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ARTICLE

First survey of the ants (Hymenoptera, Formicidae) of Piauí: filling a major knowledge gap about ant diversity in Brazil

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Abstract. Piauí, a Brazilian Northeast state, has been considered one of the most important regions for the presence of new taxa in ants globally, especially considering the ecosystems' diversity formed by the transition of the three biomes in the state, the Cerrado, Caatinga and the Atlantic Forest. Despite the recent increase in studies of ant diversity in the Neotropical region, Piauí still represents a major knowledge gap regarding its ant fauna. Therefore, this study aimed to increase the knowledge about the ant fauna of the state by generating a list of species with data obtained from the literature, online repositories and collection expeditions to the Serra da Capivara and Serra das Confusões National Parks. A total of 152 species in 52 genera and nine subfamilies were registered from 24 localities in Piauí. Fifty-eight out the 152 species recorded represent new records for the state, eight are new records for the Brazilian Northeast Region, and one consists of a new record for the country. Eleven species are here recognized as new for science. Considering the field expeditions carried out here, this work represents the first standardized study for the ant fauna of Piauí. The species list presented considerably exceeds the current number of species registered for the state so far. From the present 48 records, the number of species for Piauí raises to more than 150 with a tendency to increase with the accomplishment of future field endeavors and advances in the study of the local ants.

Key-Words. Cerrado; Caatinga; Atlantic Forest; Taxonomy; Conservation.

INTRODUCTION

Ants are eusocial insects grouped into a single family (Formicidae), which in turn is classified into 17 subfamilies and 334 genera (Bolton, 2019). Ants occur in great diversity and abundance in most ecosystems (Choe, 2012). In view of this, ants are extremely important ecologically and are key participants in many ecosystem processes (Lamanceau & Blouin, 2018). In addition, these insects are also good indicators of environmental conservation status, since they are very sensitive to environmental stress (Silvestre *et al.,* 2003; Ribas *et al.,* 2012).

In the Brazilian Northeast, anthropic action has led to a deterioration of natural areas and drastic changes in the relief and other characteristics of the soil surface. The state of Piauí, located in this region, has been suffering human disturbances since the 1960s, when tax incentives for agricultural projects were implemented (Lacombe, 1969; Aguiar & Monteiro, 2005). The key location of this state in a transition zone among three Brazilian biomes, the Cerrado, the Caatinga and the Atlantic Forest, makes it a priority for the study of diversity. Despite recent advances, which translate into a 33% reduction in deforestation of the state's Cerrado areas, Piauí remains a leader in the deforestation of that biome (MMA, 2018). Also, since it is one of the last agricultural frontiers in the Cerrado, the southern region of the state is under intense threat (Machado *et al.,* 2004).

The ant fauna of Piauí has remained relatively unstudied compared to other Brazilian states (Camargo, 2011; Prado *et al.,* 2019). One of the few studies involving the state's ant fauna shows that deforestation and loss of diversity by monocultures are very high. In the same study, the anthropic impact on the balance of local ecosystems was highlighted, together with the need for accurate surveys of the local diversity in order to develop more efficient conservation policies, and to promote the documentation of species that are present there before they go locally extinct (Fontes & Almeida Filho, 2002).

Considering the growing need for inventories to fill knowledge gaps about the diversity of places that need to be given conservation prior-

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ity, regional species lists are an important tool (Castro *et al.,* 2018; Demétrio *et al.,* 2017; Vicente *et al.,* 2018). The primary data generated by the inventory of animal and plant species are very important in decision-making regarding environmental conservation management. Similarly, as predominant and diverse organisms in any terrestrial environment, sampling the local ant fauna is essential. This is especially true when we consider the poorly explored regions of the state of Piauí, which are, on average, suffering more from deforestation than their surrounding areas and therefore deserve special attention regarding conservation and investment in scientific research. In fact, Brazil probably has a widely underestimated number of species and Piauí is where new genera are most likely to be found (Guénard *et al.,* 2012). In this context, the objective of the present study is to increase the knowledge about the ant fauna of the state of Piauí by compiling records from literature, online repositories and field expeditions in two of the state's main National Parks.

MATERIAL AND METHODS

Species records were gathered from a comprehensive independent literature review and consultation of the online repository Antmaps.org. Each species listed here is validated by at least one published reference or data source and the validity of names has been verified in the Antcat.org platform (Bolton, 2019). To confirm the occurrences (Table 1) and to prepare the map (Fig. 1), the geographical coordinates, when not available in the respective reference, were georeferenced based on the Google Earth platform.

Table 1. Collecting locations and municipalities with ant records for the state of Piauí, Brazil, according the specific reference list below.

Locality	Coordinates	Source
Altos	05° 02'23"S 42°27'29"W	14
Bom Jesus	09°11'29"S 44°50'33"W	7
Buriti dos Lopes	03°10'30"S 41°52'01"W	10
Canto do Buriti	08°06'36"S 42°56'40"W	9; 17; 22
Corrente	10°26'30"S 45°09'52"W	4; 9; 10; 17
Corrente 2	10°26'00"S 45°09'00"W	1
Estação Ecológica Uruçuí-Uma, Bom Jesus	08°51'50"S 45°12'00"W	10
Floriano	06°46'01"S 43°01'21"W	10; 17
Floriano 2	06°44'37"S 43°02'49"W	23
Jacobina do Piauí	08°00'00"S 41°25'00"W	2
Marvão	05°19'59"S 41°32'60"W	14
Matias Olimpio	03°42'58"S 42°33'18"W	10
Oeiras	07°01'31"S 42°07'52"W	4; 9; 22
Oeiras 2	07°00'59"S 42°07'16"W	3
Parnaíba	02°54'19"S 41°46'24"W	14
Piauí – uncertain locality	—	5; 6; 8; 16; 21
Rio Uruçuí Preto	07°19'00"S 44°37'00"W	3; 10; 13; 15; 17; 19; 20
São Raimundo Nonato	08°38'23"S 42°46'32"W	23
Serra da Capivara, Coronel José Dias	08°41'42"S 42°35'10"W	11
Serra das Confusões, Caracol	09°13'22"S 43°29'23"W	12
Sete Cidades	04°05'59"S 41°42'50"W	18
Teresina	05°05'31"S 42°48'13"W	14
Timon (Maranhão)	05°04'59"S 42°49'00"W	3
Uruçuí	07°20'35"S 44°37'00"W	3

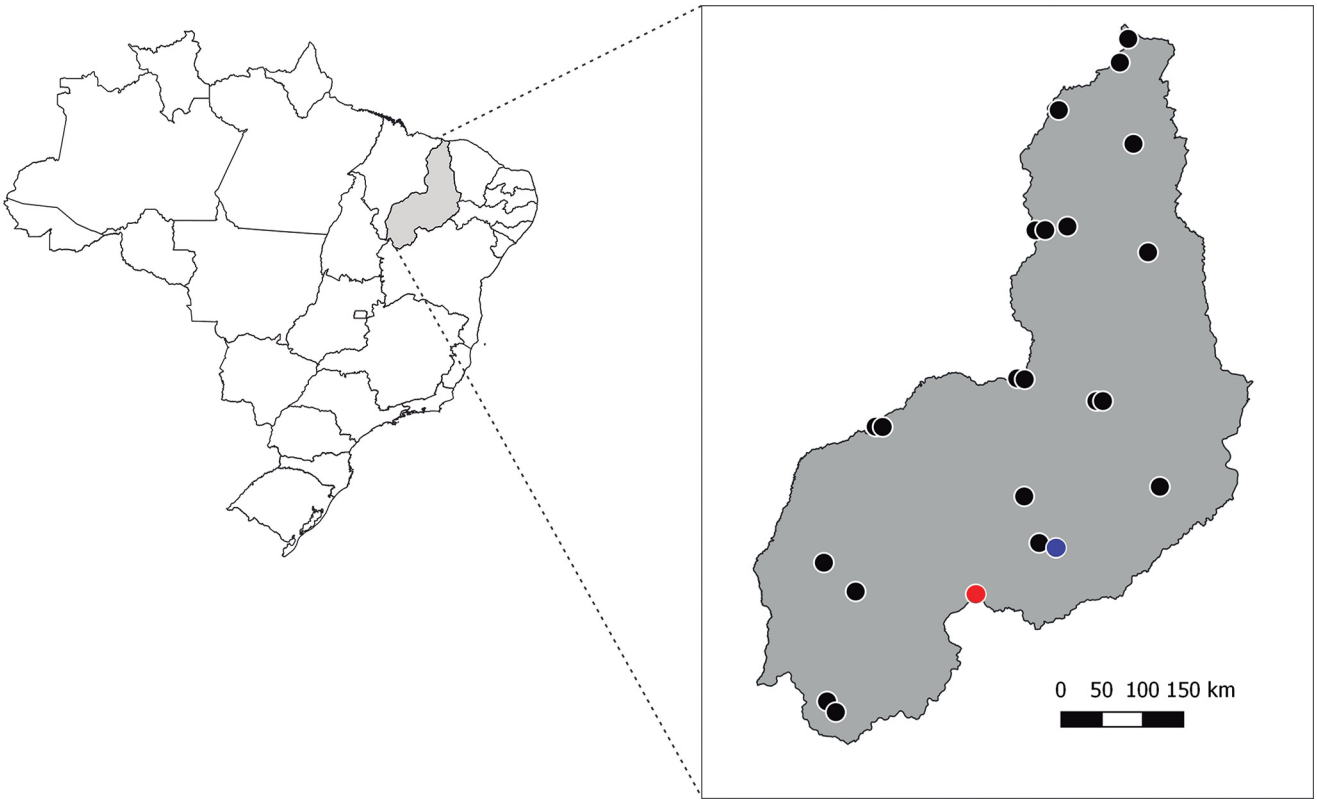

Figure 1. Areas with ant records in the state of Piauí, Brazil, based on literature review (black circles) and collecting expeditions of the present study to the Serra das Confusões (red circle) and Serra da Capivara (blue circle) National Parks.

In addition to the bibliographic survey, two collecting expeditions were made to the Serra da Capivara and Serra das Confusões National Parks. In both parks, ants were collected with three distinct techniques: manual capture, pitfall traps in the soil and vegetation, and Winkler leaf-litter extractors.

Parque Nacional da Serra das Confusões is centered between the coordinates 09°13'22"S and 43°29'23"W and has an average elevation of approximately 700 m. It is located in a transitional area between Caatinga and Cerrado with a predominance of arboreal and shrubby vegetation cover with the presence of semi-deciduous forests in some areas, within the geographic domain of the Atlantic Forest (Gonçalves, 2003).

Serra da Capivara National Park, on the other hand, is centered between the coordinates 08°41'42"S and 42°35'10"W and has an average elevation of approximately 500 m. It has a relief with plateaus and valleys with differences of up to 250 meters. In the high plateau areas, the phytophysiognomy of dense arboreal Caatinga predominates, while in the valleys where humidity is highest, the phytophysiognomy is arboreal Caatinga, with open understory (Barros, *et al.,* 2012).

The specimens were processed at the Laboratory of Ant Systematics and Biology of the Federal University of Paraná, Curitiba, Brazil. Identification to genus was accomplished with the help of the Guide for Ant Genera of Brazil (Baccaro *et al.,* 2015) and for species we used the bibliographies recommended for each genus in this same Guide (Albuquerque & Brandão, 2004; Cuezzo, 2000; Gonçalves, 1961; Jesovnik & Schultz, 2017; Kempf, 1951, 1973; Kugler, 1994; LaPolla & Fisher, 2005; Longino, 2003; Ortiz-Sepulveda *et al.,* 2019; Schmidt & Shattuck, 2014; Watkins, 1976). Vouchers were deposited in the Padre Jesus Santiago Moure Entomological Collection of the Universidade Federal do Paraná (DZUP), Curitiba, Brazil.

RESULTS AND DISCUSSION

A total of 152 ant species/morphospecies were recorded in the state of Piauí in 52 genera and nine subfamilies distributed in 24 locations (Table 1). A total of 96 species were namely identified (63%) and 56 remained as morphospecies due to the lack of taxonomic resolution for their genera. The most diverse subfamilies were Myrmicinae, with 94 species, and Formicinae, with 21 species, represented by 25 and five genera, respectively. Among the genera, *Pheidole* had the highest number of species, 25, followed by *Solenopsis,* with 16 species, and *Camponotus* with 13 species. Considering the ant genera listed, 31 represent new records for the state. Regarding the species, 58 are new records, all of which are collected in Parque Nacional da Serra da Capivara and Parque Nacional da Serra das Confusões. Eight species represent new records for the Northeast Region of the country: *Camponotus mus* Roger, 1863, *Hylomyrma blandiens* Kempf, 1961, *Pheidole cardinalis* Wilson, 2003, *Pheidole fracticeps* Wilson, 2003, *Pheidole geraesensis* Santschi, 1929, *Pheidole microps* Wilson, 2003, *Pheidole nubila* Emery, 1906, and *Strumigenys hindenburgi* Forel, 1915. Additionally, there is a new record for Brazil, represented by the species *Pheidole microps* Wilson, 2003.

The diversity pattern found among the recorded taxa was somewhat expected as the two subfamilies and the most diverse genera in this paper are extremely rich and widely distributed in the Neotropical region (Ward *et al.,* 2015). Myrmicinae can be considered the most successful group among all subfamilies of Formicidae, comprising almost 50% of the diversity of Formicidae (Ward *et al.,* 2015; Bolton, 2019). Their dominance can be explained by the broad feeding and reproductive strategies (Agosti *et al.,* 2000; Hamidi *et al.,* 2017). Thus, the results obtained for this subfamily are within the expectations of the literature, since approximately 62% of the species registered in the state of Piauí belong to this group.

From the eight new ant species firstly recorded for the Northeast Region of Brazil, seven belong to megadiverse genera, including *Pheidole, Camponotus,* and *Strumigenys.* This highlights the importance of specific-level identification for an ant inventories, since these new records are both an artifact of the lack of expertise to identify these genera and the lack of data collection in Piauí state. In fact, different ant collections in Brazil probably hold unidentified specimens of *Pheidole, Camponotus* and similar genera that could be new records in species lists and surveys.

Two exotic species, *Monomorium pharaonis* (Linnaeus, 1758) and *Paratrechina longicornis* (Latreille, 1802), were recorded. These species had already been recorded for neighboring states (AntMaps, 2019; Prado *et al.,* 2019). *Monomorium pharaonis* is considered a species of medical importance in many parts of the world, including Brazil, specifically in hospitals, where it is a potential carrier of pathogens (Wetterer, 2010). *Paratrechina longicornis* is considered an urban and agricultural pest in most of the tropics and subtropics of the world for infesting buildings and facilitating the multiplication of populations of Hemiptera that feed on plant phloem (Wetterer, 2008).

We recognize at least 11 new ant species (Table 2), of which one belongs to the genus *Mycetophylax,* one to *Mycocepurus* and nine to *Pheidole.* This demonstrates the great potential of this region to reveal taxonomic novelties, as predicted by Guénard *et al.* (2012), even though these authors referred to potential new genera.

Regarding the relative contribution of each data source (literature and expeditions) to compose the final list of species in Piauí, literature contributed 25% of the registered species (38 species), while the collecting expeditions were responsible for 75% of the species (114 species), 71 collected in Serra da Capivara and 101 in Serra das Confusões. It is noteworthy that all 58 new species records for the state come from these collecting expeditions. From the species collected specifically in the expeditions, 79 were sampled with pitfall traps in the soil, 21 were manually collected, and 27 were exclusively found in leaf-litter samples submitted to the Winkler extractor. This highlights the importance of collecting expeditions

Table 2. Ant species recorded for the state of Piauí, Brazil. Numbers in the second column refer to the sources from which the occurrence information was obtained for each species, presented in the specific reference list below and in Table 1. Genera and species indicated with an asterisk (*) represent new records for the state of Piauí, two asterisks (**) represent new records for the Northeast Region of Brazil and three asterisks (***) represent new records for Brazil. Species indicated with a dagger (†) were recorded exclusively within the domain of the Atlantic Forest in the state, while all the other species were present only in savanna environments (Caatinga and/or Cerrado).

Taxon	Source	Sampling methods for sources 11 and 12
Amblyoponinae		
Prionopelta* Mayr, 1866		
Prionopelta punctulata Mayr, 1866*	11; 12	Epigeic pitfall traps
Dolichoderinae		
***Azteca* Forel, 1878**		
Azteca sp. 1	12	Hand collection
Azteca sp. 2	11	Hand collection
***Dorymyrmex* Mayr, 1866**		
Dorymyrmex goeldii Forel, 1904	9	
Dorymyrmex sp. 1 aff. *pyramicus*	11; 12	Epigeic pitfall traps
Dorymyrmex sp. 2	11; 12	Epigeic pitfall traps
Dorymyrmex sp. 3	12	Epigeic pitfall traps
Dorymyrmex sp. 4	11	Epigeic pitfall traps
***Forelius* Emery, 1888**		
Forelius brasiliensis (Forel, 1908)*	11; 12	Epigeic pitfall traps
Forelius pusillus Santschi, 1922	8	
Forelius sp. 1	11; 12	Epigeic pitfall traps
***Gracilidris* Wild & Cuezzo, 2006**		
Gracilidris pombero Wild & Cuezzo, 2006	18	
Linepithema* Mayr, 1866		
Linepithema neotropicum Wild, 2007*	12	Epigeic pitfall traps
Tapinoma* Foerster, 1850		
Tapinoma melanocephalum (Fabricius, 1793)*	12	Hand collection
Tapinoma sp. 1	12	Epigeic pitfall traps
Dorylinae		
Acanthostichus* Mayr, 1887		
Acanthostichus sp. 1 aff. *brevicornis*	11	Epigeic pitfall traps
Eciton* Latreille, 1804		
Eciton dulcium Forel, 1912*	11	Epigeic pitfall traps
Labidus* Jurine, 1807		
Labidus coecus (Latreille, 1802)*	12	Epigeic pitfall traps
***Neivamyrmex* Borgmeier, 1940**		
Neivamyrmex diana (Forel, 1912)*	11	Epigeic pitfall traps
Neivamyrmex minensis (Borgmeier, 1928)*	12	Epigeic pitfall traps
Neivamyrmex pertii (Shuckard, 1840)	5; 16	
Ectatomminae		
***Ectatomma* Smith, 1858**		
Ectatomma muticum Mayr, 1870	6; 11; 12; 19; 22	Epigeic pitfall traps
Gnamptogenys* Roger, 1863		
Gnamptogenys striatula Mayr, 1884*	11; 12	Epigeic pitfall traps
Gnamptogenys sulcata (Smith, 1858)*†	12	Hand collection
Formicinae		
Acropyga* Roger, 1862		
Acropyga goeldii Forel, 1893*†	12	Winkler extractor
Brachymyrmex* Mayr, 1868		
Brachymyrmex coactus Mayr, 1887*†	12	Winkler extractor
Brachymyrmex patagonicus Mayr, 1868*	11; 12	Epigeic pitfall traps
Brachymyrmex pictus Mayr, 1887*†	12	Winkler extractor
Brachymyrmex sp. 1 aff. *fiebrigi*	12	Epigeic pitfall traps
Brachymyrmex sp. 2	11	Epigeic pitfall traps

Taxon	Source	Sampling methods for sources 11 and 12
***Camponotus* Mayr, 1861**		
Camponotus arboreus (Smith, 1858)*	11; 12	Hand collection
Camponotus blandus (Smith, 1858)*	11; 12	
Camponotus cingulatus Mayr, 1862*	11	Epigeic pitfall traps
Camponotus crassus Mayr, 1862*	11; 12	Epigeic pitfall traps
Camponotus melanoticus Emery, 1894*	11; 12	Epigeic pitfall traps
Camponotus mus Roger, 1863**	12	Epigeic pitfall traps
Camponotus renggeri Emery, 1894	19; 22	
Camponotus substitutus Forel, 1899*	11; 12	Hand collection
Camponotus vittatus Forel, 1904*	11; 12	Epigeic pitfall traps
Camponotus sp. 1	11; 12	Epigeic pitfall traps
Camponotus sp. 2	11; 12	Epigeic pitfall traps
Camponotus sp. 3	11	Epigeic pitfall traps
Camponotus sp. 4	12	Hand collection
Nylanderia* Emery, 1906		
Nylanderia sp. 1†	12	Winkler extractor
Paratrechina* Motschoulsky, 1863		
Paratrechina longicornis (Latreille, 1802)*	12	Hand collection
Heteroponerinae		
Acanthoponera* Mayr, 1862		
Acanthoponera mucronata (Roger, 1860)*	11	Epigeic pitfall traps
Myrmicinae		
***Acromyrmex* Mayr, 1865**		
Acromyrmex landolti (Forel, 1885)	14; 16	
Acromyrmex rugosus (Smith, 1858)	11; 12; 14; 16	Epigeic pitfall traps
Apterostigma* Mayr, 1865		
Apterostigma gr. *pilosum* sp. 1†	12	
***Atta* Fabricius, 1804**		
Atta laevigata (Smith, 1858)	16	
Atta opaciceps Borgmeier, 1939	16	
Atta sexdens (Linnaeus, 1758)	11; 16	Epigeic pitfall traps
***Blepharidatta* Wheeler, 1915**		
Blepharidatta conops Kempf, 1967	11; 12; 7	Epigeic pitfall traps
Carebara* Westwood, 1840		
Carebara gr. *lignata* sp. 1†	12	Winkler extractor
Carebara brevipilosa Fernández, 2004*	11	Epigeic pitfall traps
***Cephalotes* Latreille, 1802**		
Cephalotes atratus (Linnaeus, 1758)	10	
Cephalotes betoi De Andrade, 1999	10; 19; 11, 12; 22	Hand collection
Cephalotes clypeatus (Fabricius, 1804)	10; 12; 19; 22	Hand collection
Cephalotes cordatus (Smith, 1853)	10	
Cephalotes fiebrigi (Forel, 1906)	10	
Cephalotes minutus (Fabricius, 1804)	10; 19; 22	
Cephalotes pavonii (Latreille, 1809)*	11; 12	Epigeic pitfall traps
Cephalotes persimilis De Andrade, 1999	10; 12; 19; 22	Hand collection
Cephalotes pinelii (Guérin-Méneville, 1844)	10	
Cephalotes pusillus (Klug, 1824)	10; 11; 12; 19; 22	Epigeic pitfall traps
Crematogaster* Lund, 1831		
Crematogaster crinosa Mayr, 1862*	11; 12	Hand collection
Crematogaster pygmaea Forel, 1904*	11; 12	Epigeic pitfall traps

Taxon	Source	Sampling methods for sources 11 and 12
Crematogaster sp. 1 aff. *obscurata*	12	Epigeic pitfall traps
***Cyphomyrmex* Mayr, 1862**		
Cyphomyrmex rimosus (Spinola, 1851)*	11; 12	Epigeic pitfall traps
Cyphomyrmex transversus Emery, 1894	11; 12; 19; 22	Epigeic pitfall traps, Winkler extractor
Cyphomyrmex sp. 1†	12	Winkler extractor
Hylomyrma* Forel, 1912		
Hylomyrma blandiens Kempf, 1961**	11	Epigeic pitfall traps
***Kalathomyrmex* Klingenberg & Brandão, 2009**		
Kalathomyrmex emeryi (Forel, 1907)	12; 17; 19; 22	Hand collection
Monomorium* Mayr, 1855		
Monomorium pharaonis (Linnaeus, 1758)*	12	Hand collection
Mycetarotes* Emery, 1913		
Mycetarotes parallelus (Emery, 1906)*†	12	Hand collection
Mycetomoellerius* Solomon *et al.*, 2019		
Mycetomoellerius sp. 1†	12	Hand collection
Mycetophylax* Emery, 1913		
Mycetophylax sp. n.	12	Epigeic pitfall traps, Winkler extractor
Mycocepurus* Forel, 1893		
Mycocepurus sp. n.†	12	Hand collection
Myrmicocrypta* Smith, 1860		
Myrmicocrypta sp. 1	11	Epigeic pitfall traps
***Oxyepoecus* Santschi, 1926**		
Oxyepoecus kempfi Albuquerque & Brandão, 2004	1; 22	
Oxyepoecus sp. 1 aff. *vezenyii*	11; 12	Epigeic pitfall traps
Paratrachymyrmex* Solomon *et al.*, 2019		
Paratrachymyrmex bugnioni (Forel, 1912)*†	12	Winkler extractor
Pheidole* Westwood, 1839		
Pheidole cardinalis Wilson, 2003**†	12	Winkler extractor
Pheidole exigua Mayr, 1884*	11; 12	Epigeic pitfall traps
Pheidole fimbriata Roger, 1863*†	12	Hand collection
Pheidole fracticeps Wilson, 2003**	11; 12	Epigeic pitfall traps
Pheidole geraesensis Santschi, 1929**	11; 12	Epigeic pitfall traps
Pheidole microps Wilson, 2003***†	12	Epigeic pitfall traps
Pheidole nubila Emery, 1906**	11; 12	Epigeic pitfall traps
Pheidole obscurithorax Naves, 1985*	11; 12	Epigeic pitfall traps
Pheidole radoszkowskii Mayr, 1884*	12	Epigeic pitfall traps
Pheidole subarmata Mayr, 1884*†	12	Winkler extractor
Pheidole synarmata Wilson 2003*	12	Epigeic pitfall traps
Pheidole valens Wilson, 2003*	11	Epigeic pitfall traps
Pheidole cf. *caribbaea*	11	Epigeic pitfall traps
Pheidole cf. *vallifica*	11	Epigeic pitfall traps
Pheidole gr. *aberrans* sp. n.	12	Epigeic pitfall traps
Pheidole gr. *diligens* sp. n.	11; 12	Epigeic pitfall traps
Pheidole sp. 1 aff. *rufipilis*†	12	Epigeic pitfall traps
Pheidole sp. 2 aff. *radoszkowskii*	11; 12	Epigeic pitfall traps
Pheidole sp. n. 1 (aff. *diligens*)	11; 12	Epigeic pitfall traps
Pheidole sp. n. 2 (aff. *puttemansi*)	11; 12	Epigeic pitfall traps
Pheidole sp. n. 3 (aff. *triconstricta*)	11	Epigeic pitfall traps
Pheidole sp. n. 4	11	Epigeic pitfall traps
Pheidole sp. n. 5	11; 12	Epigeic pitfall traps
Pheidole sp. n. 6	11	Epigeic pitfall traps
Pheidole sp. n. 7	12	Epigeic pitfall traps
***Procryptocerus* Emery, 1887**		
Procryptocerus hylaeus Kempf, 1951	3; 20	
Procryptocerus victoris Kempf, 1960	3	
Rogeria* Emery, 1894		
Rogeria curvipubens Emery, 1894*†	12	Winkler extractor
Rogeria foreli Emery, 1894*†	12	Winkler extractor
Rogeria lirata Kugler, 1994*	11; 12	Epigeic pitfall traps
***Sericomyrmex* Mayr, 1865**		
Sericomyrmex mayri Forel, 1912†	3; 12; 15	Winkler extractor
Sericomyrmex scrobifer Forel, 1911	3; 15	
***Solenopsis* Westwood, 1840**		
Solenopsis geminata (Fabricius, 1804)	19; 22; 23	
Solenopsis saevissima (Smith, 1855)	19; 22	
Solenopsis tridens Forel, 1911*	11; 12	Epigeic pitfall traps
Solenopsis sp. 1	11; 12	Epigeic pitfall traps
Solenopsis sp. 2	11; 12	Epigeic pitfall traps
Solenopsis sp. 3	11; 12	Epigeic pitfall traps
Solenopsis sp. 4	11; 12	Epigeic pitfall traps
Solenopsis sp. 5	11	Epigeic pitfall traps
Solenopsis sp. 6	11	Epigeic pitfall traps
Solenopsis sp. 7†	12	Winkler extractor
Solenopsis sp. 8†	12	Winkler extractor
Solenopsis sp. 9	11; 12	Hand collection
Solenopsis sp. 10†	12	Winkler extractor
Solenopsis sp. 11	11	Epigeic pitfall traps
Solenopsis sp. 12	11	Epigeic pitfall traps
Solenopsis sp. 13	11	Epigeic pitfall traps
***Strumigenys* Smith, 1860**		
Strumigenys crassicornis Mayr, 1887*†	12	Winkler extractor
Strumigenys eggersi Emery, 1890*†	12	Winkler extractor
Strumigenys elongata Roger, 1863	4; 12	Winkler extractor
Strumigenys hindenburgi Forel, 1915**†	12	Winkler extractor
Strumigenys infidelis Santschi, 1919	4	
Strumigenys lilloana (Brown, 1950)	3; 4; 19; 22	
Strumigenys louisianae Roger, 1863	2; 6	
Strumigenys sp. 1 aff. *elongata*	12	Winkler extractor
Strumigenys sp. 2 aff. *louisianae*	12	Winkler extractor
Wasmannia* Forel 1893		
Wasmannia auropunctata (Roger, 1863)	12	Epigeic pitfall traps, Winkler extractor
Ponerinae		
Anochetus* Mayr, 1861		
Anochetus neglectus Emery, 1894*†	12	
***Centromyrmex* Mayr, 1866**		
Centromyrmex brachycola (Roger, 1861)	19; 22	
***Dinoponera* Roger, 1861**		
Dinoponera quadriceps Kempf, 1971	6; 11; 12; 19; 22	Epigeic pitfall traps
Hypoponera* Santschi, 1938		
Hypoponera sp. 1†	12	Winkler extractor
Hypoponera sp. 2†	12	Winkler extractor
***Neoponera* Emery, 1901**		
Neoponera bactronica (Fernandes *et al.*, 2014)	13	
Neoponera commutata (Roger, 1860)	6; 21	
Odontomachus* Latreille, 1804		
Odontomachus bauri Emery, 1892*	11; 12	Epigeic pitfall traps
Pseudoponera* Emery, 1900		
Pseudoponera gilberti (Kempf, 1960)*†	12	Winkler extractor
Pseudomyrmecinae		
Pseudomyrmex* Lund, 1831		
Pseudomyrmex gr. *pallidus* sp. 1	11	Hand collection
Pseudomyrmex tenuis (Fabricius, 1804)*†	12	Hand collection
Pseudomyrmex termitarius (Smith, 1855)*	11	Epigeic pitfall traps

to increase our knowledge of the ant fauna in subsampled areas of the Neotropics, especially when involving multiple collecting techniques.

Regarding the representativity of ants in the different biomes of Piauí, it is not possible to characterize species typical of Cerrado or Caatinga, since these species can be found in both ecosystems and have been classified as "savanna specialists" (Leal *et al.,* 2017; Vasconcelos *et al.,* 2017). As for the Atlantic Forest ants, they are represented in our dataset by the specimens obtained from leaf-litter samples exclusive of our collection efforts in Parque Nacional da Serra das Confusões (Table 2).

The list of species presented here considerably increases the number of species previously recorded in the state. From 48 records (AntMaps, 2019), the number of ant species for Piauí went to 152. Nevertheless, these numbers are constantly changing as taxonomic works are published frequently and this process leads to the documentation of new species (Ward, 2007), as well as the establishment of local research groups and field trips. Thus, the list of species presented here is likely to grow with future collecting and advances in ant studies.

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