

## An Annotated List of the *Pyramica* (Hymenoptera: Formicidae: Dacetini) of Mississippi

JOE A. MACGOWN, RICHARD L. BROWN, AND JOVONN G. HILL

Mississippi Entomological Museum, Box 9775, Mississippi State, Mississippi 39762

**ABSTRACT:** Distributions of 20 species of *Pyramica* (Formicidae: Myrmicinae: Dacetini) in Mississippi are reported. This list includes six new state records including *Pyramica bimarginata* (Wesson & Wesson), *P. metazytes* Bolton, *P. ohioensis* (Kennedy & Schramm), *P. reflexa* (Wesson & Wesson), *P. talpa* (Weber), and one introduced species, *Pyramica hexamera* (Brown), previously reported from Florida and Louisiana. In addition, records are provided for three rarely collected species, *P. angulata* (M. R. Smith), *P. hyalina* Bolton, and *P. rohweri* (M. R. Smith).

The ant genus *Pyramica* Roger (Myrmecinae: Dacetini) includes small cryptic species, formerly assigned to *Smithistruma* Brown, that occur in leaf litter and soil where they prey on various small arthropods (Hölldobler and Wilson, 1990). Nearctic species of *Pyramica* were originally included in *Strumigenys* by Emery (1895), and this generic assignment was followed in revisions by M. R. Smith (1931b, 1935), Wesson and Wesson (1939), and Creighton (1950). Brown (1948) restricted *Strumigenys* to species having long mandibles and erected *Smithistruma* to include the remaining species characterized by short mandibles. Brown (1953) subsequently recognized 24 Nearctic species of *Smithistruma* in his revision of the Dacetini. Bolton (1999) synonymized *Smithistruma* with *Pyramica*, which he elevated from junior synonymy with *Strumigenys*. Bolton (2000) revised the Dacetini and recognized 38 species of *Pyramica* in North America north of Mexico, of which 34 were reported from eastern United States.

The genus *Pyramica* is characterized by a six segmented antenna ending in a two segmented club, the usual presence of spongiform tissue on the petiole and postpetiole, and triangular to subtriangular (occasionally somewhat elongate) mandibles that lack spiniform teeth apically (as in the genus *Strumigenys*) (Bolton, 2000). Both *Pyramica* and *Strumigenys* are characterized by specialized erect hairs, which often are spatulate or scalelike (Brown, 1953). Species of *Pyramica* can be identified relatively easily with keys in Bolton (2000), which emphasize dentition and shape, size, and orientation of pilosity.

The Mississippi Entomological Museum (MEM) has been conducting surveys of ants in Mississippi since 2001 to provide baseline data on native species to complement regional imported fire ant programs initiated by the United States Department of Agriculture-Agricultural Research Service (USDA-ARS). The current list of ants of Mississippi was provided by Marion R. Smith (1924a, b, c, 1927, 1928a, b, 1931a, 1932). Smith's surveys were made before the introduction of the imported fire ants, *Solenopsis invicta* Buren (Formicidae: Solenopsidini) and *S. richteri* Forel, in the 1930's and subsequent control efforts, including aerial application of Mirex, heptachlor, and other insecticides during the 1960's and 1970's.

### Methods

Most of the *Pyramica* collected in this study were found in soil and leaf litter samples and were extracted using Berlese funnels. Other specimens were collected in pitfall traps

or collected by sifting litter through screens into trays for hand collecting. Records of *Pyramica* are from 36 of 82 counties in Mississippi representing 10 of the 11 physiogeographic regions of the state (excluding only the barrier islands) as delineated by Testa and Lago (1994).

Species determinations were made using the revision of the Dacetini (Bolton, 2000). All distributions are based on material in the MEM, except for cited published records. Specific site data are provided for new state records and uncommonly collected species, but only county records are given for species that are more common or widely distributed throughout their range. Numbers of workers and queens are given for all new state records and rare species. Distribution maps of *Pyramica* species in Mississippi can be found at the home page of the Mississippi Entomological Museum at the following URL: <http://www.msstate.edu/org/mississippiemuseum/Researchtaxapages/Formicidaepages/antspecieslist.html>.

### Results

Of the 20 species of *Pyramica* reported here from Mississippi, six are new state records: *P. bimarginata* (Wesson & Wesson), *P. hexamera* (Brown), *P. metazytes* Bolton, *P. ohioensis* (Kennedy & Schramm), *P. reflexa* (Wesson & Wesson), and *P. talpa* (Weber). *Pyramica bimarginata* was known previously from only Ohio and Illinois (Bolton, 2000), and the Mississippi collection represents a significant distributional record. This species is one of the few *Pyramica* that has been collected in the Black Belt Prairie in Mississippi. *Pyramica metazytes* was described only recently (Bolton, 2000) based on five workers from Kentucky and Tennessee. *Pyramica hexamera* is an introduced ant native to Japan and previously reported from Marion and Hernando Counties, Florida (Deyrup, 1988, 2003) and Iberia Parish, Louisiana (Bolton, 2000). *Pyramica talpa*, *P. ohioensis*, and *P. reflexa* have been reported from Louisiana and/or Alabama (Bolton, 2000), and their presence in Mississippi was not unexpected.

Additional records are provided for three species that have been rarely collected: *P. angulata* (M. R. Smith), *P. hyalina* Bolton, and *P. rohweri* (M. R. Smith). *Pyramica hyalina* was previously known from four workers and a queen from single localities in Ohio and Mississippi (Bolton, 2000). *Pyramica rohweri* has been reported from only two localities in Mississippi (Bolton, 2000; Brown, 1953). *Pyramica angulata* was known from a limited number of specimens collected in Alabama, Arkansas, Illinois, Kentucky, Mississippi, Oklahoma, and South Carolina (Bolton, 2000).

### List of the *Pyramica* of Mississippi

*Pyramica angulata* (Smith). Choctaw Co.: Tombigbee Nat. Forest, 33°13'47"N, 89°08'07"W, 11 Sept. 2003, J. A. MacGown, Berlese-soil & litter at base of *Quercus falcata* var. *pagodafolia* Elliot (Fagaceae) (4 workers). Hancock Co.: Ansley, 30°12'57"N, 89°29'16"W, 10 Aug. 2004, J. A. MacGown, Berlese-soil & litter at base of *Quercus virginiana* Miller (1 worker). Montgomery Co.: 2 mi N Cedar Hill, 33°35'24"N, 89°35'15"W, 24 Sept. 2003, J. MacGown, T. Schiefer, Berlese-from hollow inside of rotting log (6 workers). Prentiss Co.: Natchez Trace, mi. 288.4, 34°29'04"N, 88°23'42"W, 7 July 2003, J. A. MacGown, Berlese-litter at base of dead tree (1 worker). Tishomingo Co.: Natchez Trace, mi. 289.8, 34°33'42"N, 88°16'02"W, 27 May 2003, J. A. MacGown, Berlese-soil & litter in mixed forest (6 workers), same data except, 7 July 2003, Berlese-litter at base of

- Quercus alba* Linnaeus (1 dealate queen), same data except, 21 July 2003, Berlese-soil & litter under & near rotting log near creek in deciduous forest (2 workers). Winston Co.: Louisville, 13 May 1920, M. R. Smith (1 dealate queen and 2 workers), same data except, 24 Mar. 1981, G. L. Snodgrass, hardwood litter (1 dealate queen); Tombigbee Nat. Forest, 33°13'01"N, 89°05'42"W, 13 Aug. 2002, J. A. MacGown, Berlese-soil & leaf litter in deciduous forest (2 workers), same data except, 33°15'15"N, 89°06'21"W, 20 Mar. 2003, Berlese-leaf litter in mixed forest (1 dealate queen and 1 worker), same data except, 33°12'20"N, 89°04'18"W, 28 Mar. 2003, (1 worker); same data except, 33°12'30"N, 89°04'32"W, 10 July 2003, Berlese-litter at base of *Quercus falcata* var. *pagodafolia* (1 worker).
- Pyramica bimarginata* (Wesson & Wesson). (**New state record**). Oktibbeha Co.: Osborn, 33°30'41"N, 88°44'08"W, 18–24 June 1991, D. M. Pollock, pitfall trap in Black Belt Prairie (4 workers).
- Pyramica bunki* (Brown). Harrison Co. (Bolton, 2000).
- Pyramica clypeata* (Roger). George, Lauderdale, Lowndes, Oktibbeha, Prentiss, Sharkey, Washington, and Winston Cos.
- Pyramica creightoni* (M. R. Smith). Clay, Lowndes, Washington, and Winston Cos.
- Pyramica dietrichi* (M. R. Smith). George, Lauderdale, Lowndes, Montgomery, Oktibbeha, Webster, and Winston Cos.
- Pyramica hexamera* (Brown). (**New state record**). Chickasaw Co.: Natchez Trace, mi. 241.1, 34°00'34"N, 88°53'48"W, 5–12 May 2003, J. A. MacGown, T. Schiefer, pitfall trap in deciduous forest (1 dealate queen), same data except, 21 July 2003, J. A. MacGown, Berlese-soil and litter under rotting log in deciduous forest (18 workers). Jones Co.: 3 mi SW Moselle, 31°28'18"N, 89°18'16"W, 6 April 2004, J. A. MacGown, Berlese-soil and litter at base of *Pinus* sp. (Pinaceae) in mixed forest (1 worker). Lauderdale Co.: Russell, T6NR17E Sec 3, 5 May 2003, J. G. Hill, Berlese litter mixed deciduous forest, near large ravine (3 workers).
- Pyramica hyalina* Bolton. Washington Co.: Stoneville, 6 Jan. 1982, G. Snodgrass, Berlese-litter hardwood forest (1 worker) (MEM). Oktibbeha Co.: Noxubee Ref., 21 July 1981, R. L. Brown, Berlese litter, hardwood forest (Bolton, 2000).
- Pyramica laevinasis* (M. R. Smith). Lauderdale and Winston Cos.
- Pyramica membranifera* (Emery). Clay, George, Jackson, and Wayne Cos. (MEM). Greene, Humphreys, Leflore, and Lowndes Cos. (Smith, 1931b).
- Pyramica metazytes* Bolton. (**New state record**). Winston Co: Tombigbee Nat. Forest, 33°12'53"N, 89°06'10"W, 21 Oct. 2003, J. A. MacGown, Berlese-soil & litter at base of *Carya* sp. (Juglandaceae) at bottom of ravine in mixed mesic forest (1 worker).
- Pyramica missouriensis* (M. R. Smith). Monroe and Oktibbeha Cos. (MEM). Tippah Co. (Smith, 1931b).
- Pyramica ohioensis* (Kennedy & Schramm). (**New state record**). Grenada Co.: T22N, R3E, Sec. 31NW, 19–25 Feb. 1992, R. L. Brown, Berlese-litter hardwood forest from tree base (7 dealate queens). Lafayette Co.: University of MS Field Station, 12 July 2004, Jake Marquess, Berlese-leaf litter in woods (4 workers). Lee Co.: Natchez Trace, mi. 273.0, 34°24'22"N, 88°38'15"W, 21 July 2003, J. A. MacGown, Berlese-litter at base of *Quercus* sp. (2 dealate queens). Oktibbeha Co.: 8 mi S of Starkville, 33°20'37"N, 88°49'04"W, 26 June–15 July 2003, J. G. Hill, pitfall trap in oak-pine Flatwoods (1 worker); Noxubee Natl. Wild. Ref., 33°20'45"N, 88°54'36"W, 30 June–16 July 2003, J. G. Hill, pitfall trap in oak-pine Flatwoods (1 worker);

- Noxubee Ref., 9 July 1981, R. L. Brown, Berlese-litter hardwood forest (6 workers). Pontotoc Co.: Natchez Trace, mi. 247.5, 33°05'49"N, 88°51'38"W, 12–19 May 2003, pitfall trap in deciduous forest (1 worker). Winston Co.: Louisville, 24 Mar. 1981, G. L. Snodgrass, hardwood litter (8 workers); Tombigbee Nat. Forest, 33°11'50"N, 89°03'20"W, 28 June–6 July 1999, J. MacGown, T. Schiefer, pitfall trap in deciduous forest (1 worker), same data except, 33°10'20"N, 89°03'55"W, 7–21 June 1999 (1 worker), same data except, 33°12'43"N, 89°06'12"W, 11 Sept. 2003, J. A. MacGown, Berlese-soil & litter in mixed forest (1 worker), same data except, 33°12'53"N, 89°06'10"W, 21 Nov. 2003, J. A. MacGown, Berlese-soil & litter at base of *Carya* sp. in depression on ravine slope (2 workers).
- Pyramica ornata* (Mayr). Attala, Choctaw, George, Grenada, Itawamba, Jackson, Lauderdale, Oktibbeha, Pontotoc, Tishomingo, Washington, and Winston Cos.
- Pyramica pilinasis* (Forel). George, Lee, and Oktibbeha Cos. (MEM); Winston Co. (Smith, 1931a).
- Pyramica pulchella* (Emery). Amite, Choctaw, Clay, George, Lowndes, Montgomery, Oktibbeha, Pontotoc, Tishomingo, and Winston Cos. (MEM); Monroe and Smith Cos. (Smith, 1931b); Bolton (2000) reported specimens from "Bond," which could be either Neshoba or Stone Co.
- Pyramica reflexa* (Wesson & Wesson). (**New state record**). Lee Co.: Natchez Trace, mi. 260.2, 34°15'24"N, 88°45'22"W, 7 July 2003, J. A. MacGown, Berlese-litter under *Juniperus virginiana* Linnaeus (Cupressaceae) and *Pinus taeda* Linnaeus in Black Belt Prairie (1 worker). Tishomingo Co.: Natchez Trace, mi. 294.3, 34°30'28"N, 88°18'09"W, 13 April 2003, R. L. Brown, Berlese-soil & leaf litter, deciduous forest (1 worker); Natchez Trace, mi. 298.8, 34°33'42"N, 88°16'02"W, 7 July 2003, J. A. MacGown, Berlese-litter at base of *Quercus* sp. (1 worker), same data except, 21 July 2003, Berlese-soil & litter under & nr. rotting log nr. creek in deciduous forest (3 workers). Winston Co.: Tombigbee Nat. Forest, 33°12'53"N, 89°06'10"W, 21 Oct. 2003, J. A. MacGown, Berlese-litter at base of *Carya* sp. on ravine slope in mixed forest (1 worker), same data except, 21 Nov. 2003, Berlese-soil & litter at base of *Carya* sp. in depression on ravine slope in mixed forest (1 dealate queen).
- Pyramica rohweri* (M. R. Smith). Marshall Co.: Holly Springs, L. C. Murphree (1 worker) (MEM). Monroe Co.: Aberdeen, H. T. Vanderford (Brown, 1953).
- Pyramica rostrata* (Emery). Choctaw, George, Grenada, Harrison, Jackson, Jones, Lee, Madison, Noxubee, Oktibbeha, Prentiss, Tishomingo, Wayne, and Winston Cos.
- Pyramica talpa* (Weber). (**New state record**). Harrison Co.: 5 mi N Lyman, 30°34'08"N, 89°07'49"W, 10 July 2003, R. L. Brown, Berlese-litter from Big Biloxi Cmpg. DeSoto Nat. Forest (1 worker). Lee Co.: Natchez Trace, mi. 273.0, 34°24'22"N, 88°38'15"W, 7–14 July 2003, J. MacGown, T. Schiefer, pitfall trap in deciduous forest (1 worker). Lowndes Co.: Crawford, 33°18'01"N, 88°36'38"W, 21 May–1 June 1992, J. A. MacGown (1 worker); HWY 82 X 45, 33°29'06"N, 88°39'39"W, 26 June–11 July 2003, J. G. Hill, pitfall trap in oak-hickory forest in Black Belt Prairie (2 workers). Oktibbeha Co.: Noxubee Natl. Wild. Ref., 33°20'45"N, 88°54'36"W, 16 July 2003, J. G. Hill, hand collected off of pitfall trap cover in Flatwoods (1 worker), same data except, 13 Aug. 2003, Berlese-litter from oak-pine Flatwoods (1 worker). Winston Co.: Tombigbee Nat. Forest, 33°11'50"N, 89°03'20"W, 10–17 May 1999, J. MacGown, T. Schiefer, pitfall trap in deciduous forest (1 worker), same data except, 33°12'30"N, 89°04'32"W, 23 May 2002, J. A. MacGown, collected in road cut in mixed forest (1 dealate queen).

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