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Ants of North Carolina: an updated list (Hymenoptera: Formicidae)

BENOIT GUÉNARD^{1,2,4}, KATHERINE A. MCCAFFREY¹, ANDREA LUCKY^{1,3} & ROB R. DUNN¹

¹Department of Biology, North Carolina State University, Raleigh, NC, USA

²Okinawa Institute of Science and Technology, Okinawa, Japan

³Department of Entomology & Nematology, University of Florida, Gainesville FL, USA

⁴Corresponding author. E-mail: zeroben@gmail.com

Abstract

We document the distribution of ants present in North Carolina. We revisit the list of North Carolina ants for the first time since 1962, based on literature records, museum collection and new sampling events across the state. Our results show 53 new species records, including 16 exotic and 4 undescribed species, for a total of 192 species found in North Carolina. Based on our current knowledge, North Carolina possesses the highest species diversity of native ants of any state or territory in eastern North America. Here, we discuss some of the biogeographical explanations for this remarkable diversity. In addition to presenting county-level species distributions in North Carolina, we also offer brief comparisons to species lists for surrounding states. By highlighting species expected to occur in North Carolina, but not yet recorded in the state, we hope to encourage new discoveries and increase the general knowledge of the ant fauna of North Carolina.

Introduction

North Carolina lies in the central eastern coast of the United States. Spanning only 300 kilometers from north to south, the latitudinal variation of North Carolina is relatively slight (from 34°N to 36.5°N). However, it is the state's varied terrain, stretching longitudinally over 800 kilometers, that enriches North Carolina's flora and fauna with remarkable diversity. The elevation gradient from the eastern coastline to the western mountainous border of the state culminates with Mount Mitchell (2037m), the highest peak on the East Coast of North America. Moreover, North Carolina has a range of climates leading to the formation of numerous local and specific climatic conditions (Boyles and Raman 2003). Such geographic and climatic features have favored the formation of diverse ecosystems and plant communities (Shafale and Weakley 1990).

The rich diversity of North Carolina attracted the attention of several early ant biologists at the end of the 19th and the beginning of the 20th century. The ant fauna was first explored by the prolific Swiss myrmecologist August Forel who described with enthusiasm his discoveries in several articles (1899, 1900, 1901a,b). On a trip to the Appalachian Mountains and coastal plain of the state, Forel collected specimens, recorded natural history observations, and described seven species from North Carolina (Forel 1901, 1922). Just a few years later, in 1904, the first list of the ants of North Carolina was published by William Morton Wheeler, who recorded 61 species (Wheeler 1904a). Previous and subsequent work on species distribution and ecology includes the work of Atkinson (1887), Brimley (1938), Ramsey (1941), Pearson (1946), Wray (1950), Carter (1962a), Van Pelt (1962, 1963), Wray (1967), Nuhn and Wright (1979), Banks *et al.* (1990), Nuhn *et al.* (1992), Campbell (1996), Peck *et al.* (1998), Mitchell *et al.* (2002), Guénard and Dunn (2010), and Rowles and Silverman (2010). The most complete work on distribution and diversity of ants in North Carolina was published fifty years ago by Carter (1962b), who recorded 151 species in the state. Fourteen species have their type localities in North Carolina (Table 1).

Since Carter's last revision of the ants of North Carolina (1962b), several generic revisions have been published, each increasing our understanding of the ant fauna and further rendering the previous species checklists obsolete. Major revisions include treatments of the genera *Aphaenogaster* (Umphrey 1996), *Camponotus* (Snelling 1988), *Crematogaster* (Johnson 1988), *Dolichoderus* (Johnson 1989a), *Dorymyrmex* (Trager 1988, Johnson 1989b, Snelling 1995), *Formica* (Francoeur 1973, Trager *et al.* 2007), *Lasius* (Wing 1968), *Monomorium* (Dubois 1986),

Myrmica (Francoeur 2007), *Nylanderia* (Trager 1984), *Ponera* (Taylor 1967), *Solenopsis* (Thompson 1989, Trager 1991), *Neivamyrmex* (Snelling and Snelling 2007), *Pheidole* (Wilson 2003), *Proceratium* (Baroni Urbani and De Andrade 2003) and *Pseudomyrmex* (Ward 1985). Furthermore, since 1962, several new native and exotic species have also been recorded in the state. Here, we present an updated list of the ants of North Carolina and describe the distribution of each species according to the counties in which they occur. To our knowledge, no official list of ants has been produced within the past 70 years for any of the states bordering North Carolina (Smith 1934a, Denis 1938). As such, we believe that the list we present for North Carolina is useful not only locally within the state, but also provides information on the likely ant distribution in surrounding states.

TABLE 1. List of species described from North Carolina.

Species name	Subfamily
<i>Aphaenogaster carolinensis</i> (Wheeler 1915)	Myrmicinae
<i>Dorymyrmex grandulus</i> (Forel 1922)	Dolichoderinae
<i>Lasius murphyi</i> (Forel 1901)	Formicinae
<i>Neivamyrmex carolinensis</i> (Emery 1894)	Ecitoninae
<i>Nylanderia faisonensis</i> (Forel 1922)	Formicinae
<i>Pheidole crassicornis</i> (Emery 1894)	Myrmicinae
<i>Pheidole tysoni</i> (Forel 1901)	Myrmicinae
<i>Ponera exotica</i> (Smith 1962)	Ponerinae
<i>Pyramica filirrhina</i> (Brown 1950)	Myrmicinae
<i>Pyramica wrayi</i> (Brown 1950)	Myrmicinae
<i>Solenopsis carolinensis</i> (Forel 1901)	Myrmicinae
<i>Solenopsis pergandei</i> (Forel 1901)	Myrmicinae
<i>Solenopsis truncorum</i> (Forel 1901)	Myrmicinae
<i>Stigmatomma trigonignathum</i> (Brown 1949)	Amblyoponinae

Methods

North Carolina features. The climate of North Carolina is generally categorized as humid subtropical with hot, humid summers and mild winters. For instance, the mean annual temperature in Raleigh, Wake County is 16°C (mean monthly min T°= 5.4°C; mean monthly max T°= 26.2°C), and the mean annual precipitation is 1181mm (mean monthly min= 76mm; mean monthly max= 114mm, State Climate Office of North Carolina). However, variation is great within the state due to an important geographic range in elevation and distance from the ocean (Boyles and Raman 2003). Differences in temperature between the western and the eastern parts of the state are on average no less than 6.5°C at any time of the year, with the coldest station (Mount Mitchell, Yancey Co, Mean Annual Temperature= 6.6°C) and the warmest station (Willard, Pender Co., Mean Annual Temperature= 17.7°C) differing by over 11°C on average (State Climate Office of North Carolina). Similarly, mean annual precipitation also varies greatly from a low of 948 mm yearly to a high of 2330 mm yearly.

Three main physiographic regions are recognized in North Carolina: the Coastal Plain, the Piedmont Plateau and the Appalachian Mountains (See Carter 1962b for complete descriptions). Each county of North Carolina is assigned to one of the specific regions (see Fig. 1; Orr and Stuart 2000). North Carolina is divided, politically, into 100 counties which vary from 572 km² to 2471 km² with an average area of 1300 km². The Coastal Plain includes 45 counties, the Piedmont Plateau includes 35 counties, and the Appalachian Mountains include 24 counties (Fig 1). Detailed information on the vegetation and geology of the different regions has been extensively covered by Oosting (1942) and Shafale and Weakley (1990) and their relation to ants presented in Carter (1962a, b).

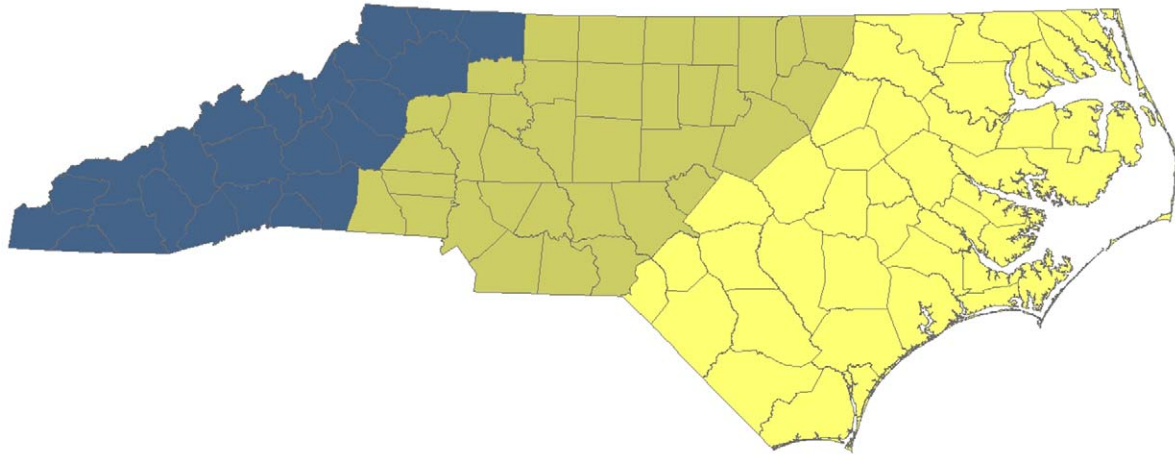


FIGURE 1. The three main physiogeographic regions of North Carolina: the Coastal Plain (yellow), the Piedmont Plateau (green) and the Appalachian Mountains (blue). Each county was assigned to one physiogeographic region.

Data collection. We surveyed literature published since 1899 on the ants collected within this state and recorded county-level distribution data. We reviewed publications relevant to ant taxonomy in the eastern Nearctic and attributed all records to a specific county.

We also included a thorough review of the specimens in the North Carolina State University (NCSU) insect collection at the North Carolina Insect Museum. All records and specimens in the collection were examined to verify species identification and county record. Finally, we conducted collecting trips in the following counties between 2006 and 2011: Bladen, Carteret, Columbus, Craven, Cumberland, Currituck, Durham, Guilford, Harnett, Johnson, Moore, New Hanover, Onslow, Orange, Robeson, Transylvania, Wake and Wayne. Ant collection techniques on these trips included primarily hand collecting and Winkler leaf litter extraction. All ant identifications from the NCSU insect collection and from more recently collected material were performed by the lead author (BG). Taxonomic resources used to identify specimens include Bolton (2000), Deyrup and Cover (2004), Dubois (1986), Francoeur (1973; 2007), Johnson (1988; 1989a,b), MacGown (2012b), Smith (1957), Snelling (1988; 1995), Snelling and Snelling (2007), Trager (1984; 1988; 1991), Trager *et al.* (2007), Ward (1985), Wheeler (1904), Wilson (1955, 2003), and Wing (1968). Nomenclature follows Bolton (2012) and the recent change of Nearctic *Amblyopone* to *Stigmatomma* (Yoshimura and Fisher 2012).

A list of ants present in the states bordering North Carolina (i.e., Georgia, South Carolina, Tennessee and Virginia) was also collated based on literature records.

“Sampling” grain. The distribution of the ants in North Carolina is presented here at the county level. North Carolina counties are large enough to be easily classified into one of the three physiogeographic regions and small enough that in noting the presence and absence of ant species in each we can identify regions where more survey work could usefully be conducted (county size 1300 km² in average). County level data also allow comparisons with other states. County-by-county presentations of species’ distributions are currently available for the ants of Alabama (MacGown and Forster 2005), Florida (Deyrup *et al.* 1989, Deyrup 2003), Michigan (Wheeler *et al.* 1994), Montana (Wheeler and Wheeler 1988a), New Mexico (MacKay and MacKay 2002), Ohio (Coovert 2005), Oklahoma (Wheeler and Wheeler 1989), South Dakota (Wheeler and Wheeler 1987) and Wyoming (Wheeler and Wheeler 1988b).

Results and discussion

Overall diversity. A total of 192 species have been recorded in North Carolina at the publication of this checklist, a net increase of 41 species since the last published list (Carter 1962b). Ten of the species presented in Carter (1962b) are no longer valid due to taxonomic revision, and new records are added for 53 species in North Carolina. The Piedmont Plateau and the Coastal Plain regions appear more diverse (164 and 153 species, respectively) than the Appalachian Mountain region (113 species). In addition, few species (11) appear exclusively restricted to the

Appalachian Mountains. This result may relate to the biogeographic history of the region, however other factors could also partially explain the pattern. For instance, most sampling efforts, both recent and historical (Carter 1962a, b), have favored the eastern part of the state, due in part to the proximity to multiple state and private universities. North Carolina State University (NCSU), for example, has housed the North Carolina Insect Collection since 1952 (NCSU website, <http://news.lib.ncsu.edu/scrc/2011/05/16/the-insect-museum/>), and so it is unsurprising that Wake County, where NCSU is situated, possesses the highest species diversity observed in any county (113 spp.). Other diverse counties include Orange County (92 spp.), Carteret (90 spp.), Mecklenburg (83 spp.), Moore (83 spp.) and Durham (82 spp.) (Fig 2).

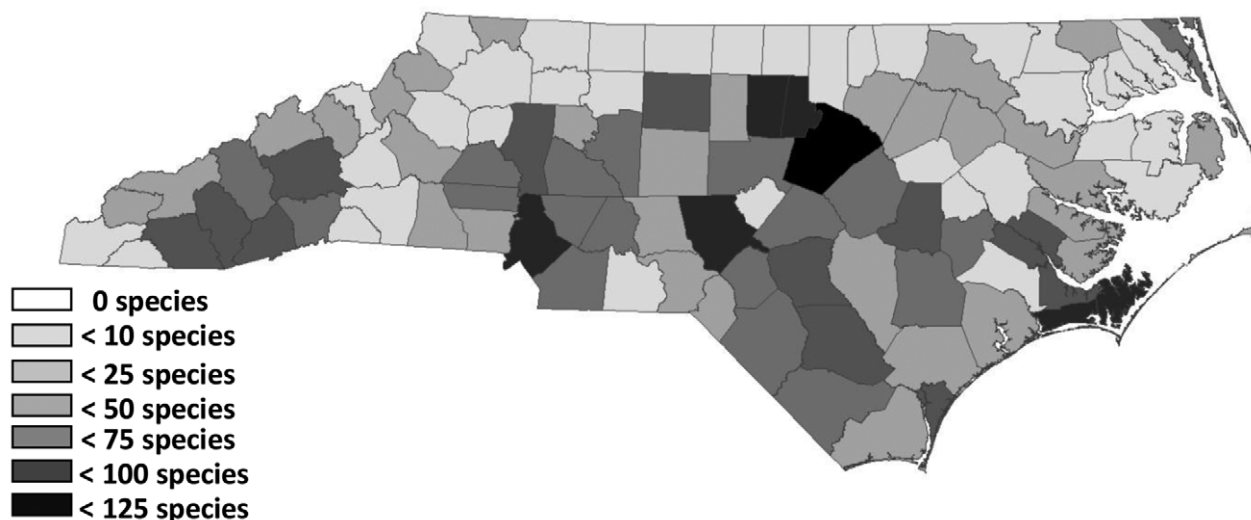


FIGURE 2. Number of species known from each county of North Carolina.

Regional and taxonomic diversity. Thirty-three native and five introduced genera (*Linepithema*, *Pachycondyla*, *Paratrechina*, *Technomyrmex* and *Tetramorium*) are found in North Carolina. The genus *Pyramica* is the most diverse with 21 species to date, representing half of the total diversity known to occur within this genus in southeastern North America (Deyrup 2006, MacGown and Hill 2010). It is possible new records or species of *Pyramica* remain to be discovered with a more systematic use of a leaf litter extraction system (e.g., winkler samplers; Guénard and Lucky 2011); such has proven to be true in other southern states (*Arkansas*: MacGown *et al.* 2011; *Florida*: Deyrup 2006; *Mississippi*: MacGown *et al.* 2005, MacGown and Hill 2010). Other diverse genera include *Formica* (16 spp), *Camponotus* (15 spp), *Lasius* (13 sp), *Pheidole* (13 spp), *Aphaenogaster* (12 spp), and *Solenopsis* (12 spp). Conversely, 11 genera were represented by just a single species in North Carolina (Table 2).

Nine of the 13 most diverse genera (5 species or more) were more diverse in the Coastal Plain and Piedmont regions than in the Appalachian region. However, the number of *Formica* and *Myrmica* species found in the Appalachian region was higher than in the eastern parts of the state. *Lasius* and *Stenamma* were equally diverse in the Appalachian and Piedmont regions but less diverse in the Coastal Plain (Table 3 and Fig. 3). Forty-three native species are restricted to one of the three regions; 12 are known only from the Appalachian Mountain region; 15 from the Piedmont; and 16 from the Coastal Plain.

Exotic species. Sixteen exotic species have been recorded from North Carolina, 8% of all the species known from the state. The Piedmont region hosts all but one of these exotics. Many of these species appear to co-occur. For instance, the campus of North Carolina State University in Raleigh, with an area of just 1.3 km², hosts at least nine introduced species (Guénard *et al.* in prep). In contrast, only four exotic species are recorded from the entire Appalachian Mountain region.

Six exotic species—*Hypoponera punctatissima*, *Monomorium pharaonis*, *Pheidole anastasioi*, *Pheidole moerens*, *Tapinoma melanocephalum* and *Technomyrmex difficilis*—have only been found indoors. Both *H. punctatissima* and *P. moerens* were found within the Department of Biology building on the North Carolina State University campus, where they were nesting within potted plants and were observed feeding on millipedes in the soil or honeydew produced by coccids. *Tapinoma melanocephalum* and *Technomyrmex difficilis* were found in

greenhouses built to house tropical butterflies within the North Carolina Museum of Natural Sciences in Raleigh and the Museum of Life Science in Durham. These four species were likely introduced in soil associated with ornamental plants. *Monomorium pharaonis* is known to colonize anthropogenic habitat and to disperse readily with human movement (Carter 1962b, Wetterer 2010a). Two species, *Pheidole anastasioi* and *Paratrechina longicornis*, have been recorded historically, respectively in 1933 and 1922, but do not appear to have been collected again in the last eighty and ninety years respectively.

TABLE 2. List of ant genera present in North Carolina ordered by the number of species in each. Exotic genera are indicated by (E).

Genus name	Number of species	Genus name	Number of species
<i>Pyramica</i>	21	<i>Tapinoma</i>	3
<i>Formica</i>	16	<i>Brachymyrmex</i>	2
<i>Camponotus</i>	15	<i>Myrmecina</i>	2
<i>Pheidole</i>	13	<i>Ponera</i>	2
<i>Lasius</i>	13	<i>Pseudomyrmex</i>	2
<i>Aphaenogaster</i>	12	<i>Stigmatomma</i>	2
<i>Solenopsis</i>	12	<i>Tetramorium</i> (E)	2
<i>Temnothorax</i>	9	<i>Cryptopone</i>	1
<i>Crematogaster</i>	8	<i>Discothyrea</i>	1
<i>Myrmica</i>	8	<i>Forelius</i>	1
<i>Nylanderia</i>	6	<i>Linepithema</i> (E)	1
<i>Stenamma</i>	6	<i>Pachycondyla</i> (E)	1
<i>Dolichoderus</i>	4	<i>Paratrechina</i> (E)	1
<i>Hypoponera</i>	4	<i>Pogonomyrmex</i>	1
<i>Monomorium</i>	4	<i>Prenolepis</i>	1
<i>Neivamyrmex</i>	4	<i>Protomognathus</i>	1
<i>Proceratium</i>	4	<i>Strumigenys</i>	1
<i>Dorymyrmex</i>	3	<i>Technomyrmex</i> (E)	1
<i>Polyergus</i>	3	<i>Trachymyrmex</i>	1

TABLE 3. Number of ant species in the most diverse genera encountered in the different regions of North Carolina.

	Appalachian Mountains	Piedmont Plateau	Coastal Plain
<i>Aphaenogaster</i>	8	12	12
<i>Camponotus</i>	8	14	14
<i>Crematogaster</i>	4	8	7
<i>Dorymyrmex</i>	2	3	3
<i>Formica</i>	15	13	11
<i>Lasius</i>	10	10	7
<i>Myrmica</i>	7	5	1
<i>Nylanderia</i>	2	6	6
<i>Pheidole</i>	6	9	11
<i>Pyramica</i>	10	18	19
<i>Solenopsis</i>	4	6	12
<i>Stenamma</i>	5	5	3
<i>Temnothorax</i>	4	8	7

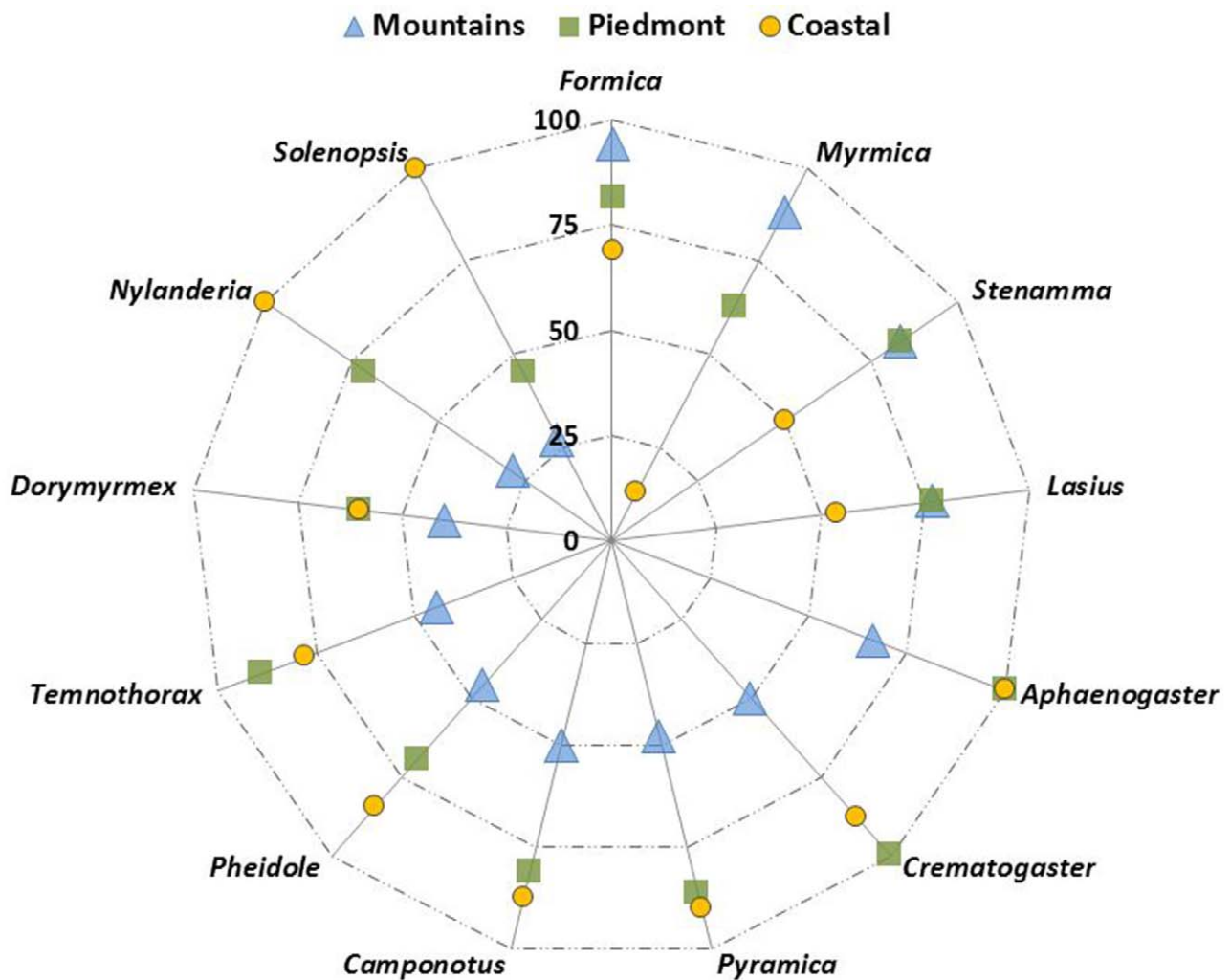


FIGURE 3. Percentage of species within each of the 13 most diverse genera found in each physiographic region of North Carolina. Note the predominance of the genera *Formica*, *Myrmica*, *Stenamma* and *Lasius* in the mountains. Blue triangles, green squares and yellow circles represent the percentage of species collected in the mountains, piedmont and coastal regions, respectively, of the total found in the state within each genus.

Tetramorium cf. *caespitum* (most likely *Tetramorium* sp. E; Steiner *et al.* 2008) is commonly found within urban habitats and has been continuously documented in North Carolina since 1932, when it was first recorded in Craven County. The Red Imported Fire Ant, *Solenopsis invicta*, was recorded in North Carolina in 1952 from Wake County. Records of this species from coastal counties in the southern part of the state date from the late 1960's to early 1970's (e.g. Carteret 1968; Brunswick 1974). The black imported fire ant, *Solenopsis richteri*, was first recorded in NC in 1962 (Carter 1962b). The Argentine ant, *Linepithema humile* was recorded for the first time in 1915 from New Hanover County (Carter 1962b). Finally, *Pachycondyla chinensis* was present in North Carolina by 1932 (Smith 1934b) and has since spread to most regions of North Carolina. *Pachycondyla chinensis* has been shown to have a severe negative impact on native ant species, even in areas of intact hardwood forest (Guénard and Dunn 2010). *Tetramorium bicarinatum* was collected for the first time in 1932, and new records were found in 1972 (as *Tetramorium guineense* in Nuhn and Wright 1979) and recently from Hyde County in 2011. *Hypoponera opaciceps* and *Pyramica membranifera* were collected for the first time in North Carolina from North Carolina State University's campus in Raleigh in 1972 (Nuhn and Wright 1979). These species are still present on the NCSU campus; *Pyramica membranifera* has been reported from new locations across the state as well. We report for the first time records of *Brachymyrmex patagonicus* in three counties of North Carolina; new records are expected with future surveys. On North Carolina State University campus, this species has been observed foraging on trees, possibly collecting honeydew from hemipteran insects.

In 1962, eight exotic species were reported in North Carolina by Carter (1962b): *Linepithema humile*, *Monomorium minimum*, *Pachycondyla chinensis*, *Paratrechina longicornis*, *Pheidole anastasioi*, *Solenopsis richteri*, *Tetramorium bicarinatum* and *Tetramorium caespitum*. Overall, our results double the number of introduced ant species, and we find it likely that other exotic species known from surrounding states, such as *Anergates atratulus* or *Nylanderia flavipes* could be discovered in North Carolina as both species are already present in Virginia (Table 4).

TABLE 4. List of ants not recorded in North Carolina but documented in surrounding states. References are within the table; numbers indicate studies as follows: 1—Wilson 1955, 2—Van Pelt and Gentry 1985, 3—Trager 1988, 4—Peck *et al.* 1998, 5—Ipser *et al.* 2004, 6—Graham *et al.* 2008, 7—Davies 2009, 8—Kjar 2009, 9—Fisher 2002, 10—MacGown 2012b, 11—Brown 1964, 12—Dubois 1986, 13—Trager 1984, 14—Umphrey 1996, 15—Wetterer 2011, 16—Deyrup and Cover 2009, 17—Francoeur 1974, 18—Baroni Urbani and De Andrade 2003, 19—Davis and Zigler 2012, 20—James Trager (pers. comm.).

Species name	Georgia	South Carolina	Tennessee	Virginia
<i>Anergates atratulus</i> (Exotic)	-	-	-	9
<i>Aphaenogaster miamiana</i>	5, 14	2	-	-
<i>Aphaenogaster umphreyi</i>	10	-	-	-
<i>Brachymyrmex musculus</i>	5	-	-	-
<i>Camponotus discolor</i>	10	10	-	-
<i>Camponotus hyatti</i>	-	-	9	-
<i>Camponotus sayi</i>	-	2	-	-
<i>Cardiocondyla minutior</i> (Exotic)	10	-	-	-
<i>Cardiocondyla obscurior</i> (Exotic)	10	-	-	-
<i>Crematogaster pinicola</i>	10	-	19	-
<i>Cyphomyrmex rimosus</i>	5	7	-	-
<i>Dorymyrmex bossutus</i>	3	-	-	-
<i>Forelius analis</i>	5	-	-	-
<i>Forelius mccooki</i>	10	7	-	-
<i>Forelius new species</i>	10	-	-	-
<i>Formica archboldi</i>	5	-	-	-
<i>Formica argentea</i>	-	7	-	4, 17
<i>Formica neogagtes</i>	-	-	20	-
<i>Lasius minutus</i>	-	-	-	1
<i>Lasius pubescens</i>	-	-	9	-
<i>Lasius subumbratus</i>	-	-	-	8
<i>Monomorium emarginatum</i>	-	-	-	12
<i>Myrmica emeryana</i>	-	-	-	8
<i>Myrmica</i> sp. (Undescribed)	5	-	-	-
<i>Nylanderia bourbonica</i>	10	13	-	-
<i>Nylanderia flavipes</i> (Exotic)	-	15	-	15
<i>Nylanderia phantasma</i>	10	-	-	-
<i>Nylanderia terricola</i>	-	7	13	-
<i>Odontomachus brunneus</i>	5	-	-	-
<i>Pheidole adrianoi</i>	5	-	-	-
<i>Pheidole lamia</i>	6	-	-	-
<i>Pheidole littoralis</i>	5	-	-	-

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TABLE 4. (continued)

Species name	Georgia	South Carolina	Tennessee	Virginia
<i>Pheidole obscurithorax</i> (Exotic)	10	-	-	-
<i>Proceratium chickasaw</i>	-	-	18	-
<i>Proceratium creek</i>	18	-	-	-
<i>Pyramica bunki</i>	5, 11	2	-	-
<i>Pyramica cloydi</i>	-	-	11	-
<i>Pyramica hyalina</i>	16	-	-	-
<i>Pyramica margaritae</i> (Exotic)	11, 16	-	-	-
<i>Pyramica metazites</i>	16	-	-	-
<i>Solenopsis abdita</i>	10	-	-	-
<i>Solenopsis globularia littoralis</i>	-	7	-	-
<i>Stenamma</i> sp1 (Undescribed)	5	-	-	-
<i>Stenamma</i> sp2 (Undescribed)	5	-	-	-
<i>Temnothorax nitens</i>	-	-	9	-
<i>Tetramorium lanuginosum</i> (Exotic)	10	10	-	-
<i>Tetramorium simillimum</i> (Exotic)	10	-	-	-
<i>Vollenhovia emeryi</i> (Exotic)	-	-	-	8

Comparison with surrounding regions. Based on the data currently available for native ant species, North Carolina is the most diverse state in the eastern United States (Table 5). While Florida hosts more total species, the number of *native* species in Florida is less than that in North Carolina (169 in FL as compared to 176 in NC). While this pattern might well change in the future with more intensive surveys, our results nonetheless highlight the great diversity of species living in North Carolina.

TABLE 5. Total number of species found within states, territories and regions in eastern North America. Number of exotic species is indicated in parentheses.

Region name	Total species number	References
North Carolina	192 (16)	This study
Georgia	181 (17)	This study
South Carolina	155 (17)	This study
Tennessee	136 (5)	This study
Virginia	110 (9)	This study
Alabama	166 (28)	MacGown 2011 (Antweb)
Arkansas	131 (9)	MacGown <i>et al.</i> 2011
Florida	221 (52)	Deyrup <i>et al.</i> 2011 (Antweb)
Louisiana	132 (20)	Dash and Hooper-Bùi 2008
Michigan	114 (2)	Wheeler <i>et al.</i> 1994*
Mississippi	185 (29)	MacGown 2012a (Antweb)
Missouri	147 (6)	Trager 2011 (Antweb)
New England	131 (13)	Ellison <i>et al.</i> 2012
Ohio	132 (3)	Ivanov 2011 (Antweb)
Quebec	109 (10)	Francoeur 2008



FIGURE 4. Photos of the species *Stigmatomma trigonignathum* taken in Cary, Wake Co. in January 2008, which, aside from these photos, has only been encountered once. Photo credit: B. Guénard.

The high ant diversity of North Carolina may well be a function of the state's southerly latitude and great variation in elevation, with elevations ranging from sea level to 2037 m (the highest and lowest points in the southeastern U.S.). At high elevations, plant communities are present today that were common at lower elevations during the late Pleistocene (21000-10000 years BP; Whitehead 1981) but which occur primarily much further north today (Shafale and Weakley 1990). The ant faunas associated with these plant communities are now restricted to higher elevations, such as those in North Carolina and higher latitudes (outside of North Carolina). This case is

well illustrated by the presence of a population of *Lasius pallitarius* near Mt Mitchell, far from the rest of its distribution that extends just across the American border south of Canada (Wilson 1955). Other species usually distributed further north and restricted to the Appalachian Mountains region of North Carolina include another *Lasius* species (*L. latipes*) and several species of the genera *Formica* (*F. exsectoides*, *F. neogagates*, *F. rubicunda* and *F. subaenescens*) and *Myrmica* (*M. fracticornis* and *M. incompleta*). In contrast, many species with more southerly distributions reach the northern limits of their ranges in North Carolina. This appears to be the case for *Aphaenogaster flemingi*, *A. floridana*, *Camponotus floridanus*, *C. socius*, *Hypoponera inexorata*, *Monomorium trageri*, *Nylanderia wojciki*, *Pheidole dentigula*, *P. floridana*, *P. metallescens*, *Ponera exotica*, *Pseudomyrmex ejectus*, *Ps. pallidus*, *Solenopsis geminata*, *S. pergandei*, *S. picta*, *S. tennesseensis*, *Stenamma foveolocephalum* and *Temnothorax bradleyi*. Thus the wide range of climatic conditions encountered in North Carolina has favored the establishment and survival of different ant communities in various regions of the state.

Endemic species. North Carolina hosts one of the rarest ant species in the world, *Stigmatomma trigonignathum*, described and known from a sole worker collected in 1948 (Brown 1949). A worker of this species was found in 2008 in Cary, Wake County and photographed. However it was misidentified in the field as *S. pallipes* and released. Pictures (Fig. 4) have subsequently allowed its identification and as such we are able to add a new record for this county, confirming the presence of what, at least until further populations are revealed, appears to be a species endemic to the Piedmont region of North Carolina.

Potential future discoveries. The list of ants present in North Carolina presented here is by no means exhaustive; we expect future surveys will reveal new state records of both native and introduced species. Almost 50 species have been found in surrounding states but not in North Carolina (Table 4). Nonetheless, we hope our work may be a useful starting point for discovering new records for the state of North Carolina. Finally, we note that undiscovered species, new to science, still await discovery in this state as indicated by the recent observation of a new social parasite in *Tapinoma* (Stephan Cover, pers. comm.). We hope that this publication serves as a framework that supports new discoveries in myrmecology.

List of species

Species followed by an asterisk indicate new additions for North Carolina from Carter 1962b. Species known from five counties or less and native to North Carolina are indicated as rarely collected. For the counties of North Carolina, the list of the abbreviations used is presented in Table 6. For the surrounding states of North Carolina, the following abbreviations are used: GA: Georgia; SC: South Carolina; TN: Tennessee; VA: Virginia.

AMBLYOPONINAE

Stigmatomma pallipes (Haldeman, 1844)

Distribution in North Carolina: All regions. Counties: AS, AV, BA, BL, CK, CS, CU, DD, DV, FR, GU, HA, JH, RA, RB, ST, WR, WY (material examined) and AA, BN, CA, CB, CR, CT, DU, HE, HW, IR, JA, MA, ME, MO, OR, RW, TR, UN, WK and YY (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Kjar 2009).

Stigmatomma trigonignathum Brown, 1949 (rarely collected species)

Distribution in North Carolina: Piedmont Plateau. Counties: CB and WK (material examined).

Distribution in surrounding states: Unknown for surrounding states

DOLICHODERINAE

Dolichoderus mariae Forel, 1885

Distribution in North Carolina: All regions. Counties: BA, CK, CU, MT, WK, WR (material examined) and AA, CT, DU, IR, JA, LI, MA, ME, MO, OR, SC (in literature).

Distribution in surrounding states: GA (Johnson 1989a, MacKay 1993), SC (Johnson 1989a, MacKay 1993), TN (Cole 1940) and VA (Laskis and Tschinkel 2008).

Dolichoderus plagiatus (Mayr, 1870) (rarely collected species)

Distribution in North Carolina: Western part of the state. Counties: JA, MA and TR (in literature).

Distribution in surrounding states: GA (Johnson 1989a), SC (Johnson 1989a), TN (Cole 1940) and VA (MacKay 1993).

Dolichoderus pustulatus Mayr, 1886

Distribution in North Carolina: All regions. Counties: BL, CU, DR, MR, NH, SU (material examined) and BN, CA, CT, IR, JA, MA, ME, MO, TR (in literature).

Distribution in surrounding states: GA (MacKay 1993), SC (Davies 2009) and VA (Emery 1894).

Dolichoderus taschenbergi (Mayr, 1866)

Distribution in North Carolina: All regions. Counties: BL, ON, VA, WK, WS (material examined) and CA, MA, OR (in literature).

Distribution in surrounding states: GA (MacKay 1993), SC (Johnson 1989a, MacKay 1993) and TN (Dennis 1938, Cole 1940)

Dorymyrmex bureni (Trager, 1988) *

Distribution in North Carolina: Eastern part of the state. Counties: AN, BA, BL, CO, CU, CT, DR, GR, JH, MO, NH, PS, RB, ST, WK and WY (material examined).

Distribution in surrounding states: GA (Trager 1988), SC (Trager 1988) and VA (Trager 1988).

Dorymyrmex grandulus (Forel, 1922) * (rarely collected species)

Distribution in North Carolina: All regions. Counties: BL, MO (material examined) and BU, DP (in literature).

Distribution in surrounding states: GA (Trager 1988) and SC (Trager 1988).

Dorymyrmex smithi Cole, 1936 * (status of *D. smithi* in eastern USA is considered doubtful by Trager [1988] and records could later be assigned to *D. medeis*, now considered a junior synonym of *D. smithi*).

Distribution in North Carolina: Southern part of the state. Counties: AN, BL, BR, CU, NH, SA (material examined) and BN, RB (in literature).

Distribution in surrounding states: GA (Trager 1988) and SC (Davies 2009).

Forelius pruinosus (Roger, 1963)

Distribution in North Carolina: All regions. Counties: BE, BL, CB, CK, CO, CU, DP, FR, WK (material examined) and AA, BN, CA, CH, CR, CT, DD, DU, GU, IR, JA, JH, LE, LI, LN, MA, ME, MO, NH, OR, RA, UN, WY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Peck *et al.* 1998).

Linepithema humile (Mayr, 1868) (EXOTIC)

Distribution in North Carolina: Central and eastern parts of the state. Counties: CU, ED, GS, ME, NH, OR, PI, WK and WY (material examined) and CT (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004) and SC (Davies 2009).

Tapinoma melanocephalum (Fabricius, 1783) (EXOTIC) *

Distribution in North Carolina: Piedmont Plateau (indoor species). County: WK (material examined).

Distribution in surrounding states: SC (Davies 2009).

***Tapinoma sessile* (Say, 1836)**

Distribution in North Carolina: All regions. Counties: AA, AL, AV, BE, BL, BR, BU, CB, CH, CO, CU, CV, DR, DP, GS, GU, HA, HE, HL, JH, MD, ON, RB, SO, VA, WK (material examined) and BN, CR, CT, DU, GH, HW, IR, JA, LN, MA, ME, MO, NH, OR, TR, UN, WY, YY (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

***Tapinoma* sp. A, new species (S. Cover, personal communication) * (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. County: OR.

Distribution in surrounding states: unknown

***Technomyrmex difficilis* Forel, 1892 (EXOTIC) ***

Distribution in North Carolina: Piedmont Plateau (indoor species). County: Durham (material examined).

Distribution in surrounding states: GA (MacGown 2012b) and SC (MacGown 2012b).

ECITONINAE

***Neivamyrmex carolinensis* (Emery, 1894)**

Distribution in North Carolina: All regions. Counties: BL, BR, CA, ST, WK (material examined) and BU, CB, CR, DP, GS, IR, JA, ME, ON, SA (in literature).

Distribution in surrounding states: GA (Snelling and Snelling 2007), SC (Snelling and Snelling 2007), TN (Dennis 1938, Snelling and Snelling 2007) and VA (Snelling and Snelling 2007).

***Neivamyrmex nigrescens* (Cresson, 1872)**

Distribution in North Carolina: Southern part of the Appalachian Mountains and Coastal Plain. Counties: BN, CR, CT, HE, JA and NH (in literature).

Distribution in surrounding states: GA (Snelling and Snelling 2007), SC (Van Pelt and Gentry 1985) and TN (Dennis 1938, Snelling and Snelling 2007).

***Neivamyrmex opacithorax* (Emery, 1894)**

Distribution in North Carolina: All regions. Counties: AE, BU, CL, DD, DU, GU, IR, MC, MT, PO, RA, RU, WL (material examined) and GS, ME, MO, ON (in literature).

Distribution in surrounding states: GA (Snelling and Snelling 2007), SC (Snelling and Snelling 2007), TN (Snelling and Snelling 2007) and VA (Snelling and Snelling 2007).

***Neivamyrmex texanus* Watkins, 1972 ***

Distribution in North Carolina: All regions. Counties: AN, MT, NH, OR, RA and WK (material examined) and MC (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Snelling and Snelling 2007) and VA (Snelling and Snelling 2007).

FORMICINAE

***Brachymyrmex depilis* Emery, 1893**

Distribution in North Carolina: All regions. Counties: AV, BL, CB, CU, ED, JH, NH, RB, WK, WR, WY (material examined) and BN, CR, CT, DU, HO, HW, MA, MO, TR (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

***Brachymyrmex patagonicus* Mayr, 1868 (EXOTIC) ***

Distribution in North Carolina: Southeastern part of the state. Counties: CU, NH and WK (material examined).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Davies 2009).

To our knowledge, the record of *B. patagonicus* in Wake County, North Carolina, represents the northern record known from its introduced range.

***Camponotus americanus* Mayr, 1862**

Distribution in North Carolina: All regions. Counties: BA, CH, CV, GS, GU, HA, JH, MT, RB, SO, ST, WK, WY (material examined) and BN, CA, DU, IR, JA, LI, MA, ME, MO, OR, RW, TR (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Wang *et al.* 2000).

***Camponotus caryae* (Fitch, 1855) * (rarely collected species)**

Distribution in North Carolina: Northeastern part of the state. Counties: CK and WK (material examined).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009) and TN (Dennis 1938, Cole 1940).

***Camponotus castaneus* (Latreille, 1802)**

Distribution in North Carolina: All regions. Counties: BL, CH, CK, CO, CR, CT, CU, CV, CW, DP, DV, ED, FO, FR, GU, HL, IR, JH, JO, ME, MO, MT, ON, OR, PE, PI, PM, PS, RB, RI, RW, SA, SC, ST, WK, WY (material examined) and NH (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Kjar 2009).

***Camponotus chromaiodes* Bolton, 1995**

Distribution in North Carolina: All regions. Counties: CK, CS, CT, ED, FR, GA, GH, GU, HA, HW, JH, NA, ON, PS, RB, RK, SA, ST, WK, WL, WR, WY (material examined) and BN, CR, DU, HE, IR, JA, LI, MA, ME, MO, OR, RW, TR (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

***Camponotus decipiens* Emery, 1893**

Distribution in North Carolina: Central and eastern part of the state. Counties: CH, DD, DP, ED, GA, GS, HL, ME, MO, MT, RU, WK (material examined) and CT, CV, RI (in literature).

Distribution in surrounding states: GA (Snelling 1988), SC (Davies 2009) and TN (Dennis 1938, Cole 1940).

***Camponotus floridanus* (Buckley, 1866) (rarely collected species)**

Distribution in North Carolina: Southern part of the state. Counties: BN, BR and NH (material examined).

Distribution in surrounding states: GA (Ipser *et al.* 2004) and SC (Davies 2009).

***Camponotus impressus* (Roger, 1863) * (rarely collected species)**

Distribution in North Carolina: Southeastern part of the state. Counties: CO (material examined) and CT (in literature).

Distribution in surrounding states: GA (Wheeler 1904b, Graham *et al.* 2008) and SC (Davies 2009).

***Camponotus mississippiensis* Smith, 1923 (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. Counties: WK (material examined) and DU, IR, ME (in literature).

Distribution in surrounding states: SC (MacGown 2012b), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Fisher 2002).

***Camponotus nearcticus* Emery, 1893**

Distribution in North Carolina: All regions. Counties: BL, BU, CH, CK, CO, CS, CT, CU, DD, DU, GA, GH, GU, HA, HF, HO, JH, MA, NH, OR, PE, RB, ST, SO, WK, WS, WY, YK (material examined) and BN, CA, HW, ME, MO (in literature).

Distribution in surrounding states: GA (Snelling 1988, Ipser *et al.* 2004), SC (Davies 2009), TN (Snelling 1988, Lessard *et al.* 2007) and VA (Kjar 2009).

***Camponotus obliquus* Smith, 1930 * (rarely collected species)**

Distribution in North Carolina: Eastern part of the state. Counties: BA, CT, ED, OR and WK (material examined).

Distribution in surrounding states: SC (MacGown 2012b).

***Camponotus pennsylvanicus* (DeGeer, 1773)**

Distribution in North Carolina: All regions. Counties: AL, AV, BA, BL, CB, CE, CH, CK, CO, CV, DD, DR, ED, GU, HA, HL, MO, MT, PE, PQ, RI, SA, SO, ST, SW, UN, WK, WT and YK (material examined) and BN, BU, CA, CR, CT, DU, HE, HO, HW, IR, JA, LN, MA, ME, OR, RW, TR (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

***Camponotus pylartes* Wheeler 1904**

Distribution in North Carolina: Central and eastern parts of the state. Counties: DD, DR, ME, WI (material examined) and BA, CT, WK (in literature).

Distribution in surrounding states: Not reported from any surrounding states.

***Camponotus snellingi* Bolton, 1995 ***

Distribution in North Carolina: All regions. Counties: BE, BL, CO, CT, JH, RB, TR, WK (material examined) and CU, GU (in literature).

Distribution in surrounding states: SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (personal collection).

***Camponotus socius* Roger, 1863**

Distribution in North Carolina: Southeastern part of the state. Counties: BR, CO, HO, MO, MT, NH, RI, RB, WK (material examined) and CT (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Van Pelt and Gentry 1985).

***Camponotus subbarbatus* Emery, 1893**

Distribution in North Carolina: All regions. Counties: CH, DU, GU, PR, WK, WY and YK (material examined) and BN, IR, ME, RW, TR (in literature).

Distribution in surrounding states: GA (Snelling 1988, Ipser *et al.* 2004), SC (Davies 2009), TN (Snelling 1988, Lessard *et al.* 2007) and VA (Kjar 2009).

***Formica aserva* Forel, 1901 ***

Distribution in North Carolina: No specific record, but very likely to occur in the Appalachian Mountains county of SW based on Cole (1940) record.

Distribution in surrounding states: Reported by Cole (1940) from the Great Smoky Mountains National Park just at the border of North Carolina and TN at the location known as Indian Gap.

***Formica biophilica* (Trager, 2007) ***

Distribution in North Carolina: All regions. Counties: AL, BL, BN, BR, BU, CH, CK, CR, CS, DP, FO, GU, GV, JH, JO, ME, NA, NH, OR, PM, WK and WR (material examined).

Distribution in surrounding states: GA (Trager 2007), SC (Trager 2007), TN (Trager 2007) and VA (personal collection).

***Formica difficilis* Emery, 1893**

Distribution in North Carolina: All regions. Counties: WK (material examined) and AA, BN, DU, NH, OR, UN (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Van Pelt and Gentry 1985) and TN the Great Smoky Mountain National Park (Cole 1940).

***Formica dolosa* Buren, 1944 ***

Distribution in North Carolina: Central and eastern parts of the state. Counties: BL, CO, CR, DU, OR, RB, ST, WK (material examined) and NA (in literature).

Distribution in surrounding states: GA (Trager 2007), SC (Trager 2007) and TN (Denis 1938, Cole 1940).

***Formica exsectoides* Forel, 1886 (rarely collected species)**

Distribution in North Carolina: Appalachian Mountains. Counties: AL, BN and MA (material examined) and CU (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), TN from the Great Smoky Mountain National Park (Cole 1940) and VA (Fisher 2002).

***Formica incerta* Buren, 1944 ***

Distribution in North Carolina: All regions. Counties: CU, DD, DU, NA, ST, WK (material examined) and HW (in literature).

Distribution in surrounding states: TN (Dennis 1938, Cole 1940) and VA (Trager 2007).

***Formica integra* Nylander, 1856**

Distribution in North Carolina: All regions. Counties: AA, AL, CB, CT, GH, HE, HL, JH, LN, NA, PI, SA, SO, WI, WR, WY, YK (material examined) and DP, JA, MA, ME, NH, TR (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Davies 2009) and TN (Martelli *et al.* 2004).

***Formica neogagates* Viereck, 1903**

Distribution in North Carolina: Appalachian Mountains. Counties: BN, CL, JA, MA, WT and YY (in literature).

Distribution in surrounding states: TN (Davis and Zigler 2012) and VA (Wang *et al.* 2001).

***Formica obscuriventris* Mayr, 1870 * (rarely collected species)**

Distribution in North Carolina: Western part of the state. Counties: AV, RW (material examined) and HW (in literature).

Distribution in surrounding states: GA (MacGown 2012b) and VA (Wang *et al.* 2000).

***Formica pallidefulva* Latreille, 1802**

Distribution in North Carolina: All regions. Counties: BL, CK, CO, DV, ED, GU, HA, JH, JO, NA, PE, PM, RB, ST, VA, WK, WL, WT, WY (material examined) and AA, BN, CA, CR, CT, DU, HW, IR, JA, LI, LN, MA, ME, MO, NH, OR, RW, TR, UN, YY (in literature).

Distribution in surrounding states: GA (Trager 2007), SC (Trager 2007), TN (Dennis 1938, Cole 1940) and VA (Trager 2007).

***Formica pergandei* Emery, 1893 * (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. Counties: CB and GU (material examined).

Distribution in surrounding states: TN (Davis and Zigler 2012) and VA (Buren 1968).

***Formica postoculata* Kennedy & Dennis, 1937 * (rarely collected species)**

Distribution in North Carolina: Coastal Plain. Counties: BR, NO and RB (material examined).

Distribution in surrounding states: Not known from surrounding states.

***Formica rubicunda* Emery, 1893**

Distribution in North Carolina: Appalachian Mountains. Counties: SW (material examined) and HE, HW, JA, MA, TR (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), TN (Dennis 1938, Cole 1940, Buren 1968) and VA (Buren 1968, Wang *et al.* 2000).

***Formica subaenescens* Emery, 1893 * (rarely collected species)**

Distribution in North Carolina: Appalachian Mountains. County: MI (in literature).

Distribution in surrounding states: TN (Dennis 1938).

***Formica subintegra* Wheeler, 1908**

Distribution in North Carolina: All regions. Counties: BL, OR, SO, ST (material examined) and DU, JA, MA, TR, WK (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Buren 1968), TN (Dennis 1938, Cole 1940, Buren 1968) and VA (Buren 1968).

***Formica subsericea* Say, 1836 ***

Distribution in North Carolina: All regions. Counties: AA, AL, AV, BA, BE, BL, BU, CA, CB, CH, CU, FR, GA, GU, HA, HE, HF, HO, JH, MD, NH, ON, OR, PM, RW, SA, SO, UN, WK, WY, YK (material examined) and BN, CL, CO, DU, GH, JA, HW, MA, MI, PO, PS, RB, ST, SW, TR, WT, YY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Francoeur 1974, Wang *et al.* 2001).

***Lasius alienus* (Foerster, 1850)**

Distribution in North Carolina: All regions. Counties: AA, BL, CH, CK, DP, DV, ED, GA, JH, MD, MT, NA, ST, WK, WT, WY (material examined) and AN, AV, BN, BR, CA, CB, CO, CR, CT, DD, DU, GH, GU, HA, HE, HO, HW, IR, JA, LI, LN, MA, MC, ME, MO, NH, OR, RA, SW, TR, UN (in literature).

Distribution in surrounding states: GA (Wilson 1955), SC (Davies 2009), TN (Dennis 1938, Wilson 1955) and VA (Kjar 2009).

***Lasius claviger* (Roger, 1862)**

Distribution in North Carolina: All regions. Counties: AS, CO, ST (material examined) and BN, CH, CR, DP, DU, GH, HE, IR, JA, MA, ME, MO, OR, TR, UN, WK (in literature).

Distribution in surrounding states: GA (Wing 1968), SC (Wing 1968), TN (Dennis 1938, Cole 1940, Wing 1968) and VA (Wing 1968).

***Lasius flavus* (Fabricius, 1782)**

Distribution in North Carolina: All regions. Counties: AV, HL, OR, ST, WK, WT (material examined) and CR, CT, DP, DU, HO, HW, IR, JA, MA, ME, MO, SA, TR (in literature).

Distribution in surrounding states: SC (Davies 2009) and TN (Cole 1940).

***Lasius interjectus* Mayr, 1866**

Distribution in North Carolina: All regions. Counties: GU, OR, ST (material examined) and CO, CR, CT, DU, IR, ME, MO, TR, UN, WK (in literature).

Distribution in surrounding states: GA (Wing 1968, Ipser *et al.* 2004), SC (Wing 1968, Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Wing 1968).

***Lasius latipes* (Walsh, 1863) (rarely collected species)**

Distribution in North Carolina: Appalachian Mountains. County: HW (in literature).

Distribution in surrounding states: SC (Wing 1968, Davies 2009) and TN (Wing 1968, Lessard *et al.* 2007).

Lasius murphyi Forel, 1901 (rarely collected species)

Distribution in North Carolina: Western part of the state. Counties: BU, CH, IR, WK and YY (in literature).

Distribution in surrounding states: GA (Wing 1968).

Lasius nearcticus Wheeler, 1906 (rarely collected species)

Distribution in North Carolina: Appalachian Mountains. Counties: JA, MA and TR (in literature).

Distribution in surrounding states: TN (Wilson 1955) and VA (Wang *et al.* 2000)

Lasius neoniger Emery, 1893

Distribution in North Carolina: All regions. Counties: AV, BA, BE, BL, CO, CU, CV, DR, ED, FR, GH, HL, HW, MC, MT, NA, PQ, RB, ST, WK, WR, WS (material examined) and AA, BN, CA, CB, CH, CR, CT, DD, DU, GS, GU, IR, JA, JH, LE, LI, LN, MA, ME, MO, NH, OR, RA, TR, WY, YY (in literature).

Distribution in surrounding states: GA (Wilson 1955), SC (Wilson 1955), TN (Dennis 1938, Cole 1940) and VA (Wilson 1955).

Lasius pallitarsis (Provancher, 1881) (rarely collected species)

Distribution in North Carolina: Appalachian Mountains. County: BN (in literature).

Distribution in surrounding states: Unknown from the surrounding states.

Lasius plumopilosus Buren, 1941 * (rarely collected species)

Distribution in North Carolina: Piedmont Plateau. County: RW (in literature).

Distribution in surrounding states: Unknown from the surrounding states.

Lasius speculiventris Emery, 1893 * (rarely collected species)

Distribution in North Carolina: Piedmont Plateau. County: WK (in literature).

Distribution in surrounding states: Unknown from the surrounding states.

Lasius subglaber Emery, 1893 (rarely collected species)

Distribution in North Carolina: Eastern part of the state. Counties: BL, WK (material examined) and CT, SA (in literature).

Distribution in surrounding states: GA (Wing 1968) and TN (Wing 1968).

Lasius umbratus (Nylander, 1846)

Distribution in North Carolina: All regions. Counties: AA, BL, CB, DD, GA, GU, HA, JH, MD, WK, WY (material examined) and BN, CH, CR, CT, DU, HW, HE, HO, IR, JA, LN, MA, ME, MO, NH, OR, TR, YY (in literature).

Distribution in surrounding states: GA (Wilson 1955), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Kjar 2009).

Nylanderia arenivaga (Wheeler, 1905) * (rarely collected species)

Distribution in North Carolina: Southeastern part of the state. Counties: CO, NH (material examined) and MO (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Van Pelt and Gentry 1985).

Nylanderia concinna (Trager, 1984) *

Distribution in North Carolina: Central and eastern parts of the state. Counties: CT, CU, DV, JH, NH, OR, ST, WK and WI (material examined).

Distribution in surrounding states: GA (MacGown 2012b) and SC (Davies 2009).

Nylanderia faisonensis (Forel, 1922) *

Distribution in North Carolina: Central and eastern parts of the state. Counties: BA, BL, CB, CS, CU, DR, DD, DU, FR, IR, ME, MT, NA, NH, OR, SC, ST, TY, WK and WY (material examined) and CT, DP, MO (in literature).

Distribution in surrounding states: GA (Trager 1984, Graham *et al.* 2008), SC (Davies 2009), TN (Trager 1984) and VA (Trager 1984, Kjar 2009).

***Nylanderia parvula* (Mayr, 1870)**

Distribution in North Carolina: All regions. Counties: BL, CA, CH, CO, CU, DD, GU, MR, ON, RA, TR, WK (material examined) and BN, CT, DU, IR, JA, LI, MA, ME, MO, NH, OR, WY (in literature).

Distribution in surrounding states: GA (Trager 1984, Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Cole 1940, Trager 1984) and VA (Trager 1984, Peck *et al.* 1998).

***Nylanderia vividula* (Nylander, 1846) ***

Distribution in North Carolina: All regions. Counties: BL, CT, DU, GU, JH, OR, TR and WK (material examined) and MO (in literature).

Distribution in surrounding states: GA (Trager 1984, Graham *et al.* 2008) and SC (Davies 2009).

***Nylanderia wojciki* (Trager, 1984) * (rarely collected species)**

Distribution in North Carolina: Coastal Plain. Counties: CU and NH (material examined).

Distribution in surrounding states: GA (Trager 1984) and SC (Davies 2009).

***Paratrechina longicornis* (Latreille, 1802) (EXOTIC)**

Distribution in North Carolina: Coastal Plain. County: NH (material examined).

Distribution in surrounding states: GA (Wetterer 2008), SC (MacGown 2012b) and VA (Wetterer 2008).

***Polyergus lucidus longicornis* Smith, M.R. 1947**

Distribution in North Carolina: Piedmont Plateau. Counties: DD, IR, LI, ME, MO, RA and WK (in literature).

Distribution in surrounding states: GA (Smith 1947) and SC (Smith 1947).

***Polyergus lucidus lucidus* Mayr, 1870 * (rarely collected species)**

Distribution in North Carolina: Western part of the state. Counties: GS and WT (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Smith 1947, Davies 2009), TN (Smith 1947) and VA (Smith 1947).

***Polyergus* sp., undescribed species (J. Trager, personal communication) ***

Distribution in North Carolina: Central and western part of the state. Counties: BU, CA, DU, GS, GV and WK.

Distribution in surrounding states: Unknown records.

***Prenolepis imparis* (Say, 1836)**

Distribution in North Carolina: All regions. Counties: AA, AE, BA, BR, BU, CB, CO, CU, CV, DD, DP, DR, ED, FR, GA, GU, HA, HO, JH, MD, MR, MT, NO, ON, SA, SC, ST, SW, WK, WY (material examined) and BN, CA, CR, CT, DU, HW, IR, JA, LI, LN, MA, ME, MO, OR, RW, TR, UN, YY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

MYRMICINAE

***Aphaenogaster ashmeadi* (Emery, 1895)**

Distribution in North Carolina: Southeastern part of the state. Counties: BL, CO, CU, DP, RB, WK, WY (material examined) and CR, CT, MO, NH (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004) and SC (Davies 2009).

***Aphaenogaster carolinensis* Wheeler, 1915**

Distribution in North Carolina: All regions. Counties: BL, CK, CO, CU, CV, DP, GU, GV, HA, JH, MO, NA, NH, RB, ST, WK, WY (material examined) and CA, CB, DU, FO, IR, LI, ME, MT, OR, PO, RW, UN (in literature).

Distribution in surrounding states: GA (Umphrey 1996), SC (Umphrey 1996), TN (Dennis 1938, Cole 1940) and VA (personal collection).

***Aphaenogaster flemingi* Smith, 1928 (rarely collected species)**

Distribution in North Carolina: Southeastern part of the state. Counties: BL (material examined) and CR, CT, MO, NH (in literature).

Distribution in surrounding states: SC (Davies 2009)

***Aphaenogaster floridana* Smith, 1941**

Distribution in North Carolina: Southeastern part of the state. Counties: BL, CO, CU, RB (material examined) and CT, MO (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Van Pelt and Gentry 1985).

***Aphaenogaster fulva* Roger, 1863**

Distribution in North Carolina: All regions. Counties: BL, CB, DD, DP, GS, GU, HA, JH, ON, RB, ST, SW, WK, WY (material examined) and BN, CA, CR, CT, DU, HO, HW, IR, LI, LN, MA, ME, MO, NH, OR, RW, TR, UN (in literature).

Distribution in surrounding states: GA (Umphrey 1996, Ipser *et al.* 2004), SC (Umphrey 1996), TN (Dennis 1938, Umphrey 1996, Lessard *et al.* 2007) and VA (Umphrey 1996, Kjar 2009).

***Aphaenogaster lamellidens* Mayr, 1886**

Distribution in North Carolina: All regions. Counties: AN, BU, CU, DD, GU, HA, HE, JH, MT, ST, WK, WY (material examined) and BN, CA, CB, CE, CR, CT, DU, HL, HW, IR, LI, LN, MA, ME, MO, NH, OR, RI, RW, UN (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Emery 1894).

***Aphaenogaster mariae* Forel, 1886**

Distribution in North Carolina: Central and eastern part of the state. Counties: OR, RB (material examined) and IR, ME, ON, WK (in literature).

Distribution in surrounding states: SC (Davies 2009).

***Aphaenogaster picea* (Wheeler, 1908)**

Distribution in North Carolina: All regions. Counties: AV, BL, BN, DU, DV, HE, HW, MD, MT, OR, RB, WK, WT (material examined) and JA, MA, SW, TR (in literature).

Distribution in surrounding states: GA (Umphrey 1996), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Fisher 2002).

***Aphaenogaster rudis* Enzmann, 1947**

Distribution in North Carolina: All regions. Counties: BL, CB, CH, CO, CU, DD, DV, GU, HL, MT, SA, SC, ST, WK, WT, WY (material examined) and AL, AS, BN, CT, CA, CR, DU, FO, HW, HE, IR, JA, LI, LN, MA, ME, MO, NH, OR, RW, SW, TR (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Umphrey 1996, Lessard *et al.* 2007) and VA (Umphrey 1996, Kjar 2009).

***Aphaenogaster tennesseensis* (Mayr, 1862)**

Distribution in North Carolina: All regions. Counties: CK, CO, DU, GU, MD, OR, RB (material examined) and BN, BU, MA, RW (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Kjar 2009).

***Aphaenogaster texana* Wheeler, 1915**

Distribution in North Carolina: All regions. Counties: BU, DD, GA, RB, WY (material examined) and CT, ST (in literature).

Distribution in surrounding states: SC (Van Pelt and Gentry 1985), TN in Great Smoky National Mountains Park (Cole 1940, Gibbs *et al.* 2003) and VA (Fisher 2002).

***Aphaenogaster treatae* Forel, 1886**

Distribution in North Carolina: All regions. Counties: AL, BL, CH, CU, HA, ON, PS, SC, ST (material examined) and AA, BN, BU, CA, CB, CR, CT, DD, DP, DU, GU, HE, HL, IR, JA, LI, MA, ME, MO, NH, OR, RA, RW, TR, UN and WK (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Peck *et al.* 1998).

***Crematogaster ashmeadi* Mayr, 1886**

Distribution in North Carolina: All regions. Counties: BA, BL, CK, CO, CU, DD, DV, ED, GU, HA, JA, PS, RB, ST, WK, WY, YY (material examined) and BN, CE, CR, CT, DU, IR, LI, LN, ME, MO, NH, OR, PO, RI, RW, TR, UN (in literature).

Distribution in surrounding states: GA (Johnson 1988, Graham *et al.* 2008), SC (Johnson 1988), TN (Lessard *et al.* 2007) and VA (Johnson 1988).

***Crematogaster atkinsoni* Wheeler, 1919**

Distribution in North Carolina: Central and eastern part of the state. Counties: CB, CH, CK, CU, DD, IR, TY (material examined) and CT, GS, HY, PM (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Davies 2009) and VA (personal collection).

***Crematogaster cerasi* Wheeler, G.C. & Wheeler, J. 1973**

Distribution in North Carolina: All regions. Counties: CH, CK, CO, JH, OR, WK, WT (material examined) and BN, CA, CT, HE, HW, JA, MA, TR (in literature).

Distribution in surrounding states: GA (Johnson 1988, Ipser *et al.* 2004), SC (Johnson 1988), TN (Dennis 1938) and VA (Kjar 2009).

***Crematogaster lineolata* (Say, 1836)**

Distribution in North Carolina: All regions. Counties: AS, BL, CO, CS, CU, CV, DD, GS, HA, MT, PM, RA, RW, SA, SC, ST, WK, WY, YK (material examined) and AA, BN, CA, CB, CH, CR, CT, DU, GU, HE, IR, JA, LE, LI, MA, ME, MO, NH, OR, PO, TR, UN (in literature).

Distribution in surrounding states: GA (Johnson 1988, Graham *et al.* 2008), SC (Johnson 1988, Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Wang *et al.* 2000).

***Crematogaster minutissima* (Mayr, 1870)**

Distribution in North Carolina: Central and eastern parts of the state. Counties: CR, CT, IR, LN, ME and MO (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009) and TN (Fisher 2002).

***Crematogaster missuriensis* Emery, 1895 * (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. Counties: CA and ME (material examined).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009) and TN (Dennis 1938, Cole 1940).

***Crematogaster pilosa* Emery, 1895**

Distribution in North Carolina: All regions. Counties: CH, CO, CT, CU, DP, DU, HA, HW, JH, MD, NH, ON, OR, PQ, PR, RB, RK, RU, ST, TR, WK (material examined) and IR, ME, MO, SW (in literature).

Distribution in surrounding states: GA (Johnson 1988), SC (Davies 2009), TN (Martelli *et al.* 2004, Lessard *et al.* 2007) and VA (Kjar 2009).

***Crematogaster vermiculata* Emery, 1895**

Distribution in North Carolina: Eastern part of the state. Counties: CO, JH, RB, WK (material examined) and CR, DU, LN, OR, RI, SC (in literature).

Distribution in surrounding states: TN (Davis and Zigler 2012).

***Monomorium minimum* (Buckley, 1867)**

Distribution in North Carolina: All regions. Counties: AL, BE, BL, CA, CK, CO, DP, DV, ED, GV, JH, PE, PS, ST, WK, WY (material examined) and AA, BN, BU, CE, CR, CT, CY, DU, GU, IR, JA, LE, MA, ME, MO, NH, OR, RU, UN (in literature).

Distribution in surrounding states: GA (Dubois 1986), SC (Davies 2009), TN (Dennis 1938, Dubois 1986) and VA (Dubois 1986).

***Monomorium pharaonis* (Linnaeus, 1758) (EXOTIC)**

Distribution in North Carolina: All regions (indoor species). Counties: CT, ED, NH, WK (material examined) and DU, HW, PO (in literature).

Distribution in surrounding states: GA (Wetterer 2010a), SC (Davies 2009), TN (Dennis 1938) and VA (Wetterer 2010a).

***Monomorium trageri* DuBois, 1986 * (rarely collected species)**

Distribution in North Carolina: Coastal Plain. County: ON (in literature).

Distribution in surrounding states: Unknown from surrounding states.

***Monomorium viride* Brown, 1943 * (rarely collected species)**

Distribution in North Carolina: Central and eastern part of the state. Counties: CA, CO, WK (material examined) and BA (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008)

***Myrmecina americana* Emery, 1895**

Distribution in North Carolina: All regions. Counties: AE, BA, BL, BU, CH, CK, CS, CU, DD, DR, DV, GS, GU, HA, HL, JH, MD, MR, NA, RA, RB, SA, SC, ST, VA, WK, WT, WY, YY (material examined) and BN, CA, CB, CR, CT, DU, HW, HE, HO, IR, JA, LI, LN, MA, ME, MO, NH, OR, RW, SW, TR, UN (in literature).

Distribution in surrounding states: GA (Brown 1967, Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

***Myrmecina* sp. A, undescribed species (S. Cover, personal communication) * (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. County: DU.

Distribution in surrounding states: Unknown from surrounding states.

***Myrmica americana* Weber, 1939**

Distribution in North Carolina: Western part of the state. Counties: TR, YK (material examined) and BN, GU, JA, MA (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009) and VA (Peck *et al.* 1998).

***Myrmica fracticornis* Forel, 1901 (rarely collected species)**

Distribution in North Carolina: Appalachian Mountains. Counties: AV and YY (in literature).

Distribution in surrounding states: TN (Dennis 1938, Cole 1940).

***Myrmica incompleta* Provancher, 1881 (rarely collected species)**

Distribution in North Carolina: Appalachian Mountains. County: BN (in literature).

Distribution in surrounding states: TN (Denis 1938).

***Myrmica latifrons* Stårcke, 1927**

Distribution in North Carolina: Western part of the state. Counties: AL, AV, BN, WT (material examined) and DU, HW, JA, MA, SW, TR, YY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and TN (Lessard *et al.* 2007, Davis and Zigler 2012).

***Myrmica pinetorum* Wheeler, 1905**

Distribution in North Carolina: Western part of the state. Counties: WT (material examined) and BN, DU, HE, IR, JA, MA, ME, MO, OR, TR, YY (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Francoeur 2007), TN (Dennis 1938, Francoeur 2007, Lessard *et al.* 2007) and VA (Wang *et al.* 2000, Francoeur 2007).

***Myrmica punctiventris* Roger, 1863**

Distribution in North Carolina: All regions. Counties: AL, AV, BL, GU, HA, MD, NA, WK, WT, WY, YY (material examined) and BN, CA, CR, DU, HO, IR, JA, MA, ME, MO, OR, SW, TR (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004, Francoeur 2007), SC (Davies 2009), TN (Francoeur 2007, Lessard *et al.* 2007) and VA (Francoeur 2007, Kjar 2009).

***Myrmica* sp. new species (rarely collected species)**

Distribution in North Carolina: Coastal Plains. County: MD (material examined).

Distribution in surrounding states: Unknown from surrounding states.

***Myrmica spatulata* Smith M.R., 1930 * (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. County: DU (material examined).

Distribution in surrounding states: GA (Ipser *et al.* 2004), TN (Davis and Zigler 2012) and VA (Fisher 2002).

***Pheidole anastasii* Emery, 1896 (EXOTIC)**

Distribution in North Carolina: Piedmont Plateau. County: FO (material examined).

Distribution in surrounding states: Unknown from surrounding states.

***Pheidole bicarinata* Mayr, 1870**

Distribution in North Carolina: All regions. Counties: BL, CK, PE, RB, SO, ST, WK (material examined) and AA, AN, BN, BR, BU, CA, CB, CE, CH, CR, CT, DD, DP, DU, GS, GU, HE, IR, JA, JH, LE, LI, LN, MA, ME, MO, NH, OR, RA, RU, SC, TR, WY, YY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Peck *et al.* 1998).

***Pheidole crassicornis* Emery, 1894**

Distribution in North Carolina: All regions. Counties: ST (material examined) and BU, CB, DP, GS, IR, JA, ME, MO, UN (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009) and TN (Dennis 1938, Cole 1940).

***Pheidole davisi* Wheeler, 1905 (rarely collected species)**

Distribution in North Carolina: Coastal Plain. Counties: BL, CO, WY (material examined) and CT (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Davies 2009).

***Pheidole dentata* Mayr, 1886**

Distribution in North Carolina: All regions. Counties: AA, BA, BL, CH, CK, CO, CU, DD, DP, HA, JH, MR, ON, RB, ST, TY, WK (material examined) and CA, CR, CT, DU, IR, JA, ME, MO, NH, OR, RU, UN, WY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Cole 1940) and VA (Peck *et al.* 1998).

***Pheidole dentigula* Smith M.R., 1927**

Distribution in North Carolina: Eastern part of the state. Counties: BA, BL, DP, HA, JH, OR, PM, RB, SA, WY (material examined) and CR, CU, CT, DR, LN, MR, MO, NH (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Wilson 2003) and TN (Cole 1940)

***Pheidole floridana* Emery, 1895 (rarely collected species)**

Distribution in North Carolina: Coastal Plain. Counties: BR and NH (in literature).

Distribution in surrounding states: GA (MacGown 2012b).

***Pheidole metallescens* Emery, 1895 (rarely collected species)**

Distribution in North Carolina: Eastern part of the state. Counties: CT, DU, MD, MO and NH (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Davies 2009).

***Pheidole moerens* Wheeler, 1908 (EXOTIC) ***

Distribution in North Carolina: Piedmont Plateau (indoor species). County: WK (material examined).

Distribution in surrounding states: Unknown from surrounding states.

***Pheidole morrissi* Forel, 1886**

Distribution in North Carolina: All regions. Counties: AE, BA, BL, BR, CU, DR, ED, GR, ON, RI, RB, WK (material examined) and AA, BN, BU, CA, CB, CH, CO, CR, CT, DP, DU, GU, IR, JA, JH, LE, LI, LN, MA, ME, MO, NH, OR, TR, UN, WY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009) and TN (Dennis 1938, Cole 1940).

***Pheidole pilifera* (Roger, 1863)**

Distribution in North Carolina: Piedmont Plateau. Counties: JH (material examined) and WK (in literature).

Distribution in surrounding states: GA (Wilson 2003, Graham *et al.* 2008), SC (Van Pelt and Gentry 1985) and Forel (1901).

***Pheidole tetra* Creighton, 1950 * (rarely collected species)**

Distribution in North Carolina: Coastal Plains. County: CU (material examined).

Distribution in surrounding states: Unknown from surrounding states.

***Pheidole tysoni* Forel, 1901**

Distribution in North Carolina: All regions. Counties: BL, GU, JH, NH, ON, ST, WK, WY (material examined) and AA, BN, CA, CT, DU, HE, IR, JA, MA, ME, MO, OR, RW, YY (in literature).

Distribution in surrounding states: GA (Wilson 2003, Ipser *et al.* 2004), SC (Davies 2009) and TN (Dennis 1938, Cole 1940, Wilson 2003).

***Pogonomyrmex badius* (Latreille, 1802)**

Distribution in North Carolina: Southeastern part of the state. Counties: BR, MT, PE, PI, PM, SA, SC, WY (material examined) and BL, CR, CT, CU, DP, HA, LN, MO, NH, RB, RI (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Davies 2009).

Protomognathus americanus (Emery, 1895) (rarely collected species)

Distribution in North Carolina: Western and central parts of the state. Counties: WK (material examined) and BN, ME (in literature).

Distribution in surrounding states: VA (Smith 1939).

Pyramica abdita Wesson L.G. & Wesson R.G., 1939 * (rarely collected species)

Distribution in North Carolina: Piedmont Plateau. County: OR (material examined).

Distribution in surrounding states: GA (Deyrup and Cover 2009), TN (Deyrup and Cover 2009) and VA (Deyrup and Cover 2009).

Pyramica angulata (Smith M.R., 1931) * (rarely collected species)

Distribution in North Carolina: Eastern part of the state. Counties: CT and WK (material examined).

Distribution in surrounding states: GA (Deyrup and Cover 2009) and SC (Deyrup and Cover 2009).

Pyramica archboldi Deyrup & Cover, 1998 * (rarely collected species)

Distribution in North Carolina: Eastern part of the state. Counties: WK and WY (material examined).

Distribution in surrounding states: Unknown from surrounding states.

Pyramica bimarginata (Wesson & Wesson, 1939) (rarely collected species)

Distribution in North Carolina: Coastal Plain. County: MR (in literature).

Distribution in surrounding states: Unknown from surrounding states.

Pyramica carolinensis (Brown, 1964) (rarely collected species)

Distribution in North Carolina: Piedmont Plateau. Counties: OR (material examined) and UN (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004) and SC (Brown 1964).

Pyramica clypeata (Roger, 1863)

Distribution in North Carolina: All regions. Counties: CB, OR (material examined) and CA, CT, CU, DP, DU, GH, HE, HO, IR, JA, MR, ME, WK (in literature).

Distribution in surrounding states: GA (Deyrup and Cover 2009), SC (Davies 2009), TN (Dennis 1938, Brown 1964) and VA (Smith 1955a, Deyrup and Cover 2009).

Pyramica creightoni (Smith M.R., 1931) (rarely collected species)

Distribution in North Carolina: Eastern part of the state. Counties: BL (material examined) and CT, MO and OR (in literature).

Distribution in surrounding states: GA (Brown 1964), SC (Van Pelt and Gentry 1985), TN (Dennis 1938, Cole 1940, Brown 1964) and VA (Deyrup and Cover 2009).

Pyramica dietrichi (Smith M.R., 1931) (rarely collected species)

Distribution in North Carolina: Central and eastern part of the state. Counties: ME (material examined) and CR, CT, MO (in literature).

Distribution in surrounding states: GA (Brown 1964, Deyrup and Cover 2009), SC (Van Pelt and Gentry 1985) and TN (Dennis 1938, Wilson 1954, Deyrup and Cover 2009).

Pyramica filirrhina (Brown, 1950) (rarely collected species)

Distribution in North Carolina: Appalachian Mountains and Coastal Plain. Counties: BU, MR and PO (in literature).

Distribution in surrounding states: Unknown from surrounding states.

Pyramica laevinasis (Smith M.R., 1931)

Distribution in North Carolina: All regions. Counties: BN, CA, DU, HE, IR, JA, MA, MC, ME, NH and TR (in literature).

Distribution in surrounding states: GA (Deyrup and Cover 2009), TN (Brown 1953, Deyrup and Cover 2009) and VA (Brown 1953, Deyrup and Cover 2009).

***Pyramica membranifera* (Emery, 1869) (EXOTIC) ***

Distribution in North Carolina: Eastern part of the state. Counties: CU and WK (material examined).

Distribution in surrounding states: GA (Graham *et al.* 2008, Wetterer 2010b), SC (Van Pelt and Gentry 1985, Wetterer 2010b), TN (Toenisson *et al.* 2012) and VA (Wetterer 2010b).

***Pyramica missouriensis* (Smith M.R., 1931)**

Distribution in North Carolina: All regions. Counties: CR, DP, DU, HO, IR, JA, MA, ME, MO, OR (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Deyrup and Cover 2009), TN (Wilson 1954) and VA (as *sculpturata* in Smith 1931, Deyrup and Cover 2009).

***Pyramica ohioensis* (Kennedy & Schramm, 1933)**

Distribution in North Carolina: All regions. Counties: CB, CK, DD, GU, HA, MO, WK (material examined) and BN, CR, CS, CT, CU, DP, DU, HO, IR, JA, LN, MA, ME, OR, RW, UN (in literature).

Distribution in surrounding states: GA (Brown 1964), TN (Brown 1953, Lessard *et al.* 2007) and VA (Brown 1953, Kjar 2009).

***Pyramica ornata* (Mayr, 1887)**

Distribution in North Carolina: All regions. Counties: BL, CB, CK, DD, GA, HA, JH, RB, WK, WY (material examined) and BN, BR, CA, CR, CS, CT, CU, DU, GS, IR, JA, LN, MA, ME, MO, NH, OR, RW, TR, UN (in literature).

Distribution in surrounding states: GA (Brown 1953, Ipser *et al.* 2004), SC (Brown 1964, Davies 2009), TN (Brown 1964) and VA (Deyrup and Cover 2009).

***Pyramica pergandei* (Emery, 1895)**

Distribution in North Carolina: All regions. Counties: CA, CR, CT, DU, HO, IR, JA, LN, MA, ME, OR, TR, UN and WK (in literature).

Distribution in surrounding states: GA (MacGown 2012b), TN (Brown 1953, Gibbs *et al.* 2003, Deyrup and Cover 2009) and VA (Smith 1931, Brown 1953).

***Pyramica pilinasis* (Forel, 1901)**

Distribution in North Carolina: All regions. Counties: CR, CT, LN, MA, MO, MR, NH, RW, UN and WK (in literature).

Distribution in surrounding states: GA (Deyrup and Cover 2009), TN (Brown 1964, Deyrup and Cover 2009) and VA (Forel 1901, Deyrup and Cover 2009).

***Pyramica pulchella* (Brown, 1953)**

Distribution in North Carolina: Central and eastern parts of the state. Counties: DD, DP, IR, MO, OR (material examined) and CT, DU, ME, RW (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Van Pelt and Gentry 1985), TN (Denis 1938, Deyrup and Cover 2009) and VA (Deyrup and Cover 2009).

***Pyramica reflexa* (rarely collected species)**

Distribution in North Carolina: Coastal Plain. Counties: CU and ED (in literature).

Distribution in surrounding states: GA (Deyrup and Cover 2009), TN (Brown 1953, Deyrup and Cover 2009).

***Pyramica rostrata* (Emery, 1895)**

Distribution in North Carolina: Central and eastern parts of the state. Counties: BL, CB, CK, GS, GU, HA, JH, MD, WK, WY (material examined) and CA, CR, CT, DU, HO, IR, ME, MO, NH, OR (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004, Deyrup and Cover 2009), SC (Deyrup and Cover 2009), TN (Dennis 1938, Lessard *et al.* 2007, Deyrup and Cover 2009) and VA (Deyrup and Cover 2009, Kjar 2009).

***Pyramica talpa* (Weber, 1934)**

Distribution in North Carolina: Central and eastern parts of the state. Counties: BN, CU, DU, JA, ME, MO, MR and OR (in literature).

Distribution in surrounding states: GA (Deyrup and Cover 2009), SC (Van Pelt and Gentry 1985) and TN (Brown 1953, Deyrup and Cover 2009).

***Pyramica wrayi* (Brown, 1950) (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. Counties: WK (material examined) and CU (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004).

***Solenopsis carolinensis* Forel, 1901 (rarely collected species)**

Distribution in North Carolina: Coastal Plain. County: DP (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Davies 2009), TN (Gonzalez 2001) and VA (Gonzalez 2001).

***Solenopsis geminata* (Fabricius, 1804) ***

Distribution in North Carolina: Coastal Plain. County: HO (material examined).

Distribution in surrounding states: GA (Trager 1991, Ipser *et al.* 2004) and SC (Davies 2009).

The status of this species regarding its origin is still uncertain. Here we consider *S. geminata* as native but strong suspicion on a possible introduction also exist (Trager 1991). Our decision here should not be perceived as definitive.

***Solenopsis globularia* (Smith, F. 1858) (rarely collected species)**

Distribution in North Carolina: Coastal Plain. Counties: BR and CR (in literature).

Distribution in surrounding states: SC (Davies 2009).

***Solenopsis invicta* Buren, 1972 (EXOTIC) ***

Distribution in North Carolina: All regions. Counties: BL, CO, CU, DU, GV, JH, NH, OR, WK (material examined) and AA, AN, BA, BE, BN, BR, BU, CA, CB, CD, CE, CH, CK, CR, CT, CV, CW, CY, DR, DD, DP, DV, ED, FO, FR, GA, GH, GR, GS, GU, HA, HE, HL, HO, HW, HY, IR, JA, JO, LE, LN, LI, MA, MR, MC, ME, MT, MO, NA, NO, ON, PM, PS, PE, PQ, PI, PO, RA, RI, RB, RW, RU, SA, SC, ST, SW, TR, TY, UN, VA, WS, WY, WI (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Trager 1991, Davies 2009), TN (Oliver *et al.* 2009) and VA (personal collection).

***Solenopsis molesta* (Say, 1836)**

Distribution in North Carolina: All regions. Counties: BL, CO, CU, DP, FO, FR, GU, HA, HY, JH, ON, RB, ST, WK (material examined) and AN, BN, CA, CR, CT, DU, GS, HE, IR, JA, LI, ME, MO, OR, UN, WY (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

***Solenopsis pergandei* Forel, 1901 (rarely collected species)**

Distribution in North Carolina: Coastal Plain. County: DP (in literature).

Distribution in surrounding states: GA (MacGown 2012b) and SC (Davies 2009).

***Solenopsis picta* Emery, 1895 (rarely collected species)**

Distribution in North Carolina: Southern part of the state. Counties: HE (material examined) and CT (in literature).

Distribution in surrounding states: GA (MacGown 2012b) and SC (Davies 2009).

***Solenopsis richteri* Forel 1909 (Exotic)**

Distribution in North Carolina: All regions. Counties: AA, BE, BR, CD, CE, CK, CR, CT, CW, CY, DD, DU, ED, FR, GA, GU, GV, HF, HL, ME, MR, NA, NO, ON, OR, PM, PQ, PS, RA, RB, RW, VA and WK (in literature).

Distribution in surrounding states: TN (Oliver *et al.* 2009).

***Solenopsis tennesseensis* Smith M.R., 1951 ***

Distribution in North Carolina: Central and eastern parts of the state. Counties: BA, ME, RB, RW and WY (material examined).

Distribution in surrounding states: GA (MacGown 2012b) and TN (Gonzalez 2001).

***Solenopsis texana* Emery, 1895**

Distribution in North Carolina: Southern part of the state. Counties: BN, CR, CT, DP, JA, LN, MA, MO, NH and TR (in literature).

Distribution in surrounding states: SC (Van Pelt and Gentry 1985), TN (Gonzalez 2001) and VA (Peck *et al.* 1998).

***Solenopsis trunctorum* Forel, 1901 (rarely collected species)**

Distribution in North Carolina: Coastal Plain. Counties: CT (material examined) and DP (in literature).

Distribution in surrounding states: unknown from surrounding states.

***Solenopsis xyloni* McCook, 1879 (rarely collected species)**

Distribution in North Carolina: Southern part of the state. Counties: AN and CU (material examined).

Distribution in surrounding states: GA (Trager 1991), SC (Trager 1991, Davies 2009) and TN (Trager 1991).

***Stenamma brevicorne* (Mayr, 1866) ***

Distribution in North Carolina: All regions. Counties: AV, CR, MR, OR, RB, ST, WK, WT (material examined) and BN, HW (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Lessard *et al.* 2007) and VA (Smith 1957, Kjar 2009).

***Stenamma diecki* Emery, 1895**

Distribution in North Carolina: Appalachian Mountains. Counties: AV (material examined) and BN, HE, HW, JA, MA, SW, TR (in literature).

Distribution in surrounding states: GA (Smith 1957, Ipser *et al.* 2004), TN (Dennis 1938, Smith 1957, Lessard *et al.* 2007) and VA (Smith 1957).

***Stenamma foveolocephalum* Smith M.R., 1930 (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. County: RI (in literature). Species described as *Stenamma carolinense* by Smith (1951) is now considered a junior synonym of *S. foveolocaphalum* (Bolton 2011).

Distribution in surrounding states: Unknown from surrounding states.

***Stenamma impar* Forel, 1901 ***

Distribution in North Carolina: All regions. Counties: CR, GU, OR, SA and TR (material examined) and BN, HW (in literature).

Distribution in surrounding states: GA (Smith 1957, Ipser *et al.* 2004), TN (Lessard *et al.* 2007) and VA (Smith 1957, Kjar 2009).

***Stenamamma meridionale* Smith M.R., 1957**

Distribution in North Carolina: All regions. Counties: AV, BA, CB, CU, CV, DD, GS, YY (material examined) and CR, DU, HW, IR, ME, MO, OR, RW, SW, WK (in literature).

Distribution in surrounding states: GA (Smith 1957), SC (Smith 1957), TN (Smith 1957, Lessard *et al.* 2007) and VA (Smith 1957).

***Stenamamma schmittii* Wheeler, 1903**

Distribution in North Carolina: Western part of the state. Counties: AV, WT (material examined) and BN, DU, HW, JA, MA, SW, TR, YY (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Smith 1957, Lessard *et al.* 2007) and VA (Smith 1957).

***Strumigenys louisianae* Roger, 1863**

Distribution in North Carolina: Central and eastern parts of the state. Counties: BL, CH, CK, CU, DD, DP, DR, HA, JH, NO, OR, PM, RB, SA, ST, WK, WY (material examined) and CR, CT, DU, IR, ME, MO, NA, NH, SC, UN (in literature).

Distribution in surrounding states: GA (Brown 1953, Deyrup and Cover 2009), SC (Davies 2009) and TN (Dennis 1938, Brown 1953, Deyrup and Cover 2009).

***Temnothorax bradleyi* (Wheeler, 1913) (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. Counties: MO and WK (material examined).

Distribution in surrounding states: GA (Wilson 1952, Deyrup and Cover 2004).

***Temnothorax curvispinosus* (Mayr, 1866)**

Distribution in North Carolina: All regions. Counties: AS, BL, BU, CH, CK, CU, DD, DV, DP, GU, GV, HA, JH, MD, ME, MR, NH, RA, RB, SC, ST, WK, WY (material examined) and BN, CA, CB, CR, CT, DU, GS, HE, HO, IR, JA, LN, MA, MO, OR, RW, TR, UN (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Davies 2009), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Kjar 2009).

***Temnothorax longispinosus* (Roger, 1863)**

Distribution in North Carolina: All regions. Counties: GU, SW, TR, WK (material examined) and AV, BN, CR, HW, JA, MA, OR (in literature).

Distribution in surrounding states: GA (MacGown 2012b), TN (Dennis 1938, Lessard *et al.* 2007) and VA (Wang *et al.* 2000).

***Temnothorax minutissimus* (Smith M.R., 1942) * (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. County: OR (material examined).

Distribution in surrounding states: Unknown from surrounding states.

***Temnothorax pergandei* (Emery, 1895)**

Distribution in North Carolina: All regions. Counties: BL, CO, CU, GU, HA, MR, ON, RB, ST, WK, WY (material examined) and BN, BU, CA, CT, DP, DU, HE, IR, JA, LE, MA, ME, MO, NH, OR, PE, TR, UN (in literature).

Distribution in surrounding states: GA (MacKay 1993b), SC (MacKay 1993b), TN (Dennis 1938, Cole 1940) and VA (MacKay 1993b).

***Temnothorax schaumii* (Roger, 1863)**

Distribution in North Carolina: Central and eastern parts of the state. Counties: OR, RB, WK (material examined) and CT, ED, IR, ME, MO, RI, RW (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (Cole 1940, Fisher 2002) and VA (Wang *et al.* 2000).

Temnothorax smithi (Baroni Urbani, 1978) (*rarely collected species*)

Distribution in North Carolina: Coastal Plain. County: NH (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004) and TN (Wilson 1952).

Temnothorax texanus (Wheeler, 1903)

Distribution in North Carolina: All regions. Counties: BL, SW, WK (material examined) and CB, CT, DU, MO, NH, OR, SU, TR, WY (in literature).

Distribution in surrounding states: GA (Graham *et al.* 2008) and SC (Van Pelt and Gentry 1985).

Temnothorax tuscaloosae (Wilson, 1951)

Distribution in North Carolina: Eastern part of the state. Counties: GA, ST, WK and WY (material examined) and CR, DU, LN (in literature).

Distribution in surrounding states: TN (Tim Linksvayer, personal communication) and VA (personal collection).

Tetramorium bicarinatum (Nylander, 1846) (EXOTIC)

Distribution in North Carolina: Western part of the state. Counties: CO, HY, NH and WK (material examined).

Distribution in surrounding states: GA (MacGown 2012b) and SC (MacGown 2012b).

Tetramorium cf. caespitum (Linnaeus, 1758) (EXOTIC)

Distribution in North Carolina: All regions. Counties: BA, CA, CT, DU, GS, JH, ME, WK, WT (material examined) and BN, CR, GU (in literature).

Distribution in surrounding states: SC (Davies 2009), TN (Emery 1894) and VA (Wang *et al.* 2000).

Trachymyrmex septentrionalis (McCook, 1881)

Distribution in North Carolina: All regions. Counties: BL, CU, GA, JH, NH, RI, ST, WK, WY (material examined) and BR, BN, CR, CT, DR, IR, MA, ME, MO, OR, TR, UN (in literature).

Distribution in surrounding states: GA (Rabeling *et al.* 2007), SC (Rabeling *et al.* 2007), TN (Dennis 1938, Rabeling *et al.* 2007) and VA (Rabeling *et al.* 2007).

PONERINAE

Cryptopone gilva (Roger, 1863)

Distribution in North Carolina: Central and eastern parts of the state. Counties: ME, OR, WK (material examined) and CB, CR, DD, MO (in literature).

Distribution in surrounding states: GA (MacGown 2012b), SC (Van Pelt and Gentry 1985) and TN (Smith 1934b, Dennis 1938, Lessard *et al.* 2007).

Hypoponera inexorata (Wheeler, 1903) * (*rarely collected species*)

Distribution in North Carolina: Piedmont Plateau. County: HA (material examined).

Distribution in surrounding states: GA (Graham *et al.* 2008), SC (Smith 1936) and TN (Davis and Zigler 2012).

Hypoponera opaciceps (mayr, 1887) (EXOTIC) *

Distribution in North Carolina: Piedmont Plateau. County: WK (material examined).

Distribution in surrounding states: GA (Smith 1936, Ipser *et al.* 2004) and SC (Smith 1936, Davies 2009).

Hypoponera opacior (Forel, 1893)

Distribution in North Carolina: All regions. Counties: BA, BL, CA, CK, CO, CU, DD, DR, GA, GS, HA, HO, IR, JA, JH, LN, MA, MD, ME, MO, NH, OR, PE, RB, ST, WK, WY (material examined) and BN, CB, CR, CT, DP, DU, UN (in literature).

Distribution in surrounding states: GA (Smith 1936, Ipser *et al.* 2004), SC (Smith 1936, Davies 2009), TN (Smith 1936, Dennis 1938, Cole 1940) and VA (personal collection).

***Hypoconera punctatissima* (Roger, 1859) (EXOTIC) ***

Distribution in North Carolina: Piedmont Plateau (Indoor species). County: WK (material examined).

Distribution in surrounding states: SC (Davies 2009).

***Pachycondyla chinensis* (Emery, 1895) (EXOTIC)**

Distribution in North Carolina: All regions. Counties: BN, CB, CD, CR, CT, CU, DD, DP, DR, DU, DV, GS, GU, HO, IR, JO, MA, MC, ME, NH, OR, , RU, RW ST, UN, WK, WY (material examined) and MO, PS, WS (in literature).

Distribution in surrounding states: GA (Ipser *et al.* 2004), SC (Davies 2009), TN (personal collection) and VA (Smith 1934b).

***Ponera exotica* Smith M.R., 1962**

Distribution in North Carolina: Central and eastern parts of the state. Counties: HA, RB, WK, WY (material examined) and BA, CR, DP, NH, OR, UN (in literature).

Distribution in surrounding states: GA (MacGown 2012b) and TN (Davis and Zigler 2012).

***Ponera pennsylvanica* Buckley, 1866**

Distribution in North Carolina: All regions. Counties: AE, AV, BA, BL, CB, CH, CK, CO, CU, DD, DP, DR, DV, GU, GV, HA, HL, JH, MD, MI, MR, NA, RA, RB, SC, ST, SU, WL, WT, WY, WK, YY (material examined) and BN, CA, CR, CT, DU, GH, HW, HE, HO, IR, JA, LI, MA, ME, MO, NH, OR, RW, SW, TR, UN, VA (in literature).

Distribution in surrounding states: GA (Smith 1936, Taylor 1967, Ipser *et al.* 2004), SC (Smith 1936, Taylor 1967), TN (Smith 1936, Taylor 1967, Lessard *et al.* 2007) and VA (Smith 1936, Taylor 1967, Kjar 2009).

PROCERATIINAE

***Discothyrea testacea* Roger, 1863**

Distribution in North Carolina: Central and eastern parts of the state. Counties: BL, CK, CU, RB, WK, WY (material examined) and CR, CT, DP, DU, HO, IR, LN, ME, MO, NH, ON, OR (in literature).

Distribution in surrounding states: GA (Smith 1955b) and SC (Guénard and Lucky 2011).

***Proceratium crassicorne* Emery, 1895 * (rarely collected species)**

Distribution in North Carolina: Northern part of the state. Counties: CK, MT and OR (material examined).

Distribution in surrounding states: GA (MacGown 2012b), TN (Baroni Urbani and De Andrade 2003) and VA (Baroni Urbani and De Andrade 2003).

***Proceratium croceum* (Roger, 1860) (rarely collected species)**

Distribution in North Carolina: Piedmont Plateau. Counties: HA, MO, WK (material examined) and DU (in literature).

Distribution in surrounding states: GA (Baroni Urbani and De Andrade 2003, Ipser *et al.* 2004), SC (Baroni Urbani and De Andrade 2003), TN (Baroni Urbani and De Andrade 2003, Lessard *et al.* 2007) and VA (Baroni Urbani and De Andrade 2003).

***Proceratium pergandei* (Emery, 1895)**

Distribution in North Carolina: All regions. Counties: ST, WK (material examined) and BN, CR, DU, ME, OR, TR, UN (in literature).

Distribution in surrounding states: GA (Baroni Urbani and De Andrade 2003, Ipser *et al.* 2004), SC (Baroni Urbani and De Andrade 2003), TN (Dennis 1938, Baroni Urbani and De Andrade 2003, Lessard *et al.* 2007) and VA (Baroni Urbani and De Andrade 2003).

***Proceratium silaceum* Roger, 1863**

Distribution in North Carolina: All regions. Counties: BL, CB, CU, DD, DP, GA, GU, HA, JH, RB, ST, WK (material examined) and BN, BR, CR, CT, DU, HO, IR, JA, LN, MA, ME, MO, NH, OR, TR (in literature).

Distribution in surrounding states: GA (Baroni Urbani and De Andrade 2003), SC (Baroni Urbani and De Andrade 2003), TN (Dennis 1938, Kennedy and Talbot 1939, Baroni Urbani and De Andrade 2003) and VA (Baroni Urbani and De Andrade 2003, Kjar 2009).

PSEUDOMYRMECINAE

***Pseudomyrmex ejectus* (Smith, 1858) * (rarely collected species)**

Distribution in North Carolina: Southeastern part of the state. Counties: RB, WY (material examined) and CR, LN, RI (in literature).

Distribution in surrounding states: GA (Ward 1985, Ipser *et al.* 2004) and SC (Ward 1985, Davies 2009).

***Pseudomyrmex pallidus* (Smith, 1855)**

Distribution in North Carolina: Southern extent of the Piedmont Plateau and Coastal Plains Counties: BR, DR, ME, NH and SC (material examined) and CT (in literature).

Distribution in surrounding states: GA (Ward 1985) and SC (Davies 2009).

Doubtful records in literature

***Camponotus pylartes fraxinicola* Smith, 1923.**

Distribution in North Carolina: Piedmont Plateau. County: ME.

Distribution in surrounding states: SC (Van Pelt and Gentry 1985).

This species is probably a synonym of *Camponotus impressus* (Wilson 1974; J. Trager, personal communication).

***Crematogaster laeviuscula* Mayr, 1870**

Distribution in North Carolina: All regions. Counties: BR, BN, CT, DU, GS, IR, JA, LI, MA, ME, MO, NH, OR, RI, RU, UN.

Distribution in surrounding states: SC (Van Pelt and Gentry 1985), TN (Dennis 1938, Cole 1940) and VA (Peck *et al.* 1998).

According to Johnson (1988) and previous authors cited therein, *Crematogaster laeviuscula* is restricted to the western part of the United States. Records of *C. laeviuscula* or *C. clara* from North Carolina are probably *C. pilosa* (see discussion in Johnson 1988).

***Dorymyrmex flavus* McCook, 1879**

Distribution in North Carolina: Eastern part of the state. Counties: CU, ED, MO, ON and RB.

Distribution in surrounding states: GA (Johnson 1989b) and TN (Dennis 1938, Cole 1940).

According to Snelling (1995), the status of *Dorymyrmex flavus* as presented in Johnson (1989) is erroneous. True *D. flavus* is a southwestern United States species. Records of *D. flavus* in North Carolina are probably *D. bureni* (Snelling 1995).

***Dorymyrmex pyramicus* (Roger, 1963)**

Distribution in North Carolina: All regions of North Carolina. Counties: CT, CA, CR, HO, IR, JA, LN, LI, ME, MO, NH, RI, SC and WY.

Distribution in surrounding states: Tennessee (Dennis 1938, Cole 1940).

According to Snelling (1995), historical identifications of *Dorymyrmex pyramicus* are in reality different species. The distribution of true *Dorymyrmex pyramicus* is Central and South America. Records for this species in North Carolina represent other *Dorymyrmex* species.

***Formica fusca* Linnaeus, 1758.**

Distribution in North Carolina: All regions of North Carolina. Counties: BN, CB, CT, CA, CR, DU, HE, HO, IR, JA, LI, MA, ME, MI, OR, PM, RW, TR, UN and WK.

Distribution in surrounding states includes Tennessee in the Smoky Mountains (Cole 1940; possibly doubtful) and Virginia (Francoeur 1974).

The occurrence of this species in North Carolina is doubtful. Based on the distributions in Francoeur (1973), North Carolina records of *F. fusca* are probably misidentifications of *F. subsericea*.

Pseudomyrmex brunneus in Carter (1962b) is doubtful for North Carolina as this species is distributed in Central America (Ward 1985). This probably represents a misidentification of *P. ejectus*.

Incertae sedis

Pheidole bahai (Forel 1922). The identity of this species, originally described as a *Tetramorium*, remains unknown. It is almost certainly a synonym of one of the known *Pheidole* from North Carolina (Smith 1955b).

TABLE 6. List of abbreviations used for the 100 counties of North Carolina.

AA Alamance	CW Chowan	JH Johnston	RA Randolph
AE Alexander	CY Clay	JO Jones	RB Robeson
AL Alleghany	DD Davidson	LE Lee	RI Richmond
AN Anson	DP Duplin	LI Lincoln	RK Rockingham
AS Ashe	DR Dare	LN Lenoir	RU Rutherford
AV Avery	DU Durham	MA Macon	RW Rowan
BA Beaufort	DV Davie	MC McDowell	SA Sampson
BE Bertie	ED Edgecombe	MD Madison	SC Scotland
BL Bladen	FO Forsyth	ME Mecklenburg	SO Stokes
BN Buncombe	FR Franklin	MI Mitchell	ST Stanly
BR Brunswick	GA Gates	MO Moore	SU Surry
BU Burke	GH Graham	MR Martin	SW Swain
CA Catawba	GR Greene	MT Montgomery	TR Transylvania
CB Cabarrus	GS Gaston	NA Nash	TY Tyrrell
CD Camden	GU Guildford	NH New Hanover	UN Union
CE Cherokee	GV Granville	NO Northampton	VA Vance
CH Chatham	HA Harnett	ON Onslow	WI Wilson
CK Currituck	HE Henderson	OR Orange	WK Wake
CL Caldwell	HF Hertford	PE Pender	WL Wilkes
CO Columbus	HL Halifax	PI Pitt	WR Warren
CR Craven	HO Hoke	PM Pamlico	WS Washington
CS Caswell	HW Haywood	PO Polk	WT Watauga
CT Carteret	HY Hyde	PQ Perquimans	WY Wayne
CU Cumberland	IR Iredell	PR Person	YK Yadkin
CV Cleveland	JA Jackson	PS Pasquotank	YY Yancey

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