

Distribution and Spread of an Adventive Population of the Biological Control Agent *Tetramesa romana*¹ in Austin, TexasJohn A. Goolsby², Patrick Moran², Jay Falk³, and Lawrence Gilbert³

Giant reed, *Arundo donax* L., is the target of a biological control program in the southwestern U.S. and Mexico (Goolsby 2008, Goolsby and Moran 2009, Moran and Goolsby 2009). The primary herbivores from the native range that are being evaluated as potential biological control agents are a stem-galling eurytomid wasp, *Tetramesa romana* Walker; a root- and stem-feeding armored scale, *Rhizaspidiotus donacis* (Leonardi); shoot-feeding chloropid flies, *Cryptonevra* spp.; and a leafmining cecidomyid, *Lasioptera donacis* (Gagne). Adventive populations of *T. romana* were discovered in California in 2007 (T. Dudley, personal communication) and later in Austin, Eagle Pass, George West, Laredo, San Marcos, and San Antonio, TX (Goolsby and Moran 2009). Custom microsatellite markers were used to compare individuals from the adventive populations to European populations collected as part of the biological control program. The adventive populations sampled in Texas are identical to each other but differ slightly from any of the populations collected in Europe or imported into quarantine for evaluation (Manhart, Pepper and Tarin, unpublished data). Therefore, these adventive populations do not represent a quarantine breach, but separate introductions of unknown origin. *Tetramesa romana* oviposits into growing stems and lateral shoots, causing formation of galls of *A. donax*. Multiple larvae feed on and develop in the gall tissue that forms near the site of oviposition. The life cycle of *T. romana* is approximately one month at 27°C under controlled laboratory conditions.

Tetramesa romana was first discovered along Shoal Creek near Pease Park (30 17.23 N, 097 45.27 W) in Austin, TX. Surveys along major creeks and road right-of-ways in Austin and surrounding areas of Travis, Bastrop, Hays, and Williamson counties in January 2008 and May 2009 determined distribution and area-wide spread of the wasp. Patches of *A. donax* were observed for the presence of galls and exit holes of the adult wasp. Locations of *A. donax* with and without *T. romana* were recorded with hand-held GPS units.

In surveys during January-February 2008, *T. romana* was found to be limited to riparian zones mostly within the city limits of Austin (Fig. 1). In these areas, *A. donax* was growing in scattered patches along creeks that drain into the Colorado River. No evidence of *T. romana* was found on Johnson Creek, Bee Creek, Bull Creek, West Bull Creek, or Barton Creek, which all drain areas of rocky outcrops on the west side of Austin that are mostly unsuitable for *A. donax*. Surveys for exit holes and galls in December 2008 and February 2009 confirmed the continued presence of *T. romana* along Shoal Creek, Waller Creek, Dry Creek, Boggy Creek, and Little Walnut Creek and along the Colorado River at the Brackenridge Field Laboratory.

¹*Tetramesa romana* Walker (Hymenoptera: Eurytomidae).

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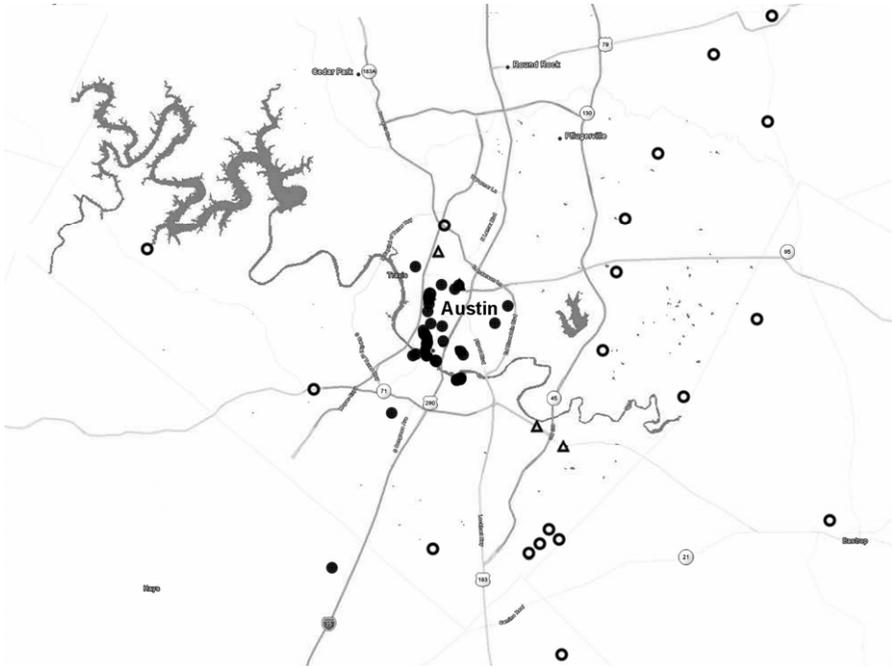


Fig. 1. Distribution of the Arundo wasp, *Tetramesa romana* in Austin, TX. Circles indicate the presence of *T. romana* in 2008, unfilled circles the absence of *T. romana* in 2008 and 2009, with triangles indicating new finds of *T. romana* in 2009.

Within 18 months of the initial survey, *T. romana* was detected farther up Shoal and Waller Creek drainages and southeast of Austin along the Colorado River. Dispersal to remote patches of *A. donax* growing away from riparian areas in the Blackland Prairie south and northeast of Austin appears to be limited, perhaps because of limited dispersal capabilities of *T. romana*. The limited distribution and documented dispersal of *T. romana* suggest its establishment in Austin, TX, is recent.

References Cited

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