

A checklist of the ants of Israel (Hymenoptera: Formicidae)

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ABSTRACT

A provisional checklist of the ants of Israel is presented. The checklist comprises 241 species and subspecies, an addition of 86 entries to the last published list of ants of Israel. For 223 entries, there are voucher specimens in the National Collections of Insects at Tel Aviv University, whereas 18 entries are records from the literature. The checklist presents 203 identified species, 15 identified subspecies, 10 undescribed species, and 13 unidentified species, together belonging to 46 genera in 11 subfamilies. Twenty-seven species and subspecies are reported from Israel for the first time. Five species previously reported from Israel are excluded. We provide a brief characterization of the undescribed and unidentified species, and a summary of the geographic distribution of the listed taxa.

KEYWORDS: ants, Formicidae, Israel, checklist

INTRODUCTION

Israel has a rich fauna and flora, whose diversity is a consequence of the diversity of climates, soils, geomorphology, and geological events (Tchernov and Yom-Tov, 1988), and of Israel's position at a crossroads of continents (Furth, 1975). The country is divided into three climatic and phytogeographic zones (Kugler, 1988; Danin, 1988; Jaffe, 1988): (i) northeastern and eastern Israel (regions 1–6, 8–11 (except the shoreline of 8 and 9), 18 and most of 19 in Fig. 1), with a mainly temperate climate and originally Mediterranean flora, now mostly synanthropic; (ii) southern and southwestern Israel (regions 12–17 in Fig. 1) with a mainly arid climate and Saharo–Arabian flora, but containing also tropical enclaves in the Dead Sea area and 'Arava Valley; and (iii) a belt comprising parts of the Jordan Valley, Judean Desert, northern Negev and central Negev, which separates the temperate and arid regions and has a semiarid climate and Irano–Turanian floral associations. This climatic and floral diversity is also reflected in the zoogeographic composition of the Israeli myrmecofauna (Kugler, 1988).

The study of the myrmecofauna of Israel began in the second half of the 19th cen-

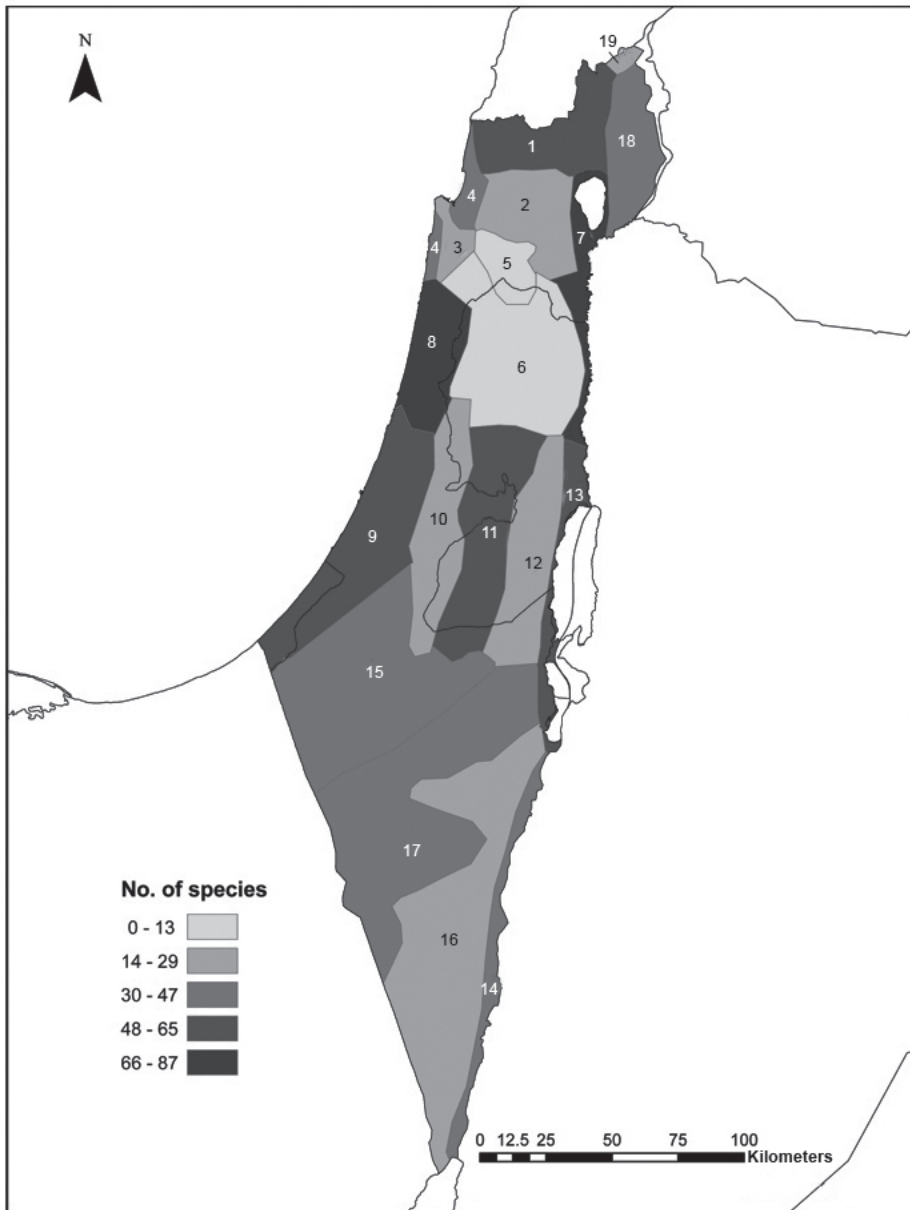


Fig. 1. Geographic regions according to Fishelson (1985): 1. Upper Galilee; 2. Lower Galilee; 3. Carmel Ridge; 4. northern Coastal Plain; 5. Yizre'el Valley; 6. Samaria; 7. Jordan Valley and southern Golan; 8. central Coastal Plain; 9. southern Coastal Plain; 10. Judean Foothills; 11. Judean Hills; 12. Judean Desert; 13. Dead Sea area; 14. 'Arava Valley; (*cont. on bottom of next page*)

tury and was carried out for about 70 years by foreign myrmecologists, who recorded many species from Israel (Smith, 1861; André, 1881; Forel, 1904, 1910, 1913; Wheeler and Mann, 1916; Menozzi, 1933). The first checklist of ants from Israel, published by Schmitz (1911), included about 40 taxa; Bodenheimer's (1937) checklist included 106 species, subspecies, and varieties from Israel, and the last published list (Kugler, 1988) documented 156 species, including 16 unidentified taxa.

In 2000, the late Prof. Jehoshua Kugler, together with Alex Shlagman, prepared a list of all ant taxa deposited in the National Collections of Insects at Tel Aviv University (TAUI) that were identified at least to genus level. The list comprises 667 entries, 219 of which are from Israel. This list was intended to be the starting point for an update of Kugler's (1988) previously published list of ants of Israel. While preparing the updated list Kugler compared many of the ants with types in the André, Forel, Phillips, and Santschi collections that he had visited. In addition, specimens from TAUI were examined by specialists of various groups of ants and relevant geographic regions: *Cardiocondyla* by B. Seifert, *Cataglyphis* by D. Agosti, *Hypoponera* by W.L. Brown, Jr., *Lepisiota*, *Messor*, *Pheidole*, and *Solenopsis* by C.A. Collingwood, *Temnothorax* by A. Schultz, and *Tetramorium* by B. Poldi. Despite all these efforts to date, Kugler and Shlagman's list has remained unpublished.

15. northern Negev; 16. southern Negev; 17. central Negev; 18. Golan Heights; 19. Mount Hermon. Scale represents the number of ant species in the different geographic regions of Israel (see Table 1). All examined specimens are deposited in the TAUI collection, except for taxa marked with an "*", which are not in TAUI or PPIS; the source of taxa marked with an "*" is indicated in the "Citation" column; taxa marked with "?" are considered to be problematic records (see text). Species names, used by Kugler (1988) and different from the current names used by us, are included in brackets. "Author" (identifications of taxa not listed in Kugler, 1988): a = Alpert and Martinez (2007), b = André (1881), c = Atanassov and Dlussky (1992), d = Baroni Urbani and De Andrade (2003), e = Bolton (1974), f = Bolton (1995), g = Collingwood and Agosti (1996), h = Collingwood and Kugler (1994), i = Emery (1898), j = Forel (1910), k = Forel (1913), l = Ionescu (2010), m = Kugler and Ionescu (2007), n = Menozzi (1933), o = Ofer (2007), p = Radchenko (1996), q = Rigato (1994), r = Seifert (2003), s = Vonshak et al. (2009), t = Vonshak et al. (2010), u = Ward (2006), v = Wheeler and Mann (1916). Unpublished identifications or personal communications: aa = D. Agosti, ab = Q. Argaman, ac = W.L. Brown, ad = C.A. Collingwood, ae = J. Kugler, af = B. Poldi, ag = A. Schultz, ah = B. Seifert, ai = B. Taylor, aj = present study. "Citations" (previously published checklists): 1 = Schmitz (1911), 2 = Menozzi (1933), 3 = Bodenheimer (1937), 4 = Ofer et al. (1978, 1996), 5 = Kugler (1988), 6 = Alpert and Martinez (2007), 7 = Agosti and Johnson (2005). "Distribution": "Israel": indicates the 19 geographic regions of Israel from Fig. 1; "Regional": the wider geographic distribution of the listed taxa: "N" = taxa reported from Syria, Lebanon, Jordan, Egypt, and/or Saudi Arabia, "EU" = taxa uniquely shared with Europe, "WA" = taxa uniquely shared with western Asia, excluding the Arabian Peninsula, "NA" = taxa uniquely shared with northern Africa, excluding Egypt, "AP" = taxa uniquely shared with the Arabian Peninsula, "All" = taxa reported from all the above-listed geographic regions, "e" = endemic taxa, "t" = tramp species.

In this article, we provide a provisional checklist of the ants of Israel, based on Kugler and Shlagman's unpublished list, as an update to the previously published list in Kugler (1988). We list new taxa, update the taxonomy, indicate the known geographic distribution, and provide diagnostic features of undescribed or unidentified taxa.

We dedicate this publication to the memory of Prof. J. Kugler, who devoted much of his life to the study of the ant fauna of Israel.

MATERIALS AND METHODS

While preparing the present list, all entries in Kugler and Shlagman's list were verified using the material in TAUI, the original descriptions, Kugler's notes concerning comparisons with types, and his correspondence with other taxonomists. Unsorted material in TAUI (except that belonging to Myrmicinae) and the ant collection of the Plant Protection and Inspection Services of the government of Israel (PPIS) were also examined. The taxonomy was updated according to Bolton et al. (2006) and AntWeb (Bolton, 2009). Authors of taxa from Israel are cited in Table 1.

The list is presented in a tabular form (Table 1). The structure of the table is as follows: column "Taxon" lists the taxa in alphabetical order from subfamilies to species. Records with uncertain taxonomic status, i.e., undescribed species, unidentified species and taxa with unavailable name are listed with the museum code of the kind "sp. ILOX"; BARB and ISRA are codes in the files of the Senckenberg Museum of Natural History, Görlitz (SMNG).

Sixty species in Table 1 were mentioned under different names in Kugler (1988) due to new generic combinations, revisions, and previous misidentification. For 47 of these taxa, the species-level status has changed. Their names in Kugler (1988) are listed in brackets in the column "Taxon".

Eighteen taxa marked by an asterisk are not represented in the TAUI collections, and thus were not examined in the present work. Nine of them refer to type material deposited in foreign museums and are not discussed further in the present paper. Eleven taxa marked by a question mark are considered problematic for reasons discussed in the text.

The column "Author" in Table 1 indicates the author of new identifications, or changes of previous nomenclature (47+1) vs. Kugler (1988), or the reference to the identification/change, if published.

The column "Citations" lists published checklists of ants of Israel that mention species that are also recorded in the present checklist.

We reviewed the geographic distribution of the ants listed in Table 1 by examining foreign material in TAUI and consulting the following faunistic lists (presented in alphabetical order): Agosti and Collingwood (1987), Aktaş (1977), Arakelian (1994), Bračko (2009), Camlitepe and Aktaş (1987), Collingwood (1993), Collingwood and Agosti (1996), Collingwood et al. (1997), Collingwood and van Harten (2005), Gómez (2009), Gómez and Espadaler (2007), Gratiashvili and Barjadze (2008), Kiran and Aktaş (2006), Kiran et al. (2009), Markó et al. (2006), Paknia et al. (2008), Petrov (2009), Pisarski

(1967a,b, 1971a,b), Poldi et al. (1995), Santschi (1938), Schlick-Steiner and Steiner (2009), Taylor (2005, 2007), Tohmé (1969), Tohmé and Tohmé (1980a,b,c, 1981, 1999, 2000). In addition, we checked the regional lists in Agosti and Johnson (2005) and reviews of Afrotropical and East Palaearctic genera (Bolton, 1980, 1987; Radchenko, 1996, 1997). Species marked with an “e” in the column “Distribution: Regional” are considered endemic, i.e., reported from Israel alone or from Israel, Syria, Lebanon, Jordan, and/or Egypt. Species marked with a “t” are reported tramp species (e.g., Bolton, 1977; Kugler, 1989; Fowler et al., 1994; McGlynn, 1999; Vonshak et al., 2010; B. Seifert, personal communication), namely, species spread by human activity. Taxa that are marked with an “N” are reported from Syria, Lebanon, Jordan, Egypt, and/or Saudi Arabia, as well as from more distant geographic regions, i.e., Europe, western Asia (excluding the Arabian Peninsula), and western North Africa (excluding Egypt). We have marked taxa uniquely shared by Israel (and adjacent countries), the Arabian Peninsula, and more distant geographic regions (see Table 1 for the different markings).

RESULTS AND DISCUSSION

Table 1 lists 241 taxa that comprise 203 identified species and 15 subspecies, 10 undescribed species, and 13 unidentified species. The 241 taxa recorded in the checklist belong to 46 of the 294 known genera in 11 of the 22 known subfamilies of ants worldwide (Table 2). In the new list, 155 species were mentioned in Kugler (1988) and 86 are new records. Twenty-seven taxa are reported from Israel for the first time: *Aphaenogaster gibbosa*, *A. kervillei*, *A. lesbica*, *Cataglyphis acutinodis*, *C. emmae*, *C. ruber*, *Cryptopone ochracea*, *Formica clara*, *Hypoponera ragusai ragusai*, *Lasius lasioides*, *L. tebessae*, *Lepisiota canescens*, *L. frauenfeldi*, *Leptanilla tanit*, *Messor denticulatus*, *M. instabilis*, *M. minor*, *Monomorium grassei*, *M. sommieri*, *Pheidole minuscula*, *Plagiolepis pallescens isis*, *Solenopsis latro*, *S. monticola*, *Stenamamma lippulum*, *Temnothorax bulgaricus*, *T. bulgaricus aeolius*, and *Tetramorium bicarinatum*. These additions are the result of new collections, examination of unsorted material, and re-identifications.

Taxa with uncertain taxonomic status (genera arranged alphabetically)

In Table 1, 10 records refer to undescribed species and 13 to unidentified species. Their status is explained below.

One gyne of *Acropyga* from Nahal Keziv, with palp formula 5:3 and large eye, could not be identified to species level. Status unclear.

Aenictus sp. IL01, collected in Sasa, is similar to *A. rhodiensis* but differs from syntypes of *A. rhodiensis* by diphasic allometry and unfused condition of frontal carinae. A description of this new species is in preparation.

Bothriomyrmex sp. IL01 (one small worker from Har Meron) differs from the larger *B. syrius* by the head, mesosoma, and third funiculus segment being distinctly more elongate, and by the distinct metanotal furrow. C.A. Collingwood (personal communication) could not identify it to species. Status unclear.

Table 1
Checklist of the ants of Israel

Taxon	Author	Citation	Distribution	
			Israel	Regional
AENICTINAE				
<i>Aenictus</i> Shuckard, 1840				
A. sp. IL01				
	[<i>A. rhodiensis</i> ? Menozzi, 1936 or n. sp.]	aj	5, 6	1
AMBLYOPONINAE				
<i>Amblyopone</i> Erichson, 1842				
	<i>A. denticulata</i> (Roger, 1859)		5, 6	1, 3
	<i>A. normandi</i> (Santschi, 1915)		5, 6	7 NA
	* <i>A. ophthalmica</i> Baroni Urbani, 1978		5-7	7 e
CERAPACHYINAE				
<i>Cerapachys</i> Smith, F. 1857				
	<i>C. longitarsus</i> (Mayr, 1879)		5, 6	4, 7, 8, 15 N, AP, t
	<i>C. piocharidi</i> (Emery, 1882)		5, 6	1, 3, 18 N, WA
DOLICHODERINAE				
<i>Bothriomyrmex</i> Emery, 1869				
	<i>B. syrius</i> Forel, 1910		1-3, 5, 6	1, 7-9, 18, 19 N
	<i>B. sp.</i> IL01	ae		1
<i>Liometopum</i> Mayr, 1861				
	<i>L. microcephalum</i> (Panzer, 1798)		5, 6	1, 2 N
<i>Tapinoma</i> Foerster, 1850				
	*? <i>T. erraticum</i> (Latreille, 1798)	j	1, 3, 5, 6	11 N
	<i>T. israele</i> Forel, 1904			
	[<i>T. erraticum</i> (Latreille, 1798)]	ae	1-4, 6, 7	4, 7, 8, 11, 18, 19 N
	<i>T. simrothi phoeniceum</i> Emery, 1925		1-5	3-5, 7-15 N, EU
DORYLINAE				
<i>Dorylus</i> Fabricius, 1793				
	<i>D. fulvus punicus</i> Santsch, 1926		1-3, 5, 6	1-13, 15 N
	<i>D. fulvus ruficeps</i> Santsch, 1926	ae		7 N
FORMICINAE				
<i>Acropyga</i> Roger, 1862				
	A. sp. IL01	o		1
<i>Camponotus</i> Mayr, 1861				
	<i>C. aethiops</i> (Latreille, 1798)			
	[<i>C. concavus</i> (Forel, 1888)]	ae	2, 3, 5, 6	1, 19
	*? <i>C. baldaccii</i> Emery, 1908	v		18 N
	<i>C. cilicicus</i> Emery, 1908	l		1, 7 WA
	<i>C. dalmaticus</i> (Nylander, 1849)	l		1, 6, 19 N, EU

Table 1 *cont.*

Taxon	Author	Citation	Distribution	
			Israel	Regional
<i>C. fellah</i> Dalla Torre, 1893		1–6	6–17	N
<i>C. festai</i> Emery, 1894		5, 6	1, 18, 19	N, WA
<i>C. gestroi</i> Emery, 1878				
[<i>C. creticus</i> Forel, 1886]	ae	2, 3, 5, 6	1, 18, 19	N
*? <i>C. interjectus</i> Mayr, 1877	n	2, 3	15	N, WA
<i>C. jaliensis</i> Dalla Torre, 1893		5, 6	4, 7–9, 13, 18	EU
<i>C. kefir</i> Ionescu, 2010, present volume	l		1, 18	e
<i>C. kugleri</i> Ionescu, 2010, present volume	l	1–3, 5	13	N, e
[<i>C. mortis</i> Forel, 1910]				
<i>C. kurdistanicus</i> Emery, 1898	l		18	
<i>C. lateralis</i> (Olivier, 1792)	l	1, 3, 6	11	N
<i>C. libanicus</i> André, 1881		5, 6	1	N
<i>C. nadimi</i> Tohmé, 1969	l		1	N, e
<i>C. rebecca</i> Forel, 1913	p	2–6	1–4, 6–8, 11,	N, e
[<i>C. lateralis</i> Olivier, 1792]			13, 18	
<i>C. sanctus</i> Forel, 1904		1–7	1–7, 10–12, 15	N
<i>C. sannini</i> Tohmé and Tohmé, 1999	l		19	N, e
<i>C. sericeus</i> (Fabricius, 1798)		5, 6	13, 14	N
<i>C. sinaïticus</i> Ionescu, 2010,	l		13, 16	e
present volume				
<i>C. truncatus</i> (Spinola, 1808)		2, 3, 5, 6	1, 3, 4, 7, 8	N
<i>C. turkestanus</i> André, 1882	ae	2	17	N, WA
<i>C. vogti</i> Forel, 1906	l		1	N
*? <i>C. xerxes</i> Forel, 1904	ae	3		N
<i>Cataglyphis</i> Foerster, 1850				
<i>C. acutinodis</i> Collingwood & Agosti, 1996	aj		15	AP
<i>C. albicans</i> (Roger, 1859)		5, 6	15–17	N
<i>C. altisquamis</i> (André, 1881)		2, 3, 5, 6	1, 18, 19	N, WA
<i>C. bombycinus bombycinus</i> (Roger, 1859)	ai		16	NA
<i>C. b. sinaïticus</i> Wheeler & Mann, 1916		5, 6	14, 16	N, e
<i>C. emmae</i> (Forel, 1909)	ae		15, 17	N
<i>C. frigidus</i> (André, 1881)		5, 6	19	N, e
<i>C. holgerseni</i> Collingwood & Agosti, 1996	g	6	14, 16	N, AP
<i>C. isis</i> (Forel, 1913)		5, 6	16	N, AP
<i>C. lividus</i> (André, 1881)		1–7	7–9, 14	All
<i>C. niger</i> (André, 1881)		1–7	8, 9, 12–17	N
<i>C. ruber</i> (Forel, 1903)	aj		17	N
<i>C. sabulosus</i> Kugler, J., 1981		5–7	8, 9, 14	N, AP
<i>C. savignyi</i> (Dufour, 1862)	aa		7, 12, 15–17	N
<i>C. viaticoides</i> (André, 1881)		2–6	4, 8, 11, 19	N, WA
<i>C. sp. IL01</i>	aj		13, 15	
<i>C. sp. IL02</i>		2, 3, 5, 6	1, 3, 7, 11	N
[<i>C. sp. near nodus</i> (Brullé, 1833)]				

Table 1 cont.

Taxon	Author	Citation	Distribution	
			Israel	Regional
<i>C. sp. IL03</i> [<i>C. sp. near altisquamis</i> (André, 1881)]		5	1, 2, 4,	N
<i>C. sp. IL04</i>	aa		12, 18	
<i>Formica</i> Linnaeus, 1758				
<i>F. clara</i> Forel, 1886	ah		19	N
<i>Lasius</i> Fabricius, 1804				
*? <i>L. brunneus</i> (Latreille, 1798)	b	2, 3	8	N
<i>L. lasioides</i> (Emery, 1869)	ah		19	N
<i>L. tebessae</i> Seifert, 1992 [<i>L. emarginatus</i> (Olivier, 1792)]	ah	5, 6	11	NA
<i>L. sp. BARB</i> (SMNG) [<i>L. brunneus</i> (Latreille, 1798)]	ah	5, 6	1, 11	
<i>L. sp. ISRA</i> (SMNG) [<i>L. alienus</i> (Foerster, 1850)]	ah	4–6	1, 18	
<i>Lepisiota</i> Santschi, 1926				
<i>L. bipartita</i> (Smith, F., 1861)		1–6	5, 7–9, 11, 13, 18	All
<i>L. canescens</i> (Emery, 1897)	aj		16	N, AP
<i>L. dolabellae</i> (Forel, 1911)	ae	2, 3	7, 11	N
<i>L. frauenfeldi aegyptiaca</i> Finzi, 1936 [<i>Acantholepis</i> n. sp.]	ai	5	14	N, e
<i>L. frauenfeldi frauenfeldi</i> (Mayr, 1855)	ae		19	All
<i>L. gracilicornis</i> (Forel, 1892)		5	13–16	N, AP
<i>L. obtusa</i> (Emery, 1901)	ai		17	N, AP
<i>L. opaciventris</i> (Finzi, 1936)		5, 6	14, 17	N, AP
<i>L. splendens</i> Karavaiev, 1912		4–6	19	N, EU
<i>L. syriaca</i> (André, 1881)		2–6	2, 4, 7, 8, 11, 18	N
<i>Paratrechina</i> Motschoulsky, 1863				
<i>P. jaegerskioeldi</i> (Mayr, 1904)		2, 3, 5, 6	1, 4, 7–9, 13–15	N
<i>P. longicornis</i> (Latreille, 1802)		1–3, 5, 6	4–9, 11, 14	All, t
<i>P. sindbadi</i> Pisarski, 1960	t		7	WA
*? <i>P. vividula</i> (Nylander, 1846)	i	2		N, t
<i>Plagiolepis</i> Mayr, 1861				
<i>P. ancyrensis</i> Santschi, 1920		2–6	1–9	N, EU
<i>P. pallescens isis</i> Santschi, 1938	aj		7	N, e
<i>P. pallescens pallescens</i> Forel, 1889	ae	4, 6	9	N
<i>P. pygmaea</i> Latreille, 1798	j	1	11	N
<i>Polyrhachis</i> Smith, F., 1857				
<i>P. lacteipennis</i> Smith, F., 1858 [<i>P. simplex</i> (Mayr, 1862)]	e	2, 3, 5, 6	13–15	N

Table 1 *cont.*

Taxon	Author	Citation	Distribution	
			Israel	Regional
LEPTANILLINAE				
<i>Leptanilla</i> Emery, 1870				
<i>L. bifurcata</i> Kugler, J., 1987		5–7	7, 10, 11	e
<i>L. israelis</i> Kugler, J., 1987		5–7	7, 9, 10, 13	e
<i>L. judaica</i> Kugler, J., 1987		5–7	10	e
<i>L. tanit</i> Santschi, 1907	aj		7	NA
<i>L. sp.</i> IL01	aj		8, 9	
<i>Yavnella</i> Kugler, J., 1987				
<i>Y. argamani</i> Kugler, J., 1987		5–7	4, 8, 9	e
MYRMICINAE				
<i>Aphaenogaster</i> Mayr, 1853				
<i>A. epirotes</i> (Emery, 1895)		5, 6	1, 18	EU
<i>A. kervillei</i> Forel, 1910	ae		8	N, WA
<i>A. lesbica</i> Forel, 1913	ae		18, 19	N, EU
<i>A. phillipsi</i> Wheeler & Mann, 1916		3, 5, 6	11, 12, 15	N, e
<i>A. splendida</i> (Roger, 1859)		2–6	8, 10, 11	N
<i>A. subterraneoides</i> Emery, 1881		4–6	11, 18, 19	EU
<i>A. syriaca schmitzi</i> Forel, 1910		1–7	1, 3, 4, 7–11, 18	N, WA
<i>A. gibbosa</i> (Latreille, 1798) [<i>A. n. sp.</i>]	ae	5	1, 3, 4, 8	
<i>Bondroitia</i> Forel, 1911				
<i>B. saharensis</i> (Santschi, 1923) [<i>B. sp.</i>]	ae	5	8, 9	
<i>Cardiocondyla</i> Emery, 1869				
<i>C. bicoronata</i> Seifert, 2003	r		1, 3, 7–10, 14–17	N
<i>C. elegans</i> Emery, 1869	r	4–6	1	All
<i>C. emeryi</i> Forel, 1881		2–6	4, 7–9, 13, 15	N, NA, t
* <i>C. gallilaeica</i> Seifert, 2003	r	6, 7	7	e
* <i>C. israelica</i> Seifert, 2003	r	6, 7	14, 15	N, e
<i>C. mauritanica</i> Forel, 1890 [<i>C. nuda</i> Mayr, 1866]	r	2, 3, 5, 6	7–9, 13, 14, 17, 18	All, t
<i>C. nigra</i> Forel, 1905 [<i>C. torretassoi</i> Finzi, 1936 (part)]	r	5, 6	8, 9, 14, 17	N
<i>C. obscurior</i> Wheeler, 1929 [<i>C. wroughtonii</i> Forel, 1890]	r	2, 3, 6, 7	4, 8, 9	N, EU, t
<i>C. persiana</i> Seifert, 2003	r		17	WA
<i>C. sahlbergi</i> Forel, 1913	k	2–4, 6, 7	7–9, 11	N
? <i>C. wroughtonii</i> (Forel, 1890)	ae	5	8	N, t
<i>Crematogaster</i> Lund, 1831				
<i>C. auberti auberti</i> Emery, 1869	ae	1, 3	7–9	N

Table 1 cont.

Taxon	Author	Citation	Distribution	
			Israel	Regional
<i>C. auberti nigripes</i> Menozzi, 1940 [<i>C. antaris</i> Forel, 1894]	ae	5	14, 17	N, NA
<i>C. inermis armatula</i> Emery, 1926	n	2, 3	7, 8, 11, 17	N, e
<i>C. inermis inermis</i> Mayr, 1862		2, 3, 5, 6	8–10, 18	N
<i>C. ionia</i> Forel, 1911		2, 3, 5, 6	1–3, 7, 10, 11, 19	N, EU
<i>C. jehovae jehovae</i> Forel, 1907		1–7	1–4, 6–15, N, 17, 18	EU
<i>C. jehovae mosis</i> Forel, 1909	ae	2, 3, 6, 7	8, 11, 13, 15	N, e
<i>C. lorteti</i> Forel, 1910		2–6	2, 4, 7, 9, 11	N, EU
<i>C. sordidula</i> (Nylander, 1849)		2, 3, 5, 6	1, 11, 18, 19	N
<i>C. warburgi</i> Menozzi, 1933	ae	2, 3, 6, 7	14, 18	e
Goniomma Emery, 1895				
<i>G. sp.</i> IL01 [<i>Goniomma n. sp.</i>]	ae	5, 6	12, 17	
Lophomyrmex Emery, 1892				
? <i>L. taivane</i> Forel, 1912 [<i>L. quadrispinosus</i> (Jerdon, 1851)]	q	5, 6	15	t
Messor Forel, 1890				
<i>M. aegyptiacus aegyptiacus</i> (Emery, 1878)		1, 3, 5, 6	14, 15, 17	N
<i>M. aegyptiacus felah</i> Santschi, 1923	ae	6	14, 16	e
*? <i>M. alexandri</i> Tohmé & Tohmé, 1981	ae	6	1	N, EU
<i>M. arenarius arenarius</i> (Fabricius, 1787)		2–6	8, 10, 13–15, 17	N
<i>M. arenarius ratus</i> Menozzi, 1933	ae	2, 3, 6, 7	10, 12, 15, 17	e
<i>M. concolor</i> Santschi, 1927	ae	1, 3, 6	11, 13	N
<i>M. dentatus</i> Santschi, 1927		1–3, 5–7	1, 2, 7, 10–13, 19	WA
<i>M. denticulatus</i> Santschi, 1927	ae		14	N
<i>M. ebeninus</i> Santschi, 1927		1–6	5, 8–11, 13, 15–18	All
<i>M. hebraeus</i> Santschi, 1927	ae	2–4, 6, 7	2–4, 7, 8, 10, 11, 18	N, e
<i>M. instabilis</i> (Smith, F., 1858)	ae		14	WA
<i>M. intermedius</i> Santschi, 1927	ae	2, 3, 6	1, 7–10, 18	N
<i>M. maculifrons</i> Santschi, 1927	ae		1, 11	N, WA
<i>M. meridionalis</i> (André, 1883)	ae	1, 3, 6	13	All
<i>M. minor</i> (André, 1883)	ae		7, 13	All
<i>M. orientalis</i> (Emery, 1898)		1–3, 5, 6	7, 18, 19	N
<i>M. rufotestaceus</i> (Foerster, 1850)		1–3, 5, 6	11–13, 15	N
<i>M. rugosus bodenheimeri</i> Menozzi, 1933	ae	2–4, 6, 7	2, 7, 8, 13, 14	e
<i>M. rugosus rugosus</i> (André, 1881)		2–7	9, 13–15, 17	N, e
* <i>M. semirufus emeryi</i> Santschi, 1927	a	6, 7	11	e

Table 1 cont.

Taxon	Author	Citation	Distribution	
			Israel	Regional
<i>M. semirufus semirufus</i> (André, 1883)		1–7	1, 5, 7, 8, 11, 18	N
<i>M. structor</i> (Latreille, 1798)	c	1, 5	1, 8	N
[<i>M. muticus</i> (Nylander, 1849)]				
<i>M. sultanus</i> Santschi, 1917		2, 3, 5–7	8, 11, 15	N, EU
<i>M. syriacus</i> Tohmé, G., 1969		5, 6	13, 14, 17	N
Monomorium Mayr, 1855				
<i>M. abeillei</i> André, 1881		2, 3, 5–7	8, 9, 13–17	N
<i>M. advena</i> Brown & Wilson, 1957		2, 3, 5–7	1, 4, 11, 18	N, e
* <i>M. atomum aharonii</i> Menozzi, 1933	ae	2, 3, 6, 7	8, 9	e
<i>M. baal</i> Wheeler & Mann, 1916	ae	2–5	4, 8, 9, 15	N, e
[<i>M. sp.</i>]				
<i>M. barbatulum</i> Mayr, 1877		5, 6	15, 17	N
<i>M. bicolor judaicum</i> Menozzi, 1933	ae	2–4, 6, 7	4, 8, 9, 13	N, e
* <i>M. bodenheimeri</i> Menozzi, 1929			5–7	N, e
<i>M. clavicorne</i> André, 1881		3, 5–7	7–9, 14	N, AP
<i>M. dentigerum</i> (Roger, 1862)		2–6	4, 7, 8, 11–13, 15	N
<i>M. destructor</i> (Jerdon, 1851)		2–7	8, 11, 13, 14	All, t
<i>M. grassei</i> (Tohmé & Tohmé, 1980)	aj		18	N, e
<i>M. lameerei</i> (Forel, 1902)		5, 6	15	NA
<i>M. mayri</i> Forel, 1902		2, 3, 5, 6	1, 4, 7–9, 13–15	N, AP
*? <i>M. monomorium</i> Bolton, 1987	b	2–4, 6	8	N
<i>M. niloticum niloticoides</i> Forel, 1910	ae	1–4, 7	11, 13	N
<i>M. niloticum niloticum</i> Emery, 1881		1, 5, 6	13, 14	N, e
<i>M. pallidum</i> Donisthorpe, 1918		5, 6	7–9, 18	
<i>M. pharaonis</i> (Linnaeus, 1758)		2, 3, 5, 6	1–19	All, t
<i>M. phoenicum</i> Santschi, 1927	ae	2–5	1, 4, 7–9, 12	N
[<i>M. sp.</i>]				
<i>M. sahlbergi</i> Emery, 1898		2–7	7–11, 13, 18	e
<i>M. salomonis</i> (Linnaeus, 1758)	ae	2, 3, 5, 6	7–9, 13, 14, 16	All
[<i>M. atratum</i> Santschi, 1912]				
<i>M. sommieri</i> Emery, 1908		8, 9, 15, 17		
<i>M. subopacum ebraicum</i> Menozzi, 1933		2, 3, 5–7	4, 7, 8, 12, 13	e
<i>M. venustum</i> (Smith, F., 1858)		1–6	1–4, 6–15, 17, 18	N, AP
Myrmecina Curtis, 1829				
<i>M. graminicola</i> (Latreille, 1802)		5, 6	1, 3, 11, 18	
Nesomyrmex Wheeler, 1910				
<i>N. angulatus</i> Mayr, 1862		5, 6	13, 14, 17	N
Oxyopomyrmex Andre, 1881				
<i>O. oculatus</i> André, 1881		2–7	8, 9, 13, 15, 17	N, e

Table 1 cont.

Taxon	Author	Citation	Distribution	
			Israel	Regional
<i>Pheidole</i> Westwood, 1839				
<i>P. jordanica</i> Saulcy, 1874	ae	2–4, 6, 7	11, 13	N
<i>P. minuscula</i> Bernard, 1953	ad		16	N, AP
<i>P. pallidula pallidula</i> (Nylander, 1849)		1–6	1–13, 18	N
<i>P. pallidula recticeps</i> Menozzi, 1932	ae		7, 13, 14, 16, 17	N, NA
<i>P. sinaitica</i> Mayr, 1862		3, 5, 6	8, 13, 15, 17	All
<i>P. teneriffana</i> Forel, 1893		5, 6	7–9, 11, 13, 16	All, t
<i>Pyramica</i> Roger, 1862				
<i>P. argiola</i> (Emery, 1869)		5, 6	1, 7–9	
<i>P. membranifera</i> (Emery, 1869)		5, 6	8	N, t
<i>Rhoptromyrmex</i> Mayr, 1901				
* <i>R. schmitzi</i> (Forel, 1910)		1–3, 5–7	11	e
<i>Solenopsis</i> Westwood, 1840				
<i>S. dentata</i> Collingwood & Kugler, J., 1994 h [<i>S. sp.</i>]		5, 6	7, 9	e
<i>S. fugax</i> (Latreille, 1798)		2, 3, 5, 6	18, 19	N, t
<i>S. kochi</i> ? Finzi, 1936 or n. sp. [<i>S. sp.</i>]	ae	5, 6	8	e
<i>S. latro</i> Forel, 1894	aj		3	
<i>S. monticola</i> Bernard, 1950	aj		19	EU
<i>S. orbula terniensis</i> Forel, 1905 [<i>S. orbula</i> Emery, 1875]	ae	5, 6	7, 11, 13	
<i>S. sp.</i> IL01 [<i>S. sp.</i>]	aj	5, 6	7	N, e
<i>S. sp.</i> IL02 [<i>S. santschii</i> Forel, 1905]	aj	5, 6	15	
<i>Stenammina</i> Westwood, 1839				
<i>S. lippulum</i> (Nylander, 1849) [<i>S. n. sp.</i>]	ae	5	1, 3, 11	WA
<i>Strongylognathus</i> Mayr, 1853				
* <i>S. palaestinisensis</i> Menozzi, 1933		2, 3, 5–7	5	e
<i>Temnothorax</i> Mayr, 1861				
<i>T. arenarius</i> Santschi, 1908		5, 6	15–17	NA
<i>T. bulgaricus aeolius</i> Forel, 1911	ae		1	N
<i>T. bulgaricus bulgaricus</i> (Forel, 1892) [<i>Leptothorax sp.</i>]	ae	5	7, 10, 11	EU
<i>T. flavispinus</i> (André, 1883)		2, 3, 5–7	8, 9, 13	e
<i>T. luteus</i> (Forel, 1874)	ae	2, 3	4, 8	N, EU
<i>T. niger</i> (Forel, 1894)	a	6	19	EU
<i>T. recedens</i> (Nylander, 1856)		5, 6	1, 3, 9, 11	N
<i>T. rottembergii jesu</i> (Forel, 1913) [<i>L. jesu</i> (Forel, 1913)]	ae	2, 3, 5–7	2, 6, 11, 15, 17, 18	N, e

Table 1 cont.

Taxon	Author	Citation	Distribution	
			Israel	Regional
<i>T. semiruber</i> (André, 1881)		2–7	7, 11	N, EU
<i>T. unifasciatus</i> (Latreille, 1798)	a	6	7	
<i>T. sp. IL01</i> [<i>Leptothorax</i> sp.]	ae	5	3, 8	
<i>T. sp. IL02</i> [<i>Leptothorax</i> sp.]	ae	5	1, 7	
<i>T. sp. IL03</i> [<i>Leptothorax</i> sp.]	ae	5	1, 3, 8, 9, 18	
<i>T. sp. IL04</i> [<i>Leptothorax</i> sp.]	ae	5	8	
<i>T. sp. IL05</i>	ag		19	
<i>T. sp. IL06</i>	ag		3	
Tetramorium Mayr, 1855				
<i>T. bicarinatum</i> (Nylander, 1846)	aj		8	N, t
<i>T. davidi</i> Forel, 1911		1–7	3, 5, 7, 8, 11, 15	N
<i>T. delagoense</i> Forel, 1894		3, 5, 6		N, AP
<i>T. depressiceps</i> Menozzi, 1933		2–7	12, 13	N, AP
<i>T. lanuginosum</i> Mayr, 1870		2, 4–6	7–9, 13, 15	N, t
<i>T. lucidulum</i> Menozzi, 1933		2–6	1, 4, 7, 8, 11, 18	N
<i>T. meridionale</i> Emery, 1870		2, 3, 5, 6	1, 7, 8, 11	N, EU
<i>T. persignatum</i> Bolton, 1995	f	2–7	7, 11, 18, 19	e
[<i>T. signatum</i> Menozzi, 1933]				
<i>T. punicum</i> (Smith, F., 1861)		1–7	2, 7–13, 18	N
<i>T. sahlbergi</i> Finzi, 1936		5, 6	7, 15, 17	N, EU
<i>T. schmidtii</i> Forel, 1904 [<i>T. sp.</i>]	ae	1–7	8, 11	N
<i>T. semilaeve judas</i> Wheeler & Mann, 1916	ae	2–7	13	e
[<i>T. judas</i> Wheeler & Mann, 1916]				
<i>T. simillimum</i> (Smith, F., 1851)	ae	2, 3, 5, 6	7–9	N, t
[<i>T. sp.</i>]				
<i>T. striativentre</i> Mayr, 1877		3, 5, 6	18	WA
<i>T. syriacum</i> Emery, 1924		5, 6	7, 11, 13, 17	N, AP
<i>T. taueret</i> Bolton, 1995	ae	5, 6	11–13	N, e
[<i>T. caespitum</i> (Linne, 1758)]				
<i>T. sp. IL01</i> [<i>T. sp.</i>]	af	5, 6	13	
<i>T. sp. IL02</i>	t	6	7	
<i>T. sp. IL03</i> [<i>T. sp.</i>]	af	5, 6	1	
Wasmannia Forel, 1893				
<i>W. auropunctata</i> (Roger, 1863)	s	6	1, 4, 7–9, 14	t
PONERINAE				
Anochetus Mayr, 1861				
<i>A. bytinskii</i> Kugler & Ionescu, 2007	m	5, 6	1–3, 5, 12	e
[<i>A. n. sp.</i>]				
Cryptopone Emery, 1893				
*? <i>C. ochracea</i> (Mayr, 1855)	ab		7, 8	N

Table 1 *cont.*

Taxon	Author	Citation	Distribution		
			Israel	Regional	
<i>Emeryopone</i> Forel, 1912					
		* <i>E. loebli</i> (Baroni Urbani, 1975)	5–7	7	N, AP
<i>Hypoponera</i> Santschi, 1938					
		<i>H. abeillei</i> (André, 1881)	5, 6	7, 9	N
		<i>H. eduardi</i> (Forel, 1894)	3, 5, 6	1–3, 7, 18	N
		<i>H. punctatissima</i> (Roger, 1859)	5, 6	3, 7, 9	All, t
		<i>H. ragusai ragusai</i> (Emery, 1894)	ae	8	N
		<i>H. ragusai santschi</i> (Emery, 1909)	ae	2, 3, 5, 6	7, 8, 13
		[<i>H. santschii</i> (Emery, 1909)]			
		<i>H. sp.</i> IL01 [<i>H. sp.</i>]	ac	5	1
<i>Pachycondyla</i> Smith, F., 1858					
		<i>P. darwinii</i> (Forel, 1893)	ae	5, 6	7
		[<i>P. testacea</i> (Motschoulsky, 1863)]			t
<i>Ponera</i> Latreille, 1804					
		<i>P. coarctata</i> (Latreille, 1802)	5, 6	1	
PROCERATIINAE					
<i>Proceratium</i> Roger, 1863					
		<i>P. galilaeum</i> De Andrade, 2003	d	5–7	1
		[<i>P. arnoldi</i> Forel, 1913]			e
		<i>P. melinum</i> (Roger, 1860)	5, 6	18	
PSEUDOMYRMECINAE					
<i>Tetraponera</i> Smith, 1852					
		<i>T. ambigua</i> (Emery, 1895)	u	5, 6	7, 14, 16
		[<i>T. bifoveolata</i> Mayr, 1895]			N

Table 2
Number of genera, species and subspecies in the subfamilies of the ants of Israel

Subfamily	Number of genera	Number of species and subspecies
MYRMICINAE	20	138
FORMICINAE	9	69
PONERINAE	6	11
DOLICHODERINAE	3	6
LEPTANILLINAE	2	6
AMBLYOPONINAE	1	3
CERAPACHYINAE	1	2
DORYLINAE	1	2
PROCERATIINAE	1	2
AENICTINAE	1	1
PSEUDOMYRMECINAE	1	1
Total	46	241

Cataglyphis sp. IL01, collected in the Dead Sea area and central Negev, fits Emery's (1906) original description of *C. luteus* (Pisarski, 1967), a junior synonym of *C. lividus* in Radchenko (1997), but differs significantly from *lividus* by the distinctly longer scape, narrower head, and higher petiolar node at equal body size. Clarification of the taxonomic status of this species is pending the examination of the types.

Cataglyphis sp. IL02 near *nodus* (Brullé, 1833) was identified by Kugler as variety *drusa* Santschi, 1929 (unavailable name in Agosti, 1990). The species was collected in the Upper Galilee, Carmel Ridge, and Judean Hills. This species differs from *C. savignyi* and *C. sp. IL04* by the presence of erect hairs on the propodeum dorsum, and the legs being of the same color as the mesosoma pleura as opposed to the legs being darker than pleura in *C. savignyi* and *C. sp. IL04*. The species is still undescribed.

Cataglyphis sp. IL03 differs from *C. altisquamis* by the higher petiole and red color of the head and mesosoma. This is a widely distributed species throughout the northern coastal plain and Galilee that was reported in Kugler (1988) as new, although it has not yet been described.

Cataglyphis sp. IL04 was considered to be a new species by D. Agosti, and it differs from the similar *C. savignyi* by the lower propodeum, brighter color, and its distribution and ecology (D. Agosti, personal communication). It is widely distributed in the Galilee and northern Jordan Valley. However, to the best of our knowledge, it is still undescribed.

Goniomma sp. IL01 was reported in Kugler (1988) as a new species. The shape of its head and mesosoma, and the mesosoma sculpture, length, and vertical orientation of the propodeal spines are similar to those of *G. punicum* (Forel, 1907), from which it differs by its larger size, propodeal spines subparallel vs. distinctly divergent, broader, postpetiole, and the coarse sculpture of the head. Status still unclear.

Hypoponera sp. IL01 from the Hula differs from *H. punctatissima* by a frontal furrow that is broadened posteriorly, a slightly more elongated head, and a thicker petiole node; it could not be identified with certainty (W.L. Brown, personal communication). The species has unclear status.

Lasius sp. BARB (SMNG) refers to *L. lasioides* var. *barbarus* Santschi 1931, a variety that should be elevated to species rank (B. Seifert, personal communication). The species was collected in the Upper Galilee and Judean Hills.

Lasius sp. ISRA (SMNG) is an undescribed species of the *L. turcicus* Santschi complex that was collected in the Upper Galilee and the Golan Heights.

Leptanilla sp. IL01 was collected from the central and southern coastal plain. Its size and the shape of gonapophyses shield are similar to those of *L. minuscula* Santschi, but the two differ in the morphology of the antenna and petiole that are similar in *L. sp. IL01* to those of *L. israelis*. A description of this new species is in preparation.

Solenopsis sp. IL01, collected from Ginosar, is similar to *S. orbula* from Palmyra, Syria, described by Tohmé and Tohmé (1980b). The worker differs from *S. orbula* (Corsica, Israel, and Algeria) in the head being distinctly more elongated, eye larger, and petiole node round in dorsal view. According to measurements by Tohmé and Tohmé (1980b), the gyne from Palmyra is much larger than the *S. orbula* gyne from Corsica and Israel examined by us. The status of this species is unclear.

Solenopsis sp. IL02 was collected in Nahal Sekher only once. It was misidentified by Kugler (1988) as *S. santschii*, from which it differs by the lack of eyes and by the shape of the head that is more elongated. Its status remains unclear.

The identification of four *Temnothorax* species (sp. IL01–IL04) is in progress (A. Schultz, personal communication). Two *Temnothorax* specimens, *Temnothorax* sp. IL05 and *Temnothorax* sp. IL06, were labeled “n. sp.” by A. Schultz, but the formal description awaits collection of more material (A. Schultz, personal communication).

Tetramorium sp. IL01, which was collected in Jerusalem, is similar to *T. schmidti* in sculpture and color, but is smaller and has disproportionately shorter propodeal teeth. It was considered by B. Poldi (personal communication) to be a new species belonging to the *T. caespitum* (L.) complex. Its status remains unclear.

Tetramorium sp. IL02 belongs to the *T. simillimum* species group, but differs from *T. delagoense* and *T. simillimum* by the presence of projecting hairs on the gena, one above and one below the eye. It was collected in the rift valley, from Lake Kinneret to the northern ‘Arava. Status unclear.

Tetramorium sp. IL03, collected in Nahal Poleg, is similar to *T. meridionale*, from which it differs by the head being finely striate longitudinally, without transverse striae posteriorly, petiolar, and post-petiolar node, and with a smooth and shiny dorsal surface, and short propodeal teeth. It was considered by B. Poldi (personal communication) to be a new species distinct from *T. davidi* and *T. meridionale*, but remained undescribed and its status is unclear.

Taxa included in the checklist that were not examined

The occurrence in Israel of nine species marked with “* ?” in Table 1 has not been verified. Of these, eight species (*Camponotus baldaccii*, *C. interjectus*, *C. xerxes*, *Lasius brunneus*, *Messor alexandri*, *Monomorium monomorium*, *Paratrechina vividula*, and *Tapinoma erraticum*) were reported from Israel in the literature but no relevant specimens were located by us. *Cryptopone ochracea* (one series of alates) is listed in the TAUI records, but no specimens could be located in the TAUI or PPIS collections. Because all of these taxa were reported from neighboring countries (Table 1), their presence in Israel is considered likely, except for *L. brunneus* that was reported by André (1881) from the port of Jaffa but is an unlikely inhabitant of coastal plains (Tohmé, 1969). This record is retained in the list but examination of the original material is needed to confirm it.

Problematic records

Cardiocondyla wroughtonii (a series of workers from Tel Aviv) and *Lophomyrmex taivane* (one worker from Kurnub), marked “?” in Table 1, are considered here as accidental introductions that probably did not establish, since no additional material was collected.

Excluded taxa

Aphaenogaster pallida cypriotes, recorded by Ofer et al., 1978, refers to misidentified *A. subterraneoides*. The recorded material was examined by us.

Camponotus alibaba, nomen nudum in Ofer et al. (1978) refers to misidentified *C. jaliensis*. The recorded material was examined by us.

Dorylus affinis in Bytinski-Salz (1953) and Taylor (2007) refers to misidentified *D. fulvus*. The material from Israel was examined.

Formica schardj Forskål (in Agosti and Johnson, 2005) refers to a record from Yemen (Forskål, 1775, p. 23), not Israel, as already shown by Emery (1892).

Tetramorium spinulosum, nomen nudum in Ofer et al. (1978) refers to misidentified *T. syriacum*. The recorded material was examined by us.

Geographic distribution

Of the 241 taxa listed in Table 1, 157 that are marked with an “N” in the “Distribution: Regional” column were also reported from neighboring countries, whereas 24 of them are known only from Israel, Lebanon, Syria, Jordan, and/or Egypt. These 24 taxa, as well as 25 taxa that are known from Israel alone, are considered endemic to this region and marked “e” in the “Distribution: Regional” column in Table 1. The 49 endemic taxa comprise about 20% of all taxa in Table 1, a figure similar to the degree of endemism found in freshwater fish in Israel, and much higher than that of other Israeli vertebrates (Tchernov, 1988) and beetles (V. Chikatunov, personal communication).

Israel shares 170 species with Europe, western Asia, and North Africa. *Bondroitia saharensis*, known from the Nigerian Sahel, is the single, non-tramp species found in Israel that has not been reported (yet) from the above-mentioned geographic regions.

Among the species shared between Israel, Europe, western Asia, and North Africa, 15 species are reported from all of these geographic regions. They are marked “All” in the “Distribution: Regional” column in Table 1. However, only nine of these species are non-tramp species, and of them only two (*Cardiocondyla elegans* and *Monomorium salomonis*) are distributed from the Iberian Peninsula to Iran, and two (*Messor minor* and *Pheidole sinaitica*) from Morocco to Iran.

Ninety-three species are shared with Europe, of which six species are reported only from Israel and Europe and 15 also from countries adjacent to Israel. Of the 21 species marked “EU” in the “Distribution: Regional” column in Table 1, only *Solenopsis monticola*, *Tetramorium meridionale*, and *Temnothorax niger* also occur in the Iberian Peninsula, and only *Camponotus dalmaticus* occurs in central Europe.

Israel shares 112 species with western Asia: 75 with western Asia, excluding the Arabian Peninsula, and 71 with the Arabian Peninsula. Among the 16 taxa that are shared with western Asia, excluding the Arabian Peninsula (marked “WA” in the “Distribution: Regional” column in Table 1), two groups can be distinguished according to their distribution. One group comprises species reported from Anatolia, Transcaucasia, and/or “Kurdistan” (*Camponotus cilicicus*, *C. festai*, *C. kurdistanicus*, *Cataglyphis altisquamis*, *Cerapachys piochardi*, *Stenammas lippulum*, and *Temnothorax bulgaricus aeolius*) that were collected only in northern regions of Israel. The second group comprises species reported from Iran and/or Afghanistan (*Camponotus interjectus*, *C. turkestanus*, *Cardiocondyla persiana*, and *Paratrechina sindbadi*) that are distributed in Israel,

mostly in the Irano–Turanian region, from the Jordan Valley to the Negev. Of the 17 species exclusively shared with the Arabian Peninsula (marked “AP” in the “Distribution: Regional” column in Table 1), *Emeryopone loebli* is known only from northern Israel (Galilee) and Saudi Arabia, whereas the other 16 species were reported from adjacent countries as well, but not from western North Africa. Some of these species (*Cataglyphis holgerseni*, *C. isis*, and *C. sabulosus*) are restricted to Israel, Sinai, and the Arabian Peninsula, whereas others (*Cataglyphis acutinodis* and *Lepisiota gracilicornis*) extend southwards into the Afrotropical region. The species *L. canescens*, *L. obtusa*, *Pheidole minuscula*, and *Tetramorium delagoense* have a wider Afrotropical/Sahel distribution, with a northern boundary in Israel.

One hundred-sixteen species from Israel are also reported from northern Africa. Of the 9 species uniquely shared with western North Africa (excluding Egypt), marked “NA” in the “Distribution: Regional” column in Table 1, 6 are eremic (Kugler, 1988): *Cataglyphis bombycinus*, *Crematogaster auberti nigripes*, *Monomorium lameerei*, *Pheidole pallidula recticeps*, *Solenopsis* sp. IL02 and *Temnothorax arenarius*. They are distributed in Israel in the Negev and the ‘Arava Valley (Kugler, 1988).

As noted by Kugler (1988), Israel has a relatively high number of tropical species. Twelve tropical non-tramp species are reported from Israel in this study. Additionally, we note that the endemic *Aenictus* sp. IL01, *Anochetus bytinskii*, *Aphaenogaster philipsi*, *Proceratium galilaeum*, and *Dorylus fulvus ruficeps* show clear affinities to Afrotropical species.

Nineteen tramp species are marked “t” in the “Distribution: Regional” column in Table 1. Most of these are of Palaearctic or Afrotropical origin. A few of these species were collected only infrequently, and therefore their present status in Israel is unclear (*Cardiocondyla wroughtonii*, *Lophomyrmex taivane*, and *Pachycondyla darwini*). Other species are probably well established, currently having a localized distribution (e.g., *Cerapachys longitarsus*, *Pyramica membranifera*, *Tetramorium bicarinatum*), or are already widespread (e.g., *Cardiocondyla emeryi*, *C. obscurior*, *Paratrechina longicornis*). Although for most species there are no additional data regarding their presence in Israel, there is one tramp species for which more information is available: the newly-discovered little fire ant (*Wasmannia auropunctata*) was found to have a negative impact on the local ant fauna, as well as on the abundance of spider and beetle species, in addition to being a nuisance to humans (Vonshak et al., 2010).

Further work

The provisional nature of the present checklist derives not only from uncertainty resulting from a relatively large number of taxa that were not examined, but also from the lack of relevant revisions. All the subspecies require revision. For example, Kugler (1988, and personal communication) considered the following subspecies to be color varieties of the nominal species: *Cataglyphis bombycinus sinaiticus*, *Crematogaster inermis armatula*, *C. jehovae mosis*, *Dorylus fulvus ruficeps*, *Messor aegyptiacus fellah*, and *M. semirufus emeryi*. He also considered *Pheidole jordanica* as a subspecies of *P. sinaitica*, and *Mes-*

sor concolor, *M. hebraeus*, *M. intermedius*, and *M. maculifrons* as color varieties of *M. semirufus* (Kugler, 1988). Conversely, Kugler (1988, and personal communication) considered the following subspecies as valid species, *Crematogaster auberti nigripes*, *Hypoponera ragusai santschi*, *Lepisiota frauenfeldi aegyptiaca* (see also Taylor, 2007), *Messor arenarius ratus*, *M. rugosus bodenheimeri*, *Monomorium niloticum niloticoides*, *Pheidole pallidula recticeps* (see also Taylor, 2007), *Plagiolepis pallescens isis*, *Tetramorium semilaeve judas*, *Temnothorax bulgaricus aeolius*, and *T. rottembergii jesus*, as well as *Camponotus aethiops concavus* Forel and *C. gestroi creticus* Forel.

Figure 1 illustrates the uneven sampling effort of ants in Israel, with large differences in numbers of species collected in adjacent regions. The TAUI collection still contains unsorted ant material, probably including new species that await study. Moreover, although Kugler (1988) added to the list many species with a cryptic lifestyle, we assume that additional such species remain to be found, particularly with the use of more suitable collecting methods, including soil-sifting techniques such as Berlese funnels or Winkler extractions of soil litter.

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