidum*.

Voucher specimens. Arkansas. Clark Co.: Arkadelphia, off W.P. Malone Dr., ca. ¼–½ miles N of intersection of Pine St. and W.P. Malone Dr., 10 escaped, juvenile plants distributed on both sides of the road, at edge and slightly within disturbed, roadside woods, seeded in from cultivated plants in the vicinity, 10 Nov 2020, *Serviss 8745* (HEND); Arkadelphia, at NW corner of intersection of 12th St. and Henderson St., highly disturbed area of tree and shrub bed, 14 escaped plants, all juveniles, presumably seeded in from cultivated plants a few blocks away, 12 Jun 2020, *Serviss 8728* (HEND).

Pistacia chinensis first was documented from the Arkansas flora in 2011 from Pulaski County (Peck & Serviss 2011). The discovery of the 2020 Clark County plants provides two additional escaped occurrences of the species in the state. *Pistacia chinensis* is a medium-sized, deciduous tree to 20 meters that is native to China (Krüssmann 1977; Min & Barfod 2008). In addition to Arkansas, it has been documented from the floras of a number of other southern states (Krings 2011; Kartesz 2015; Invaders of Texas/Texas Invasives 2020; USDA, NRCS 2020).



Figure 1. (A–B) Two escaped plants of *Pistacia chinensis* in Clark Co., Arkansas. A total of 10 escaped plants occurred clustered in two locations, one on either side of a road. Several cultivated plants of *P. chinensis* were present in relative close proximity to the escaped individuals; however, they were separated from them by several meters. Bird-mediated dispersal and deposition of seeds from the cultivated *P. chinensis* plants is the presumed means of establishment.



Figure 2. Escaped, juvenile plants of *Pistacia chinensis* in Clark Co., Arkansas. These plants are from a different location than those shown in Figure 1. Fourteen (14) individuals were present at the site, which consisted of a roadside, ornamental bed of trees and shrubs; two of the *P. chinensis* plants can be seen in the photograph (lower-left and upper-right). Similar to the other Clark County site, establishment of the escaped plants is presumed to be via bird-mediated seed dispersal from cultivated *P. chinensis* plants.

Also in 2020, a large, escaped/naturalized population of *Ulmus parvifolia* Jacq. (Chinese elm, lacebark elm) was discovered in Garland County, within the city of Hot Springs (Fig. 3). The population occurred along a disturbed, urban greenbelt, and consisted of numerous naturalized plants, ranging in size from less than a meter to several meters in height. The source of the population appeared to be a few cultivated, reproductively mature plants of the species in proximity to the greenbelt, with establishment via seed production from the cultivated plants, which had nearly mature fruits at the time of discovery.

Voucher specimen. Arkansas. Garland Co.: Hot Springs, off Central Ave., immediately E/SE of intersection of Mehta Ct. and Central Ave., large, escaped/naturalized population of mostly juvenile plants scattered along a disturbed, urban greenbelt, seeded in from cultivated plants in the vicinity, 21 Aug 2020, Serviss 8731 (HEND).

Ulmus parvifolia first was documented from the Arkansas flora in 2016 from Garland County (Serviss et al. 2016); however, the 2016 location was not in Hot Springs and did not represent a naturalized population. The 2020 Garland County record provides the first direct evidence of extensive reproduction and naturalization of *U. parvifolia* in the Arkansas flora, on a localized basis, and represents its second documented occurrence in the state outside of cultivation.



Figure 3. Escaped/naturalized plants of *Ulmus parvifolia* in Garland Co., Arkansas. Five (5) plants can be seen in the photograph, all juveniles (designated by yellow arrows). The entire population consists of numerous plants scattered throughout a highly disturbed, urban greenbelt.

Ulmus parvifolia is a medium to large, deciduous tree to 25 meters tall that is native to China, Japan, and Korea (Krüssmann 1978; Fu et al. 2003). In addition to Arkansas, it has been

documented from the floras of a number of other states (Sherman-Broyles 1997; Thomas & Allen 1998; Wunderlin & Hansen 2011; Kartesz 2015; USDA, NRCS 2020).

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