

**AIRA ELEGANS (POACEAE) AND MEDICAGO ORBICULARIS (FABACEAE):
NEW TO THE KENTUCKY FLORA**

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ABSTRACT

Aira elegans Willd. (Poaceae) and *Medicago orbicularis* (L.) Bartal. (Fabaceae), two annuals native to Eurasia and North Africa, are documented here as new to the flora of Kentucky.

During field surveys in Calloway Co., Kentucky, we discovered *Aira elegans* (Poaceae) in 2013 and *Medicago orbicularis* (Fabaceae) in 2015. Collection sites for both are located within the Gulf Coastal Plain (Jackson Purchase region) of southwestern Kentucky (Figure 1). Neither species has previously been documented for Kentucky, based on recent floras, manuals, and atlases (Brown & Athey 1992; Medley 1993; Jones 2005; Wipff 2007; Campbell & Medley 2014; Kartesz 2015; Weakley 2015; NatureServe 2019; USDA, NRCS 2019).

AIRA ELEGANS Willd. (annual silver hairgrass)

We initially found annual silver hairgrass in an unmown lawn and subsequently discovered another population 0.5 km east of the first population site along a weedy roadside. Although treating it as *A. caryophylla* L. var. *capillaris* (Mert. & W.D.J. Koch) Mutel., Wipff (2007) pointed out that *A. elegans* Willd. is the correct binomial at species rank but erroneously reported the authorship as Willd. ex. Roem. & Schult. Roemer & Schultes credit the name and description to Willdenow, so they should not be part of the authorship. *Aira elegantissima* Schur, presently considered a heterotypic synonym of *A. elegans* (Weakley 2015; Univ. of Tennessee Herbarium 2019), is rarely applied in other treatments (see Kartesz 2015).

Voucher specimens. USA. Kentucky. Calloway Co.: Murray, 1405 Lancaster Road (KY 497) at jct of Emma Drive, unmown lawn with a weedy component of annual/perennial naturalized taxa, elev. 150 m, 36.734112°, -88.129391°, infrequent, 6 Jun 2013, *Thompson & Abbott 13-264* (BEREA); Murray, 190 Emma Drive adjacent to Johnny Lane, disturbed roadside edge, elev. 129 m, 36.731154°, -88.123548°, scarce, 8 Jun 2013, *Thompson & Abbott 13-270* (BEREA) (Figure 2). Duplicates of these collections and for the *Medicago* have been sent to APSC, MO, NCU, and UAM.

Common habitats for *Aira elegans* in the USA are open, dry to moist, sandy and rocky loam soils in woodland openings, grassy sunny openings (Wipff 2007), and disturbed soil of pastures, fields, lawns, roadsides, and waste places (Radford et al. 1968; Tucker 1996; Weakley 2015). Associated species are alphabetically recorded here for the sites cited above: *Agrostis hyemalis*, *Arenaria serpyllifolia*, *Coreopsis tinctoria*, *Daucus carota*, *Dichanthelium laxiflorum*, *Krigia caespitosa*, *Kummerowia striata*, *Plantago lanceolata*, *Schedonorus arundinaceus*, *Sherardia arvensis*, *Taraxacum officinale*, *Trifolium campestre*, *T. pratense*, *Triodanis perfoliata*, and *Vulpia octoflora*.

In Stewart County, near Dover in northwestern Tennessee, we documented *Aira elegans* in a sunny, open upland successional old field, 15 June 2015. At this site, annual silver hairgrass was commonly associated with *Bromus japonicus*, *Daucus carota*, *Dianthus armeria*, *Kummerowia striata*, *Phleum pratense*, *Plantago aristata*, *Schedonorus arundinaceus*, *Trifolium campestre*, and *Vulpia octoflora*. University of Tennessee Herbarium (2019) documents the occurrence of *Aira elegans* in 13 Tennessee counties.

Voucher specimen. USA. Tennessee. Stewart Co.: Dover, Keel Spring Nature Trail, mesophytic hardwood forest, 7.0 km S on TN 943 (Leatherwood Road) from jct US 79, White Oak Trail on Bluegrass Ridge in old field upland successional forest, elev. 175 m, 36.438477°, -87.862221°, frequent, 15 Jun 2015, *Thompson & Abbott 15-424* (BEREA).

In addition to *Aira elegans*, two other species of *Aira*, *A. caryophyllea* and *A. praecox*, have been documented in the southeastern Atlantic USA and the western Pacific USA. *Aira elegans* may be separated by pedicels 2–8x as long as the 1.7–2.5 mm spikelet; and has two florets with the upper lemma with an 1.5–2.5 mm awn and the lower floret awnless or minutely awned (Wipff 2007; Weakley 2015). Other vernacular names for the species include delicate hairgrass, elegant hairgrass, Mediterranean hairgrass, and silver hairgrass (Wipff 2007; Weakley 2015; GBIF 2017; Mifsud 2019; USDA, NRCS 2019).

The native geographical range of *Aira elegans* includes southeastern Europe, northern Africa, and western Asia. It has become naturalized throughout Eurasia, eastern and southern Africa, Australia, New Zealand, temperate South America, Japan, Korea, and the eastern and western USA (Tucker 1996; Wipff 2007; GBIF 2017).

Hitchcock (1950) reported *Aira elegans* in 13 states during the 1950s. It is presently known from 18 states, ranging from New Jersey southward through the Gulf Coastal Plain west to New Mexico, California, Oregon, and Washington (Kartesz 2015; USDA, NRCS 2019). NatureServe (2019) cites 20 states including Hawaii and West Virginia.

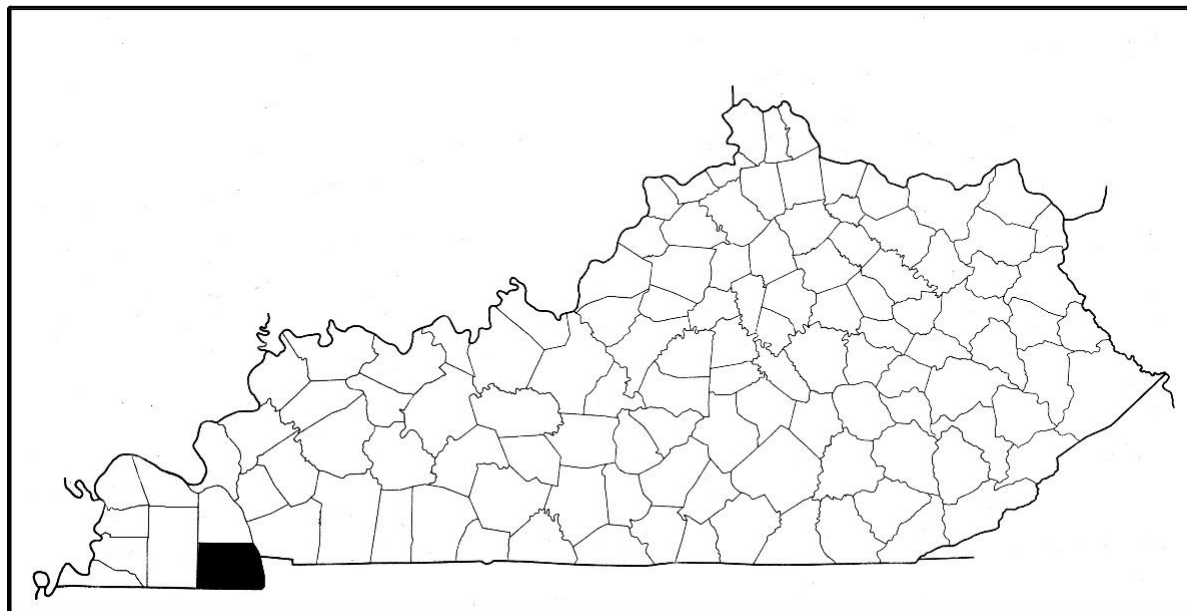


Figure 1. Calloway Co., Kentucky, within the Gulf Coastal Plain contiguous to Tennessee.

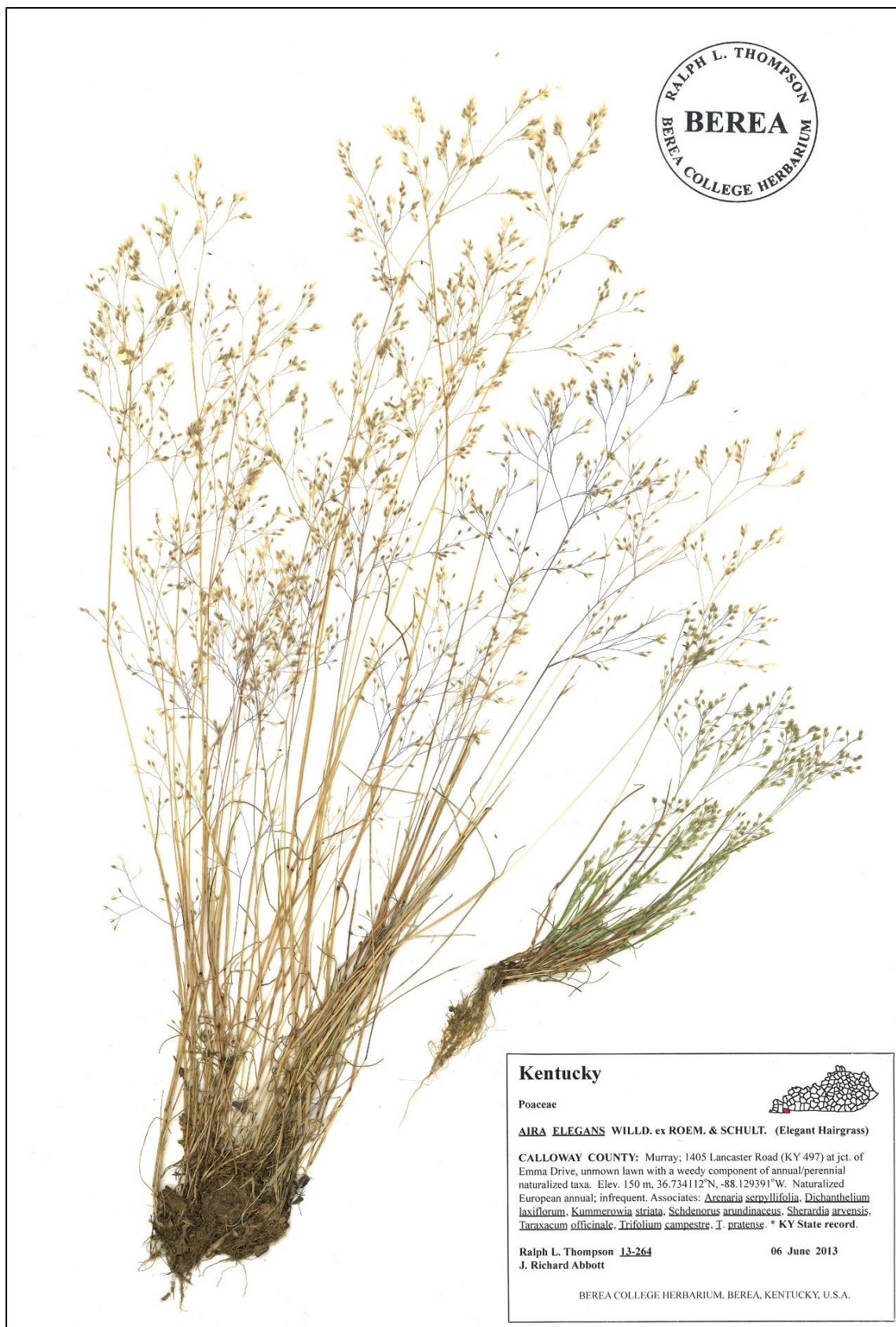


Figure 2. *Aira elegans* from Calloway Co., Kentucky (Thompson & Abbott 13-264, BERA).

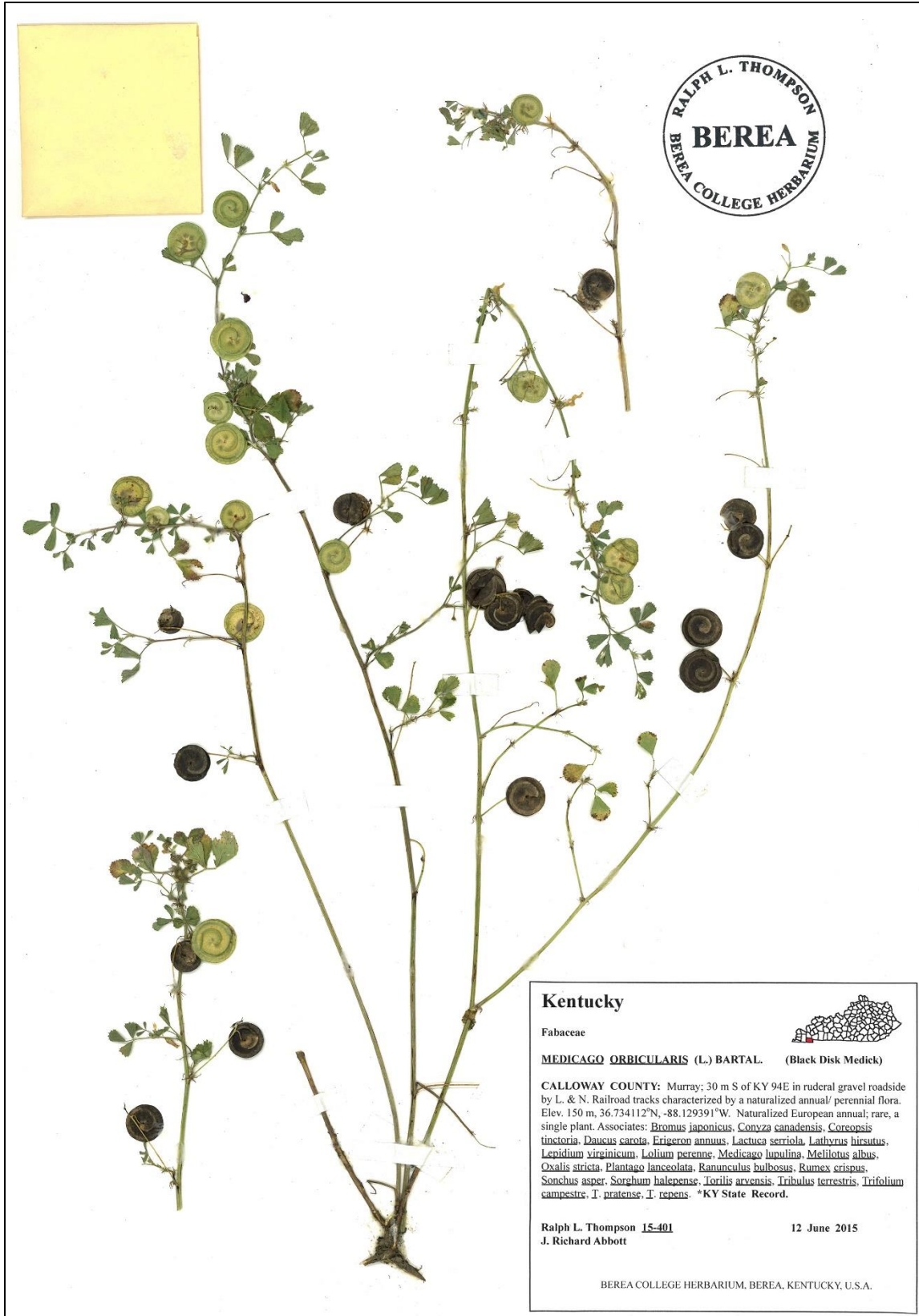


Figure 3. *Medicago orbicularis* from Calloway Co., Kentucky (Thompson & Abbott 15-401, BERE A).

MEDICAGO ORBICULARIS (L.) Bartal. (button medic)

We document this species as new to Kentucky from a single procumbent, mat-forming plant at a gravel roadside adjacent to the Louisville & Nashville Railroad right-of-way.

Voucher specimen. USA. Kentucky. Calloway Co.: Murray; 30 m S of KY Hwy 94E, gravel roadside along Louisville & Nashville Railroad tracks, elev. 150 m, 36.734112°, -88.129391°, rare, one plant, 12 Jun 2015, *Thompson & Abbott 15-401* (BEREA). Figure 3.

At the collection site, 17 of 23 associates are naturalized European or Asian taxa: *Bromus japonicus*, *Conyza canadensis*, *Coreopsis tinctoria*, *Daucus carota*, *Erigeron annuus*, *Lactuca serriola*, *Lathyrus hirsutus*, *Lepidium virginicum*, *Lolium perenne*, *Medicago lupulina*, *Melilotus albus*, *Oxalis stricta*, *Plantago lanceolata*, *Ranunculus bulbosus*, *Rumex crispus*, *Sonchus asper*, *Sorghum halepense*, *Torilis arvensis*, *Tribulus terrestris*, *Trifolium campestre*, *T. pratense*, and *T. repens*.

Medicago orbicularis, a glabrous, procumbent or mat-forming annual, may be separated from other *Medicago* taxa by its large spineless, papery, discoid-orbicular, 3–5-spirally-coiled tan legumes, and very deeply laciniate-lacerate stipules (Isley 1990, 1998; Weakley 2015; Woods & Orcuff 2017; Mifsud 2019). Habitats for button medic in the USA include sandy and calcareous roadsides, railroad right-of-ways and ballast, agricultural fields, meadow, and pastures, vacant lots, lawns, and abandoned waste ground (Radford et al. 1968; Isley 1990, 1998; Weakley 2015; Woods & Orcuff 2017). Vernacular names for *Medicago orbicularis* include blackdisc clover, blackdisc medic, burless clover, burless trefoil, button burclover, button clover, button medic, button trefoil, disc medic, flat snail clover, large-disc medic, and round-fruited medic (GBIF 2017; Mifsud 2019).

Within the continental USA, *Medicago orbicularis* has been reported as introduced and/or naturalized in Alabama, California, Florida, Georgia, Illinois, Louisiana, Maryland, Mississippi, New Jersey, North Carolina, Oklahoma, Tennessee, and Texas (NatureServe 2019; USDA, NRCS 2019). Kartesz (2015) also mapped it for Arkansas. University of Tennessee Herbarium (2019) mapped it in eight Tennessee counties. Woods & Orcuff (2017) mapped button medic in seven Alabama counties and presented an extensive taxonomic treatment including keys, descriptions, synonymy, county maps, and herbarium specimen photos.

Medicago orbicularis is native to Mediterranean Eurasia and North Africa (Isley 1990, 1998). Lesins & Lesins (1979) stated the eastern Mediterranean Basin is the center for diversity of the genus *Medicago*. Mifsud (2019) reported a broad geographical distribution of *M. orbicularis* in the Mediterranean Basin and Middle Europe, the Middle East, North Africa, and the major Mediterranean Islands. Button medic has been introduced to Australia, South America, northern and eastern Africa, and the eastern and western USA (GBIF 2017; Mifsud 2019).

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