

Dispersal of the exotic *Brachymyrmex patagonicus* (Hymenoptera: Formicidae) in the United States

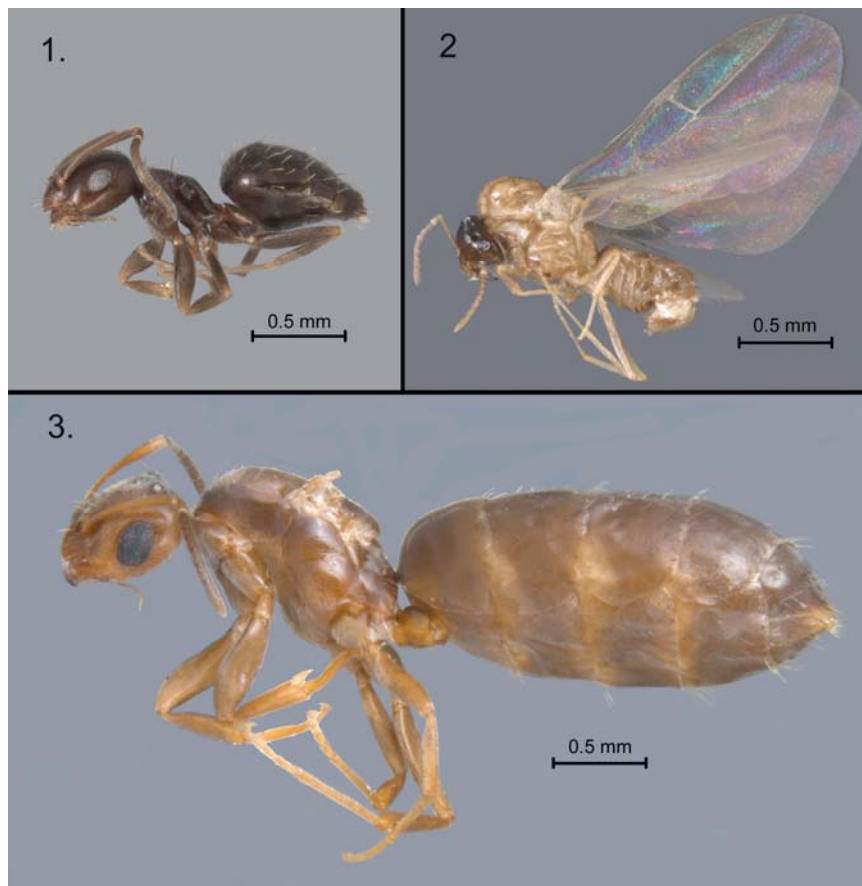
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Ants in the genus *Brachymyrmex* (Hymenoptera: Formicidae) are minute, soft-bodied, range in color from pale yellow to dark brownish-black, and have distinct nine-segmented antennae (males have ten-segmented antennae). Most species nest in soil or rotting wood. Thirty-eight species are known worldwide (Bolton 1995), but only eight, of which four appear to be undescribed, are known to occur in the United States. Identification of species in this genus is difficult because many type specimens are lost, original descriptions are brief, and pinned specimens are often poorly preserved.

Brachymyrmex patagonicus Mayr, the dark rover ant (Figs.1-3), is an introduced species native to Argentina (Quirán et al. 2004) that was first reported from the United States in 1978 in St. Tammany Parish, Louisiana as *B. musculus* Forel (Wheeler and Wheeler, 1978). Because of the lack of an adequate description, it has been identified variously as *B. musculus*, *B. obscurior* Forel, and *B. patagonicus*.



Figures 1-3. Profile views of *Brachymyrmex patagonicus*: (1) worker, (2) alate male, and (3) dealate female.

Since its initial report in the United States, *B. patagonicus* has become well established and abundant in the Gulf Coast region and appears to be spreading at an alarming rate. It has become a nuisance pest with occasional large infestations in homes, hospitals, and various other businesses.

Methods

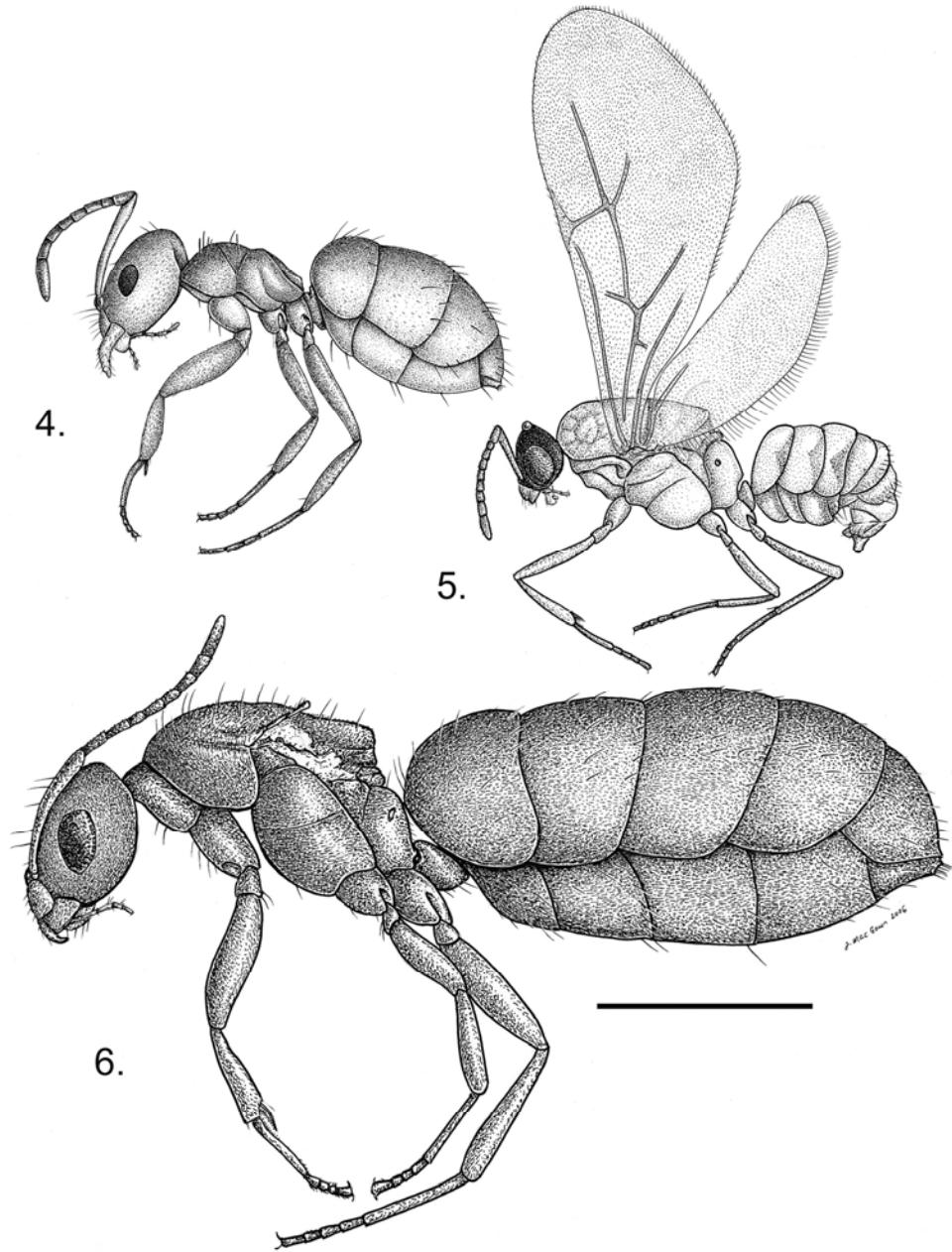
The ants in this study were collected as part of other surveys of Formicidae in Florida (Deyrup 2003), Alabama (MacGown & Forster 2005), Mississippi (MacGown, Hill, and Brown, unpublished data), with additional collecting trips made to Georgia, Tennessee, Arkansas, Louisiana, and Texas by the Mississippi Entomological Museum (MEM). Other records were provided by various researchers or pest control operators.

Collections were made using a variety of methods including pitfall traps, Lindgren funnel traps, blacklight traps, malaise traps, baiting, soil and litter sampling, tearing apart rotting logs and trees, and visually searching for ants and nests. Specimens were collected and stored in 90% ethanol, with representatives pinned and labeled. Based on a revision by Quirán et al. (2004) of some *Brachymyrmex* species, which included *B. patagonicus*, specimens in our study were tentatively identified as *B. patagonicus*. Representatives were subsequently verified to be that species by Quirán.

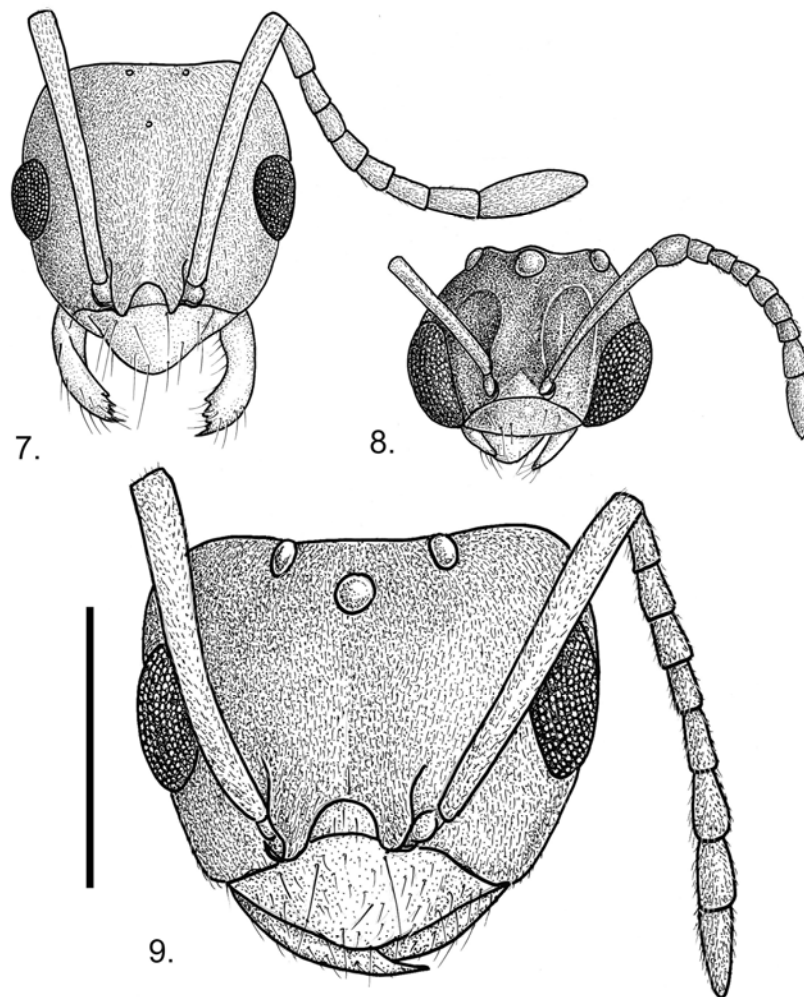
Measurements were made with a measuring reticule placed in a 10X eyepiece on a Leica MZ16 stereomicroscope at 50X (for females) and 100X (for males and workers). Drawings were made with a drawing tube mounted on the same microscope. Photographs were made with a Leica DC420 digital camera mounted on a Leica Z16 microscope using with Automontage (LAS version) software.

Results and Discussion

Workers of *B. patagonicus* can be identified by their minute size (mesosomal length 0.43-0.51 mm), dark brown color, nine-segmented antennae, relatively large eyes (about 1/3 the length of the head in side view), presence of three minute ocelli, 3-9 (usually 4-6) stout, erect hairs on the promesonotal dorsum, and gaster with sparse pubescence (Figs. 1, 4, and 7). Males are similar in size to workers, bicolored with a black head and tan body, and have reduced pubescence on the body, appearing shiny (Figs. 2, 5, and 8). Queens are much larger (mesosomal length 1.24-1.42 mm), concolorous reddish-brown, and have abundant pubescence on the entire body (Figs. 3, 6, and 9).



Figures 4-6. *Brachymyrmex patagonicus*: profile view of (4) worker, (5) alate male, and (6) dealate female. Scale bar equals 0.5 mm.



Figures 7-9. *Brachymyrmex patagonicus*: full-face view of (7) worker, (8) male, and (9) female. Scale bar equals 0.5 mm.

Brachymyrmex patagonicus nests in a variety of habitats, both natural and disturbed. Colonies may be found in soil at bases of plants (including trees), under objects on the ground, in leaf litter, in rotting wood, under bark of trees, in grass thatch, in landscaping mulch, in trash piles, in structures of buildings, and in many other similar situations. Although it does not bite or sting, this species is considered a nuisance pest because both workers and alates may enter houses, schools, hospitals, and other man-made structures to forage and/or nest. Because of its abundance and small colony size, this species is difficult to control.

As a result of the ant surveys conducted by the MEM in the Southeast in recent years, older museum records, published records, and data received from cooperating researchers, an updated distribution of *B. patagonicus* has been developed (Fig. 10). This species is now extremely abundant throughout northern Florida; southern Georgia, Alabama, and Mississippi; and much of Louisiana. It also has been found in northeastern

South Carolina (near the North Carolina border), southern Arkansas, three counties in Texas, and even in Pima County, Arizona.

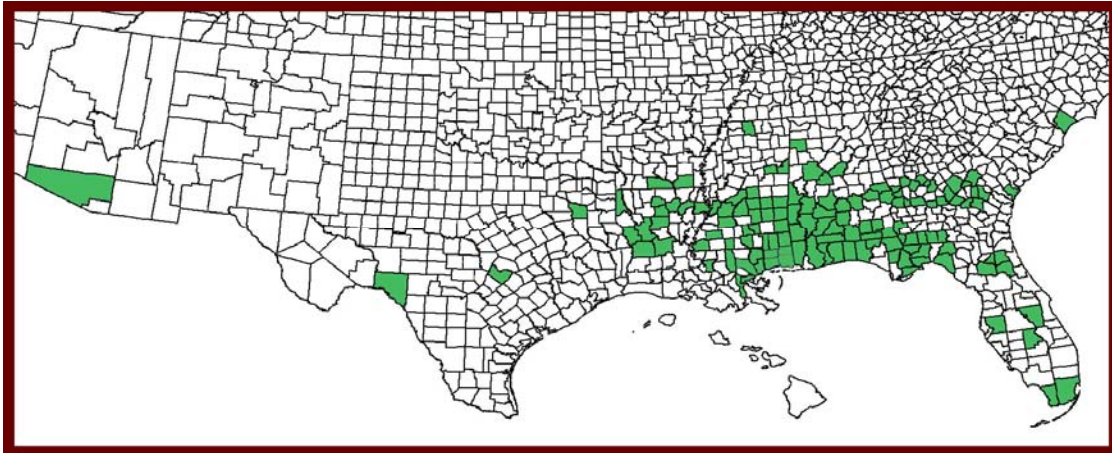


Figure 10. Map of the southern United States showing the known distribution of *Brachymyrmex patagonicus*.

A recent publication (MacGown et al., 2007) provides additional information about this species. Information about this species is also available at: http://www.mississippientomologicalmuseum.org.msstate.edu/Researchtaxapages/Formicidaepages/genericpages/Brachymyrmex_patagonicus.htm

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