

Last updated: 13 November 2015

## **SPILOMENA**

According to Shuckard, 1838, the name derives from the Greek σπιλώμα.

*Celia* Shuckard, 1837:182. Type species: *Celia troglodytes* (Vander Linden, 1829) [= *Stigmus troglodytes* Vander Linden], by original designation and monotypy. Junior homonym of *Celia* Zimmermann, 1832.

*Spilomena* Shuckard, 1838:79. Substitute name for *Celia* Shuckard, 1837.

*Microglossa* Rayment, 1930:212. Type species: *Microglossa longifrons* Rayment, by original designation. Junior homonym of *Microglossa* Voight, 1831.

*Microglossella* Rayment, 1935:634. Substitute name for *Microglossa* Rayment, 1930.

*Taialia* Tsuneki, 1971j:10. Type species: *Taialia formosana* Tsuneki, 1971, by original designation and monotypy. Synonymized with *Spilomena* by R. Bohart in R. Bohart and Menke, 1976:41.

Important taxonomic papers: Šnoflák, 1944; Stelfox, 1950; Blüthgen, 1953; Hellén, 1954 (revision of *Spilomena* of Finland); van Lith, 1955; de Beaumont, 1956; Valkeila, 1957, 1961; Blüthgen, 1960 (revision of European species); Yarrow, 1969 (revision of British *Spilomena*); Dollfuss, 1986 (Western and Central Palearctic *Spilomena*); Vardy, 1987a (revision of New Zealand *Spilomena*); Antropov, 1991a, 1992c (key to South American *Spilomena*); R. Bohart and N. Smith, 1995 (revision of North American *Spilomena*); Vikberg, 2000 (key to *Spilomena* of Europe and Canary Islands).

Abdominal silk glands in adult females: de Melo, 1997.

Communal ground nesting: McCorquodale and Naumann, 1988; de Carvalho and Zucchi, 1989a, b.

Review of biology: Kazenas, 2001b:136.

### **1. acutitemporis Antropov**

*Spilomena acutitemporis* Antropov, 1992c:67, ♀. Holotype: ♀, Chile: Nuble: 3 km N Las Trancas (IML). – Antropov, 1993a:41 (Chile: Nuble: Termas de Chillán); Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

### **2. alboclypeata Bradley**

*Spilomena alboclypeata* Bradley, 1906:380, ♂. Holotype: ♂, Canada: British Columbia: Revelstoke in Selkirk Mountains (Cornell Univ.). – Krombein in Muesebeck et al., 1951:968 (in catalog of North American Hymenoptera); Krombein, 1958a:52 (USA: West Virginia: Lost River State Park), 60 (redescription), 1962b:13 (infestation by acarid *Lackerbaueria krombeini* Baker); Evans, 1970:487 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Krombein, 1979b:1608 (in catalog of North American Hymenoptera); Finnamore, 1982:84 (in Sphecid Fauna of Southern Quebec); R. Bohart and N. Smith, 1995:321 (in revision of North American *Spilomena*).

### **3. alini Antropov**

*Spilomena alini* Antropov, 1991a:59, ♀, ♂. Holotype: ♀, Brazil: São Paulo (ZMMU). – Antropov, 1992c:72 (Argentina), 1993a:41 (Brazil, Ecuador: locality records); Marsh and Melo, 1999:21 (nest parasite: *Heterospilus richardsi* Marsh and Melo, Braconidae); Melo, 2000:92 (use of nest by more than one female); Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

*Spilomena* sp.: de Carvalho and Zucchi, 1989b:799 (nesting habits), corrected to *Spilomena alini* by Melo, 2000:93.

### **4. ampliceps Krombein**

*Spilomena ampliceps* Krombein, 1952b:178, ♂, ♀. Holotype: ♂, USA: West Virginia: Hardy County: Lost River State Park (USNM). – Krombein, 1954a:6 (West Virginia: Lost River State Park), 1958a:61 (in key to *Spilomena* of Lost River State Park), 1958f:190 (in supplement to catalog of North American Hymenoptera: West Virginia); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Krombein, 1979b:1609 (in catalog of North American Hymenop-

tera); R. Bohart and N. Smith, 1995:321 (in revision of North American *Spilomena*); Buck, 2004:25 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within Ontario, first record from Canada: New Brunswick: Kouchibouguac National Park, and Ontario: Arrowhead Provincial Park).

### 5. *arania* Leclercq

*Spilomena arania* Leclercq, 1961b:60, ♀. Holotype: ♀, Zaire: Garamba National Park (MRAC). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

### 6. *argentina* Antropov

*Spilomena argentina* Antropov, 1992c:68, ♀, ♂. Holotype: ♀, Argentina: Tucumán: Amaicha (IML). – Melo, 2000:94 (may be social); Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

### 7. *atrata* Antropov

*Spilomena atrata* Antropov, 1993a:42, ♀. Holotype: ♀, Mexico: West Slope Cortez Pass (Kansas Univ.). – Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

### 8. *ausiana* Leclercq

*Spilomena ausiana* Leclercq, 1959a:35, ♀, ♂. Holotype: ♀, Namibia: Aus (BMNH). – Leclercq, 1959a:34 (in key to Afrotropical *Spilomena*); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

### 9. *australis* R. Turner

*Spilomena australis* R. Turner, 1910b:418, ♀. Holotype or syntypes: ♀, Australia: Queensland: Kuranda (BMNH). – R. Turner, 1916a:129 (in key to Australian *Spilomena*); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Cardale, 1985:232 (in catalog of Australian Sphecidae).

### 10. *bakeri* R. Bohart

*Spilomena bakeri* R. Bohart in R. Bohart and N. Smith, 1995:321, ♀, ♂. Holotype: ♀, USA: California: San Bernardino County: 15 mi. W Baker (UCD).

### 11. *barberi* Krombein

*Spilomena barberi* Krombein, 1962a:12, ♂, ♀. Holotype: ♂, USA: Virginia: Arlington (USNM). – Krombein, 1962b:13 (infestation by acarid *Lackerbaueria krombeini* Baker), 1963f:275 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:147 (Pennsylvania: Presque Isle State Park); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Krombein, 1979b:1609 (in catalog of North American Hymenoptera); Finnamore, 1982:85 (in Sphecid Fauna of Southern Quebec); S. Frommer, 1988:96 (California: Riverside County: Deep Canyon); R. Bohart and N. Smith, 1995:323 (in revision of North American *Spilomena*); Buck, 2004:25 (in checklist of Sphecidae of Ontario, Canada).

### 12. *beata* Blüthgen

*Spilomena beata* Blüthgen, 1953:172, ♀, ♂. Holotype: ♀, France: Haute Garonne: Saint B at (Lausanne). – Nouvel and Ribaut, 1955:141 (France: Haute-Garonne: L z, Luchon, Saint-B at); de Beaumont, 1956:389 (Switzerland; diagnostic characters); Wolf, 1958:14 (Germany: Plettenberg), 1959a:14 (Germany: Plettenberg; prey: larvae of *Taeniothrops* or *Thrips*), 1959b:28 (Germany: Nassau); Bl thgen, 1960:2 (locality records from Germany and Switzerland; nesting habits); Noskiewicz and Pu awski, 1960:68, 70 (in key to Polish Sphecidae, not yet found in Poland); Valkeila, 1961a:141 (comparison with *Spilomena exspectata*); de Beaumont, 1964a:300 (Switzerland), 1964c:117 (in Sphecid Fauna of Switzerland); Gauss, 1967:557 (Germany: Baden-W rttemberg: S dlicher Schwarzwald); Leclercq, 1968b:39 (Great Britain: Kent); Yarrow, 1969:100 (in key to British *Spilomena*); Oehlke, 1970:753 (Democratic Germany); Schmidt, 1971b:44 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Balthasar, 1972:178 (in Sphecid Fauna of Czechoslovakia); Guichard, 1972:243 (England: London: Bushey Park); Erlandsson, 1974:80 (Italy); Leclercq, 1974b:208 (locality records, mainly from Belgium); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Pu awski, 1978:250,

251 (in key to Sphecidae of European part of former USSR); Schwammler, 1978:419 (Germany: Württemberg); Richards, 1980:74 (in key to Sphecidae of British Isles); Dollfuss and Ressler, 1981:322 (Austria: Niederösterreich: Scheibbs District); Gauss, 1982:76 (Germany: nesting in old galleries of barkbeetle *Xyleborinus saxeseni* Ratzeburg); Skibińska, 1982:119, 122 (Poland: Mazovian Voivodship: Warszawa); Dollfuss, 1983b:8 (in catalog of Sphecidae of Austria), 1983c:352 (locality records), 361-367 (genitalia); Haack, Tschamtker, and Vidal, 1984:132 (Germany: Hamburg area); Haeseler, 1984:110 (Germany); Schmidt, 1984:290 (Germany: Baden-Württemberg); Haeseler, 1985a:350 (Germany: Schleswig Holstein), 1985c:577 (Germany: Memmert Island); Dollfuss, 1986:485 (in revision of Western and Central Palearctic *Spilomena*); Gayubo and Sanza, 1986:38 (Spain: Burgos); Skibińska, 1986b:150 (Poland: suburbs of Warszawa), 157 (rural and suburban parks), 162 (urban parks), 164 (streetside green), 173 (various green urban habitats); Vikberg, 1986b:76 (Finland); Schmidt and Westrich, 1987:370 (Germany: Mainz area); Dollfuss, 1988:11 (Austria: Bisamberg); Haeseler, 1988:211 (Germany: Friesian Islands); Kowalczyk, 1988b:64 (Poland: environs of Łódź); Jacobs, 1989:10 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivý, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Archer, 1990a:106 (Great Britain: Yorkshire), 1990c:17 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:127 (in key to selected *Spilomena* of Democratic Germany), 157 (new records from Democratic Germany); Pagliano, 1990:117 (in catalog of Italian Sphecidae); Schwammler and Priesner, 1990:538 (Austria: Kärnten); Day, 1991:xix (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:80 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991a:89 (Poland: Łódź); Nilsson, 1991:83 (Sweden: Lake Mälaren), 88 (first record from Sweden); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve SE Koblenz); Archer, 1992a:56 (Great Britain: Leicestershire); Nilsson, 1992:56 (known from Sweden); Wolf, 1992c:23 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Kuhlmann, 1993:76 (Germany: known from Westfalen); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Archer, 1994a:73 (Great Britain: Yorkshire); Theunert, 1994c:50 (Germany: summary of records from Niedersachsen and Bremen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Schmid-Egger, 1995:64 (Germany: NW Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:210 (summary of records from Germany: Rheinland-Pfalz Province); Skibińska, 1995:423, 426, 427 (Poland: pine forest in Białowieża Primeval Forest); Archer, 1996b:121 (Great Britain: Yorkshire); Arens, 1996:441 (Germany: Bayern: Bayreuth area); Jakubzik, 1996:253 (Germany: Köln); Jakubzik and Cölln, 1996b:401 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered); Woydak, 1996:33 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Archer, 1997b:98 (Great Britain: Watsonian Yorkshire); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); Tschamtker, Gathmann, and Steffan-Deventer, 1998:719 (trap-nesting in Germany); van der Smitten, 1998:68 (Germany: Schleswig-Holstein: Aukrug, Wulfsdorfer Heide); Dorow, 1999:573 (Germany: Hessen: Niddahänge E Rudingshain Forest Reserve); Neumayer, Schwarz, and Bregant, 1999:225 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:108 (in catalog of Belgian aculeates); M. Schwarz, 1999:85 (Austria: Oberösterreich: city of Linz area); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands), 48 (locality records), 52 (distribution in Scandinavia); Gonzáles, Gayubo, and Tormos, 2000:19 (Andorra: Santa Coloma); Jacobs, 2000:9 (Germany: Land Mecklenburg-Vorpommern: not endangered); Kazenas, 2000e:167, 168 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986); Schmid-Egger, 2000b:276 (Germany: Baden-Württemberg: shores of Rhine River); Vepřek, 2000:235 (Czech Republic: Bzenec, Helenkov, Podjavorník, Přerov); Zettel, 2000:26 (Austria: Hundsheimer Kogel, Wien); Dollfuss and Bitsch *in* Bitsch et al., 2001:117 (in Sphecid Fauna of Western Europe); Dorow, 2001:136, (Germany: Hessen: Schönbuche Forest Reserve), 165 (comments on distribution and ecology); Ljubomirov, 2001b:48 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:141 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smitten, 2001:63 (Germany: Schleswig-Holstein: data on endangerment missing); Zettel, Gross, and Mazzucco, 2001:70 (Austria: Wien); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Archer, 2002b:122 (Great Britain: Watsonian Yorkshire: distribution map); Shlyakhtenok and Skibinska, 2002:33 (Belarus: no specific locality);

- Wiśniowski, 2002:69 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:63 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Haeseler, 2003:340 (Germany: Niedersachsen: Harriersand Island near Bremen); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:70 (Germany: in catalog of wasps and bees of Bayern); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); von der Heide and Metscher, 2003:103 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:147 (Poland: Ojców National Park); Deván, 2004:148 (western Slovakia); Dollfuss, 2004a:122 (Austria, Bulgaria, Czech Republic); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:264 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Majzlan and Deván, 2004:33 (Slovakia: Malacky-Široké); Schneider and Carrières, 2004:98 (Luxemburg: Bon-Pays Region); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); Stolle et al., 2004:373 (Germany: Sachsen-Anhalt: in red list of Sphecidae); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:42 and 60 (in checklist of Polish Sphecidae); Asís, Gayubo, and Tormos, 2005:89 (description of larva); Cruz-Sánchez, Gayubo, González, and Torres, 2005:221 (Spain: Salamanca: San Martín del Castañar); Kofler, 2005:171 (Austria: Tirol: Lienz District: city of Lienz, Huben Kienburg in Matrei Common, Nußdorf in Nußdorf-Debant Common, Obersee in St. Jakob Common, Anflug an Heustadel and Heckenfluren in Virgen Common); Pagliano and Negrisolo, 2005:480 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:565 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:19 (Germany: Berlin); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Magdalou, 2006a:6, 10 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); Vepřek, 2006:511 (Czech Republic: Kokořínsko area); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:457 (larva described by Asís et al., 2005; recorded from France: département des Pyrénées-Orientales by Magdalou, 2006); Dorow, 2007:263 (Germany: Hessen: Niddahänge and Schönbuche Forest Reserves); Jacobs, 2007:84, 85 (in key to Crabronidae of Germany); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia); Gayubo, González, Tormos, and Asís, 2008:140 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:309 (Germany: Friesian Islands); Theunert, 2008:80 (Germany: map of distribution in Niedersachsen and Bremen); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of Hessen); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Józán, 2009:165 (Croatia: Načinivići); Pagliano, 2009:188 (France: Corse: Pirio); Straka, Dvořák, and Bogusch, 2009:265 (Czech Republic: Jizerské Mountains and Frýdlant region); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Schmid-Egger, 2010a:19 (in red list of Aculeata of Germany: relatively common); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:102 (Western Slovakia: recorded from Borská nížina); van der Smissen, 2010a:352 (Germany: Schleswig-Holstein: locality records); Gogala, 2011:13 (Slovenia: Podčetrtek); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:173 (Germany: Hessen: not endangered); Larivière, Chapelin-Viscardi, and Maillat-Mezeray, 2012:296 (France: Essonne: Boigneville); Shlyakhtenok, 2012a:172 (Belarus': collected in private plots); Saure, 2013:21 (Berlin: Treptow-Köpenick: Gosener Wiesen); Shlyakhtenok, 2013:160 (in annotated catalog of aculeate wasps of Belarus'); Vieira, Oliveira, Brewster, and Gayubo, 2013:19 (Portugal: Douro International Natural Park); Wiśniowski and Szczepko, 2013:49 (Poland: Kampinos National Park near Warszawa); Bitsch, 2014:408 (recorded from France by Pagliano, 2009, Magdalou, 2006, and Larivière et al., 2012); U. Frommer, 2014:28 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Saure, 2015:15 (Germany: Berlin-Lichterfelde).
- Spilomena expectata* Valkeila, 1957:164, ♀, ( $\sigma = Spilomena$  sp.). Holotype: ♀, Finland: Masku (Zool. Mus. Univ. Helsinki). Synonymized with *Spilomena beata* by Vikberg, 2000:41. – Blüthgen, 1960:2 (locality records from Finland and

Sweden); Valkeila, 1961a:141 (Finland, Sweden; description of ♂, comparison with *Spilomena beata*), 1962b:67 (southwestern Finland); Lomholdt, 1973a:107 (first record from Denmark: East Jutland: Strandkær, Mols), 1975c:140 (in Sphecid Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); as *expectata*); Pulawski, 1978:251 (in key to Sphecidae of European part of former USSR); Woydak, 1981:39 (Germany: Westfalen: Hamm); Axelsson, 1982:79 (Sweden); Dollfuss, 1983c:353 (Finland), 361-367 (genitalia); Lefeber, 1985:87 (Netherlands: southern Limburg); Dollfuss, 1986:492 (in revision of Western and Central Palearctic *Spilomena*); Vikberg, 1986b:76 (Finland); Dollfuss, 1991:81 (in key to Sphecidae of North and Central Europe); Nilsson, 1992:56 (known from Sweden); Kuhlmann, 1993:76 (Germany: known from Westfalen); Ohl et al., 2001:142 (recorded from Germany but not occurring there).

### 13. *bicuspidata* Antropov

*Spilomena bicuspidata* Antropov, 1993a:43, ♀. Holotype: ♀, Mexico: Zacatecas: Fresnillo (UCD). – R. Bohart and N. Smith, 1995:324 (in revision of North American *Spilomena*; California, New Mexico, Texas); Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

### 14. *bimaculata* (Rayment)

*Microglossa bimaculata* Rayment, 1930:216, ♀. Holotype: ♀, Australia: Victoria: Sandringham (ANIC). – **As *Spilomena bimaculata***: R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Cardale, 1985:232 (232 (in catalog of Australian Sphecidae).

### 15. *brasiliensis* Antropov

*Spilomena brasiliensis* Antropov, 1991a:57, ♀, ♂. Holotype: ♀, Brazil: São Paulo (ZMMU). – Antropov, 1993a:45 (Brazil: new records; description of ♂); Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

### 16. *canariensis* Bischoff

*Spilomena canariensis* Bischoff, 1937b:2, ♀, ♂. Holotype: ♀, Spain: Canary Islands: Tenerife: Orotava (Zool. Mus. Univ. Helsinki.). – Blüthgen, 1953:175 (in revision of European *Spilomena*); de Beaumont, 1968a:273 (Canary Islands: Hierro); Báez and Ortega, 1978:192 (Canary Islands); Erlandsson, 1978a:205 (Canary Islands); Dollfuss, 1983c:355 (Canary Islands), 361-367 (genitalia), 1986:486 (in revision of Western and Central Palearctic *Spilomena*); Hohmann, La Roche, Ortega, and Barquín, 1993:213 (detailed records from Canary Islands); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands), 48 (locality records); Smit, 2000:175 (Madeira).

### 17. *catamarca* Antropov

*Spilomena catamarca* Antropov, 1992c:70, ♀. Holotype: ♀, Argentina: Catamarca: Los Nascimientos de Abajo (IML). – Antropov, 1993a:45 (Brazil and Peru: new records; description of ♂); Amarante, 2002:52 (in catalog of Neotropical Crabronidae); Rasmussen and Asenjo, 2009:13 (in checklist of Crabronidae of Peru).

### 18. *chilensis* Herbst

*Spilomena chilensis* Herbst, 1920b:35, ♀, ♂. Lectotype: ♀, Chile: Santiago (MCZ), designated by Antropov, 1992c:72. – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae). – Sielfeld, 1981b:72 (in checklist of Chilean Sphecidae); Antropov, 1991a:60 (redescription of female), 1993a:47 (Chile: new locality records); Amarante, 2002:52 (in catalog of Neotropical Crabronidae); Chiappa, 2012:8 (Chile: Región de Valparaíso: no specific locality).

### 19. *clypearis* N. Smith

*Spilomena clypearis* N. Smith in R. Bohart and N. Smith, 1995:324, ♀, ♂. Holotype: ♂, USA: California: Riverside County: Deep Canyon 4 mi S Palm Desert (UCD).

### 20. *clypei* Li and He

*Spilomena clypei* Li and He, 1998a:74, ♀, China: Yunnan Province: Anning: Wenquan (Zhejiang Agricultural University).

## 21. *curruca* (Dahlbom)

*Celia curruca* Dahlbom, 1844:239, ♀. Lectotype: ♀, Norway: Thynaess near Levangerfjord (Lund), designated by Blüthgen, 1953:173. – Kirchner, 1867:221 (in catalog of European Hymenoptera). – As *Spilomena curruca*: Dahlbom, 1845:504 (new combination, in key); Kohl, 1890a:62 (as new synonym of *Spilomena troglodytes*); Blüthgen, 1949:89 (may occur in Germany), 1953:173 (in revision of European *Spilomena*); Hellén, 1954:62 (in revision of Finnish *Spilomena*), 1956:45 (recorded from Finland); Valkeila, 1957:167 (Finland), 168 (habitat), 169 (adult activity period), 175 (prey: larval Thysanoptera); Blüthgen, 1960:2 (locality records from Austria: Linz area, and Finland), 4 (Valkeila's biological observations reported); Noskiewicz and Puławski, 1960:67 (in key to Polish Sphecidae, not yet found in Poland); Valkeila, 1962b:67 (southwestern Finland); Balthasar, 1972:178 (in Sphecid Fauna of Czechoslovakia: may be expected in the country); Lomholdt, 1975c:138 (in Sphecid Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Puławski, 1978:249 (in key to Sphecidae of European part of former USSR); Dollfuss, 1983b:8 (in catalog of Sphecidae of Austria: Osttirol: Ottensheim), 1986:488 (in revision of Western and Central Palearctic *Spilomena*); Skibińska, 1986b:150 (Poland: suburbs of Warszawa), 162 (urban parks), 173 (various green urban habitats); Vikberg, 1986b:76 (Finland); Jacobs and Oehlke, 1990:126 and 127 (in key to selected *Spilomena* of Democratic Germany); Jacobs and Oehlke, 1990:157 (new records from Democratic Germany, part of specimens = *Spilomena differens*); Pagliano, 1990:117 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:538 (Austria: Kärnten); Dollfuss, 1991:81 (in key to Sphecidae of North and Central Europe); Budrys, 1992:23 (in list of Sphecidae of Lithuania); Nilsson, 1992:56 (known from Sweden); Theunert, 1994c:50 (summary of records from Niedersachsen and Bremen, Germany); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:406 (in key to Sphecidae of Russian Far East); Negrisola in Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Schmid-Egger, Risch, and Niehuis, 1995:210 (summary of records from Germany: Rheinland-Pfalz Province); Jakubzik and Cölln, 1996b:401 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Dorow, 1999:573 (Germany: Hessen: Niddahänge E Rudingshain Forest Reserve); Ljubomirov, 1999b:48 (Bulgaria: Mt. Vitosha near Sofia); Luig and Voolma, 1999:178 (Estonia: Viidumäe); Neumayer, Schwarz, and Bregant, 1999:225 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:108 (in catalog of Belgian aculeates); Blösch, 2000:203 (in Sphecid Fauna of Germany); Jacobs, 2000:9, 17 (Germany: Land Mecklenburg-Vorpommern: data insufficient to evaluate the degree of endangerment); Kazenas, 2000e:166, 167 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands, locality records), 48 (distribution in Scandinavia); Zettel, 2000:26 (Austria: Leopoldsteiner See NW Eisenerz); Dollfuss and Bitsch in Bitsch et al., 2001:118 (in Sphecid Fauna of Western Europe); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve), 166 (comments on distribution and ecology); Ohl et al., 2001:141 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: data on endangerment missing); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Archer, 2002b:122 (Great Britain: Watsonian Yorkshire: distribution map); Gayubo, González, Tormos, and Asís, 2002:90 (Spain: Navarra: Artikutza); Martínez de Murguía, Vázquez, and Nieves Aldrey, 2002:202 (Spain: Navarra: Artikutza Forest Reserve at 43°09'28"–43°14'52"N 0°1'45'35"–01°49'30"E); Wiśniowski, 2002:70 (Poland: Ojców National Park); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:70 (Germany: in catalog of wasps and bees of Bayern); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: probably endangered); Wiśniowski in Dylewska and Wiśniowski, 2003:147 (Poland: Ojców National Park); Archer, 2004c:232 and 2004e:76 (Great Britain: Yorkshire: Sheffield); Dollfuss, 2004a:123 (Czech Republic: Majdalena, Vyškov); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Kuhlmann, 2004:230 (Germany is responsible for preservation of this species on its territory); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); Stolle et al., 2004:373 (Germany: Sachsen-Anhalt: last collected in 1981); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:42 and 60 (in checklist of Polish Sphecidae); Bergsten, Ekerholm, Gabrielsson, Hellquist, Petersson, Werner, Ström, Chauvet,

and Dalecky, 2005:16 (Sweden: Västerbotten: Bjuröklubbs Nature Reserve); Jacobs, 2005b:149 (Germany: Mecklenburg-Vorpommern: Menkendorf); Kofler, 2005:172 (Austria: Tirol: Lienz District: Nußdorf-Debant); Pagliano and Negrisolò, 2005:480 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:565 (Germany: Niedersachsen: city of Bremen and adjacent area); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Wiśniowski, 2005a:312 (Poland: Ojców National Park; occurring only in forest and on wooden buildings); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:457 (recorded from Spain by Gayubo et al., 2002); Jacobs, 2007:82, 84 (in key to Crabronidae of Germany); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Bohemia), 219 (first record from Czech Republic: Cirkvice, Sedlice, Velký Vřešt'ov); Haeseler, 2008:309 (Germany: Friesian Islands); Nemkov, 2008b:19 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:80 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009:24 (Great Britain: Yorkshire: Sheffield); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of Hessen); Nemkov, 2009b:72 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Schmid-Egger, 2010a:19 (in red list of Aculeata of Germany: relatively common); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:185 (Germany: records from Hessen actually refer to *Spilomena differens*); Nemkov, 2012c:437 (in catalog of Crabronidae of Russian Far East); Terayama, 2012:8 (in key to Pemphredonini of Japan), 15 (description), 20 (in checklist of Pemphredonini of Japan); Shlyakhtenok, 2013:161 (in annotated catalog of aculeate wasps of Belarus); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces).

*Spilomena pulawskii* Dollfuss, 1983c:358, ♂. Holotype: ♂, Poland: Tatry Mountains: Dolina ku Dziurze (NHMW). Synonymized with *Spilomena curruca* by Vikberg, 2000:36. – Dollfuss, 1983c:361-367 (genitalia), 1986:497 (revision), 1989:11 (holotype in NHMW); Jacobs and Oehlke, 1990:126 (in key), 1990:158 (unknown from Democratic Germany); Nilsson, 1992:54 (Sweden: Kaltisbäcken near Messaure), 56 (first record from Sweden); Dollfuss, 1996:897 (first record from Austria, description of ♀); Celary, 1997:58 (in checklist of Animals of Poland); Skibińska in Bogdanowicz, Chud-zicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae).

*Spilomena nikkoensis* Tsuneki, 1971b:10, ♀, ♂. Holotype: ♀, Japan: Nikko: Shobugahama (originally K. Tsuneki coll., now Hyogo Mus.). Synonymized with *Spilomena curruca* by Budrys in Nemkov, Kazenas, Budrys, and Antropov, 1995:406. – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Tano, 1994a:5 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:28 (holotype transferred to Hyogo Mus.).

*Spilomena nikkoensis* Tsuneki, 1971e:47. Objective synonym of *Spilomena nikkoensis* Tsuneki, 1971b (in key to *Spilomena* of Japan).

As *Spilomena troglodytes*: Nielsen, 1907:40 (Denmark; partly), corrected to *Spilomena differens* by Lomholdt, 1971:125.

## 22. *dedzcli* Tsuneki

*Spilomena dedzcli* Tsuneki, 1971b:12, ♀. Holotype: ♀, Japan: Fukui Prefecture: Shimo-utinami (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1973c:20 (nest); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Tano, 1994a:4 (holotype in K. Tsuneki collection); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:406 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:28 (holotype transferred to Hyogo Mus.); Nemkov, 2008b:19 (in catalog of Crabronidae of Asiatic Russia), 2009b:72 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2011:95 (known only from Kuril Islands and Japan); Nemkov, 2012c:437 (in catalog of Crabronidae of Russian Far East); Terayama, 2012:8 (in key to Pemphredonini of Japan), 15 (description), 20 (in checklist of Pemphredonini of Japan).

*Spilomena dedzcli* Tsuneki, 1971e:48. Objective synonym of *Spilomena dedzcli* Tsuneki, 1971b (in key to *Spilomena* of Japan).

## 23. *differens* Blüthgen

*Spilomena differens* Blüthgen, 1953:1953:173, ♀, ♂. Holotype: ♂, Finland: Nystad (Zool. Mus. Univ. Helsinki). Synonymized with *Spilomena curruca* by Dollfuss, 1986:488, restored as valid species by Vikberg, 2000:36. – Hellén, 1954:61 (in revision of Finnish *Spilomena*); Nouvel and Ribaut, 1955:141 (France: Haute-Garonne: Saint-Béat); van Lith, 1955:526 (in review of *Spilomena* of Netherlands); de Beaumont, 1956e:387 (Switzerland; diagnostic characters); Hellén, 1956:45 (recorded from Finland); Valkeila, 1957:167 (Finland), 168 (habitat), 169 (adult activity period, nest structure); Benno, 1958b:17 (in review of Dutch Sphecidae); Wolf, 1959b:27 (known from Germany, but not from Nassau); Blüthgen, 1960:2 (locality records from Austria, Finland, Germany, and Switzerland), 4 (Hellén's and Valkeila's biological information reported); Noskiewicz and Puławski, 1960:67, 69 (in key to Polish Sphecidae, not yet found in Poland); Valkeila, 1962b:67 (southwestern Finland); Babiy, 1964:116 (Austria: Land Salzburg); de Beaumont, 1964c:117 (in Sphecid Fauna of Switzerland); Vegter, 1966:141 (Netherlands: Emmen); Benno, 1967:37 (in checklist of Sphecidae of Netherlands); Gauss, 1967:556 (Germany: Baden-Württemberg: Südlicher Schwarzwald); Leclercq, 1968b:39 (Great Britain: Kent); Yarrow, 1969:99 (in key to British *Spilomena*); Oehlke, 1970:753 (Democratic Germany); Lomholdt, 1971:125 (Denmark: Bornholm, Herlufsholm, Strandmøllen); Balthasar, 1972:179 (in Sphecid Fauna of Czechoslovakia); Leclercq, 1974b:208 (Belgium: locality records); Lomholdt, 1975c:136 (in Sphecid Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Schmidt, 1977:97 (Germany: Baden-Württemberg: Enzklosterle in Schwarzwald); Pulawski, 1978:249, 251 (in key to Sphecidae of European part of former USSR); Schwamberger, 1978:419 (Germany: Württemberg); Richards, 1980:74 (in key to Sphecidae of British Isles); Dollfuss and Ressler, 1981:316, 322 (Austria: Niederösterreich: Scheibbs District); Skibińska, 1982:119, 122 (Poland: Mazovian Voivodship: Hamernia, Warszawa); Dollfuss, 1983b:8 (in catalog of Sphecidae of Austria), 1983c:353 (locality records), 361-367 (genitalia); Haeseler, 1984:110 (Germany: 10 km SW Oldenburg); Schmidt, 1984:290 (Germany: Baden-Württemberg); Haeseler, 1985a:350 (Germany: Schleswig Holstein); Skibińska, 1986b:150 (Poland: suburbs of Warszawa), 162 (urban parks), 168 (green areas of housing estates), 173 (various green urban habitats); Vikberg, 1986b:76 (Finland); Jacobs, 1989:10 (Germany: Mecklenburg-Vorpommern); Pádr in Šedivý, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:204 (Poland: Warszawa area); Leclercq, 1991a:274 (correction to Leclercq's, 1979, catalog of French and Benelux Sphecidae: *curruca* is the valid name for *differens*); Day, 1991:xix (summary of European Endangered Hymenoptera Lists); Luig, 1993:43 (Estonia); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Skibińska, 1995:423, 426, 427 (Poland: pine forest in Białowieża Primeval Forest); Archer, 1996b:121 (Great Britain: Yorkshire), 1997b:97 (Great Britain: Watsonian Yorkshire); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands, locality records), 49 (distribution in Scandinavia); Dollfuss and Bitsch in Bitsch et al., 2001:119 (in Sphecid Fauna of Western Europe); Dollfuss, 2004a:123 (Austria, Bulgaria, Czech Republic, Slovakia); Wiśniowski, 2004:42 and 60 (in checklist of Polish Sphecidae); Jacobs, 2005b:149 (Germany: Mecklenburg-Vorpommern: Ranzin); Humala, 2006:157 (Russia: Republic of Karelia: Kivach Nature Reserve); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:457 (not occurring in the département de la Mayenne, France); Dorow, 2007:263 (Germany: Hessen: Hohestein, Niddahänge, and Schönbuche Forest Reserves); Jacobs, 2007:82, 84 (in key to Crabronidae of Germany); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia), 219 (many locality records from Bohemia, first record from Moravia: Hostýnsko and from Slovakia: Borinka near Bratislava); Mei, 2008:178 (Italy: first record from Liguria: Rezzoaglio); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Straka, Dvořák, and Bogusch, 2009:265 (Czech Republic: Jizerské Mountains and Frýdlant region); Baghirov, 2010:679 (first record from Russia: Altai Territories: villages Chemal and Savvushka); Schmid-Egger, 2010a:19 (in red list of Aculeata of Germany: relatively common); Baghirov, 2011b:152 (Russia: Altayskiy Krai: Savvushka; Altai Republic: Chemal); Tischendorf, Frommer, Flügel et al., 2011:174 (Germany: Hessen: not endangered); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces).

As *Spilomena curruca*: Jacobs and Oehlke, 1990:157 (Germany, part of specimens), corrected to *Spilomena differens* by Jacobs, 2005b:149.



**24. *djozankeiana* Tsuneki**

*Spilomena djozankeiana* Tsuneki, 1986:27, ♂ (as *djozankeianus*, incorrect original termination). Holotype: ♂, Japan: Hokkaido: Djozankei: Hoheikyo (originally K. Tsuneki coll., now Hyogo Mus.). – Tano, 1994a:5 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:28 (holotype transferred to Hyogo Mus.); Terayama, 2012:8 (in key to Pemphredonini of Japan), 16 (description), 20 (in checklist of Pemphredonini of Japan).

**25. *dyeri* Antropov**

*Spilomena dyeri* Antropov, 1993a:47, ♀. Holotype: ♀, Honduras: Tegucigalpa (UCD). – Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

**26. *earlyi* Harris**

*Spilomena earlyi* Harris, 1994:22, ♀, ♂. Holotype: ♀, New Zealand: MC: Lincoln College (Lincoln University, Lincoln, Canterbury, New Zealand).

**27. *elegantula* R. Turner**

*Spilomena elegantula* R. Turner, 1916a:135, ♀. Holotype: ♀, Australia: Queensland: Kuranda (BMNH). – R. Turner, 1916a:130 (in key to Australian *Spilomena*); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Vardy, 1987a:254 (in revision of New Zealand *Spilomena*); Cardale, 1985:232 (232 (in catalog of Australian Sphecidae); Valentine and Walker, 1991:41 (in catalog of New Zealand Hymenoptera); Harris, 1994:24 (in Fauna of New Zealand).

**28. *elephantodeta* Simon Thomas**

*Spilomena elephantodeta* Simon Thomas, 1995:68, ♀, ♂. Holotype: ♂, Yemen: Sanaa (Zool. Mus. Amsterdam).

**29. *emarginata* Vardy**

*Spilomena emarginata* Vardy, 1987a:255, ♂, ♀. Holotype: ♂, New Zealand: Nelson (DSIR, Auckland). – Valentine and Walker, 1991:41 (in catalog of New Zealand Hymenoptera); Harris, 1994:25 (in Fauna of New Zealand).

**30. *enslini* Blüthgen**

*Spilomena enslini* Blüthgen, 1953:174, ♂, ♀ (as *Enslini*, incorrect original capitalization). Holotype: ♀, Germany: Erlangen (ZMHU). – Leininger, 1951:117 (Germany: Baden-Württemberg: Karlsruhe), 1953:20 (Germany: Baden-Württemberg: Karlsruhe); Fahlander, 1954:250 (first record from Sweden: Gästrikland Region); Hellén, 1954:62 (in revision of Finnish *Spilomena*); van Lith, 1955:526 (in review of *Spilomena* of Netherlands); de Beaumont, 1956e:388 (Switzerland; diagnostic characters); Hellén, 1956:45 (recorded from Finland); Benno, 1957:144 (Netherlands: Tilburg area, nesting in stems of *Rubus*); Valkeila, 1957:167 (Finland), 168 (habitat), 169 (feeding on honeydew, nest structure), 175 (prey: larval Thysanoptera); Benno, 1958a:129 (nesting in stems of *Rubus*), 1958b:17 (in review of Dutch Sphecidae); van der Zanden, 1958a:14 (Netherlands: Eindhoven); Evans, 1959b:168 (larva's description by Enslin, 1922); Wolf, 1959b:27 (Germany: Nassau); Blüthgen, 1960:2 (locality records from Austria, Finland, and Switzerland), 4 (Valkeila's biological information reported); Noskiewicz and Puławski, 1960:67, 69 (in key to Polish Sphecidae, not yet found in Poland); Valkeila, 1962b:67 (southwestern Finland); Babiy, 1964:116 (Austria: Land Salzburg); de Beaumont, 1964c:117 (in Sphecid Fauna of Switzerland); Benno, 1967:37 (in checklist of Sphecidae of Netherlands); Gauss, 1967:557 (Germany: Baden-Württemberg: Nördliches Rheinvorland); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Yarrow, 1969:100 (in key to British *Spilomena*); Gauss and Perraudin, 1970:361 (Germany: Baden-Württemberg: Wittental); Oehlke, 1970:754 (not recorded from Democratic Germany); Danks, 1971a:343 (nest parasites: *Neorhacodes enslini* (Ruschka), an ichneumonid, and *Oscinella nigerrima* Macquart, a chloropid), 344 (mating); 1971b:67-73 (Great Britain: Berkshire: Silwood Park), 1971c:80 (nest mortality); Stritt, 1971a:105 (Baden-Württemberg: Germany: Karlsruhe); Balthasar, 1972:179 (in Sphecid Fauna of Czechoslovakia: can be expected in the country); Kofler, 1972:111 (Austria: eastern Tirol); Leclercq, 1974b:208 (Belgium: Flandre: St-Andries); Lomholdt, 1975c:139 (in Sphecid Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Puławski, 1978:249, 251 (in key to Sphecidae of European part of former USSR); Richards, 1980:72 (in key

to Sphecidae of British Isles); Westrich, 1980:632 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:316, 322 (Austria: Niederösterreich: Scheibbs District); Skibińska, 1982:119, 122 (Poland: Mazovian Voivodship: Warszawa); Dollfuss, 1983b:8 (in catalog of Sphecidae of Austria), 1983c:354 (locality records), 361-367 (genitalia); Haeseler, 1984:110 (Germany: 5 km S Oldenburg); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Lefeber, 1984:29 (Netherlands: Maastricht); Mingo and Gayubo, 1984:113 (Spain); Schmidt, 1984:291 (Germany: Baden-Württemberg); Radović, 1985:64 (sting apparatus analyzed); Dollfuss, 1986:490 (in revision of Western and Central Palearctic *Spilomena*); Skibińska, 1986b:150 (Poland: suburbs of Warszawa); Vikberg, 1986b:76 (Finland); Schmidt and Westrich, 1987:370 (Germany: Mainz area); Nilsson, 1989:47 (Sweden); Jacobs and Oehlke, 1990:126 and 127 (in key to selected *Spilomena* of Democratic Germany), 158 (new records from Democratic Germany); Day, 1991:xix (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:81 (in key to Sphecidae of North and Central Europe); Nilsson, 1991:83 (Sweden: Lake Mälaren); Budrys, 1992:23 (in list of Sphecidae of Lithuania); Cölln and Jakubzik, 1992:89 (Germany: Rheinland; reared from twigs of *Rubus*); Halada, 1992:72 (first record from Czechoslovakia: Slovakia: Starý Smokovec); Nilsson, 1992:56 (known from Sweden); Wolf, 1992c:23 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Jakubzik and Cölln, 1993:136 (Germany: Rheinland-Pfalz: Bernkastel-Kues; nesting in stems of *Rubus*); Kuhlmann, 1993:76 (Germany: known from Westfalen); Wiśniowski, 1993b:280 (Poland: Ojców National Park); Pádr and Lukáš, 1994:894 (Slovakia: High Tatra Mountains); Theunert, 1994c:50 (Germany: summary of records from Niedersachsen and Bremen); Schmid-Egger, Risch, and Niehuis, 1995:210 (summary of records from Germany: Rheinland-Pfalz Province); Jakubzik and Cölln, 1996a:323 (Germany: nesting in stems of *Rubus*), 334 and 336 (in keys to cocoons), 1996b:401 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: probably endangered); Woydak, 1996:34 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); van der Smissen, 1998:68 (Germany: Schleswig-Holstein: Wulfsdorfer Heide); Kuhlmann, Wolf, and Woydak, 1999:568 (Germany: endangered in Nordrhein-Westfalen because of low population level); Pauly, 1999:109 (in catalog of Belgian aculeates); Blösch, 2000:203 (in Sphecid Fauna of Germany); Vepřek, 2000:235 (Slovakia: Starý Smokovec); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands), 48 (locality records), 51 (distribution in Scandinavia); Dollfuss and Bitsch *in* Bitsch et al., 2001:120 (in Sphecid Fauna of Western Europe); Ohl et al., 2001:141 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: data on endangerment missing); Wiśniowski, 2002:70 (Poland: Ojców National Park); Flügel, 2003:9 (Germany: Hessen: Knüllwald); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:70 (Germany: in catalog of wasps and bees of Bayern); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: probably endangered); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:264 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Wiśniowski *in* Dylewska and Wiśniowski, 2003:147 (Poland: Ojców National Park); Jakubzik and Cölln, 2004:273, 275 (in key to nests of Hymenoptera nesting in stems of *Rubus*); Kuhlmann, 2004:230 (Germany is responsible for preservation of this species on its territory); Straka, Bogusch, Tyrner, and Vepřek, 2004:148 (first record from Czech Republic: Dečinský Sněžník); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Dollfuss, 2004a:123 (Austria: Oberösterreich: Langzwettl N Zwettl, Czech Republic: Majdalena); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); Stolle et al., 2004:373 (Germany: Sachsen-Anhalt: in red list of Sphecidae); Wiśniowski, 2004:42 and 60 (in checklist of Polish Sphecidae); Kofler, 2005:172 (Austria: Tirol: Lienz District: Mittewald in Anras Common, city of Lienz); Riemann and Hohmann, 2005:565 (Germany: Niedersachsen: city of Bremen and adjacent area); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Jacobs, 2007:83, 85 (in key to Crabronidae of Germany); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Bohemia and Slovakia), 219 (first recorded from Slovakia by Halada, 1992); Theunert, 2008:81 (Germany: map of distribution in Niedersachsen and Bremen); U. Frommer, 2009a:29 (Germany: in checklist

of Sphecidae of Hessen); Baghirov, 2010:679 (first record from Russia: Altai Territories: village Savvushka); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Mokrousov, 2010a:63 (Russia: Chuvash Republic: no specific localities); Schmid-Egger, 2010a:19 (in red list of Aculeata of Germany: relatively common); van der Smissen, 2010a:352 (Germany: Schleswig-Holstein: locality records); Baghirov, 2011b:152 (Russia: Altayskiy Kray: Savvushka); Gogala, 2011:13 (Slovenia: Podčetrtek); Mokrousov, Berezin, and Egorov, 2011:80 (Russia: Chuvash Republic); Saure, Bohrer, Venne, and Diestelhorst, 2011:219 (Germany: endangered in Nordrhein-Westfalen Land), 221 (Germany: Nordrhein-Westfalen: Doberg Nature Reserve); Shlyakhtenok, 2011:95 (Belarus: city of Minsk); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:95 (Germany: Hessen: insufficient data to evaluate the degree of endangerment); Flügel, 2013a:120 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Shlyakhtenok, 2013:161 (in annotated catalog of aculeate wasps of Belarus); Wiśniowski and Szczepko, 2013:49 (Poland: Kampinos National Park near Warszawa); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces).

As *Spilomena troglodytes*: Enslin, 1922b:132 (nest, prey, description of larva), corrected to *Spilomena enslini* by Blüthgen, 1953:174.

### 31. *formosana* (Tsuneki)

*Taialia formosana* Tsuneki, 1971j:11, ♀. Holotype: ♀, Taiwan: Chiai Prefecture: Kansitaku, now Kuanghua (originally K. Tsuneki coll., now USNM). – Hua, 2006:277 (in list of Chinese insects, geographic distribution). – As *Spilomena formosana*: R. Bohart and Menke, 1976:193 (new combination, in checklist of world Sphecidae); Nuhn and Menke, 1994:25 (holotype transferred to USNM); de Melo, 1997:6 (abdominal silk glands in adult females); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

### 32. *foxii* Cockerell

*Spilomena foxii* Cockerell, 1897b:136, ♀. Holotype or syntypes: USA: New Mexico: Santa Fé (USNM). – Ashmead, 1899d:222 (in checklist of North American Crabronidae); Viereck, 1903b:731 (New Mexico); Krombein in Muesebeck et al., 1951:969 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Krombein, 1979b:1609 (in catalog of North American Hymenoptera); Frommer, 1988:95 (California: Riverside County: Deep Canyon); R. Bohart and N. Smith, 1995:325 (in revision of North American *Spilomena*); Hanson and Menke, 1995:638 (known from Costa Rica); Amarante, 2002:52 (in catalog of Neotropical Crabronidae); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:667 (in checklist of Mexican Sphecidae).

*Spilomena hurdi* Antropov, 1993a:47, ♀, ♂. Holotype: ♀, Mexico: Nayarit: 15 km N Chapalilla (UCD). Synonymized with *Spilomena foxii* by R. Bohart and N. Smith, 1995:325.

### 33. *fresno* N. Smith

*Spilomena fresno* N. Smith in R. Bohart and N. Smith, 1995:325, ♀, ♂. Holotype: ♀, California: Fresno County: Courtright Lake (UCD).

### 34. *fulvicornis* Gussakovskij

*Spilomena fulvicornis* Gussakovskij, 1931b:463, ♀, ♂. Syntypes: Uzbekistan: Khoresm and Kumak (ZIN). – Blüthgen, 1953:175 (bibliographic reference); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Dollfuss, 1983c:355 (locality records), 361-367 (genitalia), 1986:492 (revision); Kazenas, 1978b:162 (in key to Sphecidae of Kazakhstan and Central Asia); Esenbekova and Dollfuss, 1986:492 (in revision of Western and Central Palearctic *Spilomena*); Kazenas, 2000:22 (southeast Kazakhstan: no specific locality); Kazenas, 2000e:166, 168 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986), 2001:22 (in checklist of Sphecidae of Kazakhstan and Central Asia).

### 35. *hainesi* N. Smith

*Spilomena hainesi* N. Smith in R. Bohart and N. Smith, 1995:326, ♀, ♂. Holotype: ♂, USA: California: Tulare County: Ash Mountain at Kaweah Power Station (UCD).

**36. *hobartia* R. Turner**

*Spilomena hobartia* R. Turner, 1914a:622, ♀. Syntypes: ♀, Australia: Tasmania: Eaglehawk Neck (BMNH). – R. Turner, 1914b:551 (Tasmania: Eaglehawk Neck), 1916a:130 (in key to Australian *Spilomena*); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Cardale, 1985:232 (232 (in catalog of Australian Sphecidae).

**37. *indostana* R. Turner**

*Spilomena indostana* R. Turner, 1918b:358, ♀. Holotype or syntypes: ♀, India: Maharashtra: Bombay (BMNH). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

**38. *iridescens* R. Turner**

*Spilomena iridescens* R. Turner, 1916a:135, ♀. Holotype or syntypes: ♀, Australia: Western Australia: Yallingup (BMNH). – R. Turner, 1916a:130 (in key to Australian *Spilomena*); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Cardale, 1985:23 (232 (in catalog of Australian Sphecidae).

**39. *jacobsoni* Maidl**

*Spilomena jacobsoni* Maidl, 1925a:376, ♀. Holotype: ♀, Indonesia: Sumatra: no specific locality (NHMW). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Dollfuss, 1989:12 (holotype in NHMW).

**40. *japonica* Tsuneki**

*Spilomena japonica* Tsuneki, 1956d:74, ♀. Holotype: ♀, Japan: Nikko: Tyuzendzi (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1956d:76 (variation, nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1970a:16 (nesting habits), 1971b:14 (redescription), 1971e:48 (in key to *Spilomena* of Japan); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Tano, 1994a:5 (holotype in K. Tsuneki collection); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:406 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:28 (holotype transferred to Hyogo Mus.); Terayama, 2012:8 (in key to Pemphredonini of Japan), 16 (description), 20 (in checklist of Pemphredonini of Japan).

**41. *kaszabi* Tsuneki**

*Spilomena kaszabi* Tsuneki, 1972a:227, ♂. Holotype: ♂, Mongolia: Khövsgöl Aymag: Alag Mort (TMB). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

**42. *kelso* R. Bohart**

*Spilomena kelso* R. Bohart in R. Bohart and N. Smith, 1995:326, ♀, ♂. Holotype: ♀, USA: California: San Bernardino County: Kelso (UCD).

**43. *kimseyae* Antropov**

*Spilomena kimseyae* Antropov, 1993a:49, ♀. Holotype: ♀, Ecuador: Los Ríos: Pichilingue (UCD). Paratypes: Panama. – Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

**44. *koikensis* Tsuneki**

*Spilomena koikensis* Tsuneki, 1971b:12, ♀. Holotype: ♀, Japan: Fukui Prefecture: Koike (originally K. Tsuneki coll., now Hyogo Mus.). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Tano, 1994a:5 (holotype in K. Tsuneki collection, as *koikensis*); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:406 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:28 (holotype transferred to Hyogo Mus.); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:32 (Japan: Gifu Prefecture); Terayama, 2012:8 (in key to Pemphredonini of Japan), 16 (description), 20 (in checklist of Pemphredonini of Japan).

*Spilomena koikensis* Tsuneki, 1971e:48. Objective synonym of *Spilomena koikensis* Tsuneki, 1971b (in key to *Spilomena* of Japan).

**45. *laeviceps* Tsuneki**

*Spilomena laeviceps* Tsuneki, 1956d:73, ♀. Holotype: ♀, Japan: Fukui Prefecture: Koike (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1956d:76 (nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1970a:16 (nesting habits), 1971b:15 (redescription), 1971e:47 (in key to *Spilomena* of Japan); Nambu, 1975b:68 (Japan: Saitama Prefecture); Tsuneki, 1977a:262 (description of ♂); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Tano, 1994a:5 (holotype in K. Tsuneki collection, as *laviceps*); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:405 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:28 (holotype transferred to Hyogo Mus.); Terayama, 2012:7, 8 (in key to Pemphredonini of Japan), 15 (redescription), 20 (in checklist of Pemphredonini of Japan).

**46. *leucostigma* R. Bohart**

*Spilomena leucostigma* R. Bohart in R. Bohart and N. Smith, 1995:327, ♀, ♂. Holotype: ♀, USA: California: San Bernardino County: 15 km W Baker (UCD).

**47. *longiceps* R. Turner**

*Spilomena longiceps* R. Turner, 1916a:134, ♀. Holotype or syntypes: ♀, Australia: Queensland: Kuranda (BMNH). – R. Turner, 1916a:130 (in key to Australian *Spilomena*); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Cardale, 1985:232 (232 (in catalog of Australian Sphecidae).

**48. *longifrons* (Rayment)**

*Microglossa longifrons* Rayment, 1930:213, ♂. Holotype: ♂, Australia: Victoria: Sandringham (ANIC). – **As *Spilomena longifrons***: R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Cardale, 1985:23 (232 (in catalog of Australian Sphecidae).

**49. *luteiventris* R. Turner**

*Spilomena luteiventris* R. Turner, 1936:533, ♀. Holotype or syntypes: ♀, Australia: Queensland: Tambourine Mountains (BMNH). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Cardale, 1985:23 (232 (in catalog of Australian Sphecidae).

**50. *maghrebensis* Dollfuss**

*Spilomena maghrebensis* Dollfuss, 1983c:357, ♂. Holotype: ♂, Morocco: Tanger (MHN Genève). – Dollfuss, 1983c:361-367 (genitalia), 1986:494 (in revision of Western and Central Palearctic *Spilomena*), 2004:123 (Jordan: 30 km N Tafila, Zurga; Main; Morocco: Nador; Tunisia: Hammamet area); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:210 (Spain: Cantabria: Matienzo de Ruesga; Mallorca: Bunyola; Menorca: Ciudadela); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:457 (species included in key to European *Spilomena* by Bitsch et al., 2001, first recorded from Europe by Gayubo et al., 2006).

**51. *menkei* R. Bohart**

*Spilomena menkei* R. Bohart in R. Bohart and N. Smith, 1995:328, ♀, ♂. Holotype: ♀, USA: Utah: Wayne County: Fremont River 27 mi. W Hanksville (USNM).

**52. *merceti* Arnold**

*Spilomena merceti* Arnold, 1923c:57, ♀ (authorship attributed to Brauns). Holotype: ♀, South Africa: Cape Province: Willowmore (TMP). – Arnold, 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1959a:34 (in key to Afrotropical *Spilomena*), 37 (bibliographic reference, Zaire: Upemba National Park, description of ♂); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

**53. *mocsaryi* Kohl**

*Spilomena mocsaryi* Kohl, 1898:352, ♂ (as *Mocsáryi*, incorrect original capitalization and diacritic mark). Holotype: ♂, Hungary: Ovaricza (TMB). – Gussakovskij, 1935:421 (Ukraine: Crimea; Tajikistan: Roshan); Šnoflák in Zavadil and

Šnoflák, 1948:44 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); de Beaumont, 1950b:70 (Switzerland, s. France); Blüthgen, 1953:175 (in revision of European *Spilomena*); de Beaumont, 1956e:387 (Switzerland; diagnostic characters); Bajári, 1957a:91 (in key to Hungarian Sphecidae, not yet found in Hungary); Nouvel and Ribaut, 1958:15 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Ceballos, 1959:228 (in supplement to catalog of Spanish Sphecidae); Blüthgen, 1960:2 (Italy: Forli); Noskiewicz and Puławski, 1960:68, 69 (in key to Polish Sphecidae); de Beaumont, 1964c:117 (in Sphecid Fauna of Switzerland), 1967a:348 (Turkey); Balthasar, 1972:179 (in Sphecid Fauna of Czechoslovakia); Erlandsson, 1974:81 (Greece, Italy, Spain); Leclercq, 1974b:209 (locality records); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Puławski, 1978:248, 251 (in key to Sphecidae of European part of former USSR); Gayubo, 1981a:147 (first record from Spain: Sierra de Béjar: Béjar); Skibińska, 1981:357 (Poland: Warszawa-Białoleka), 1982:119, 122 (Poland: Mazovian Voivodship: Wola Mrokowska); Dollfuss, 1983a:76 (endangered in Niederösterreich, Austria), 77 (endangered in Burgenland, Austria), 1983b:8 (in catalog of Sphecidae of Austria), 1983c:354 (locality records), 361-367 (genitalia); Gayubo, 1984a:168 (Spain: previously recorded from Salamanca Province); Mingo and Gayubo, 1984:114 (Spain); Józán, 1985b:56 (citation of Bajári's 1957 record from Simontornya), 83 (ecological and zoogeographic characteristics); Dollfuss, 1986:494 (in revision of Western and Central Palearctic *Spilomena*); Gayubo, 1986c:32 (Spain: Zamora Province); Skibińska, 1986b:153 (Poland: suburbs of Warszawa), 160 (Poland: Mroków: non-urban gardens); Pádr *in* Šedivy, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Gayubo, Asís, and Tormos, 1990a:15 (Spain); Pagliano, 1990:117 (in catalog of Italian Sphecidae); Day, 1991:xix (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:81 (in key to Sphecidae of North and Central Europe); Gayubo and Torres, 1991:Table I and p. 81 (Spain: Salamanca; effects of urban pressure); Józán, 1992b:172 (Hungary: Boronka-melléki Protected Area); Dollfuss, 1994:102 (endangered in Austria); Tormos, Asís, and Gayubo, 1994:187, 201 (Spain: Albacete Province); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Pagliano and Pesarini, 1995:85 (Italy: Ferrara Province); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:28 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); Józán, 1998:306, 311 (Hungary: Duna-Dráva National Park); Shkuratov, 1998:97 (Russia: Rostov Oblast'); Gayubo, García, Torres, and González, 1999:89 (Spain: Soria Province); Ljubomirov, 1999b:49 (Bulgaria: Mt. Vitosha near Sofia); Blösch, 2000:204 (in Sphecid Fauna of Germany); González, Gayubo, and Tormos, 2000:19 (Andorra: Santa Coloma); Józán, 2000:106 (Hungary: Bakony Mountains); Kazenas, 2000e:166, 168 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986); Straka, 2000:182 (Czech Republic: Praha); Vicidomini, 2000:135 (Italy: Portici); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands), 48 (locality records); Zettel, 2000:26 (Austria: Wien); Dollfuss and Bitsch *in* Bitsch et al., 2001:121 (in Sphecid Fauna of Western Europe); Józán, 2001:278 (Hungary: Somogy County); Kazenas, 2001:22 (in checklist of Sphecidae of Kazakhstan and Central Asia); Ohl et al., 2001:141 (distribution in Germany by provinces); Zettel, Gross, and Mazzucco, 2001:71 (Austria: Wien); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Wiśniowski, 2002:70 (Poland: Ojców National Park); Schmid-Egger, 2003:757 (Italy: Sicilia: Armerina); Wiśniowski *in* Dylewska and Wiśniowski, 2003:148 (Poland: Ojców National Park); Dollfuss, 2004a:123 (Bulgaria, Czech Republic, Italy, Jordan, Kyrgyzstan, Syria, Turkey); Nazarova, 2004:106 (Tajikistan: Badakhshan Region: Rushan District: Visav village in Bartang River valley); Shkuratov, 2004a:79 (Russia: Volgograd Oblast': Frolovo); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); Wiśniowski, 2004:42 and 60 (in checklist of Polish Sphecidae); Pagliano and Negrisolo, 2005:481 (in Sphecid Fauna of Italy); Saure, 2005:19 (Germany: Berlin); Wiśniowski, 2005a:312 (Poland: Ojców National Park; occurring only in xerothermic grasslands), 2005b:340 (Poland: Ojców National Park, of primary faunistic value); Jacobs, 2007:83, 84 (in key to Crabronidae of Germany); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:458 (France: first record from département d'Ain: Izieu); Józán, 2007:174, 179 (Hungary: Zselic hills); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia), 219 (first recorded from Bohemia by Straka, 2000); Gayubo, González, Tormos, and Asís, 2008:140 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Ljubomirov and Yildirim, 2008:186 (in catalog of Crabronidae of Turkey);

Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Schmid-Egger, 2010a:19 (in red list of Aculeata of Germany: relatively common), 2011b:586 (first record from United Arab Emirates: Wadi Madaq), 589 (color photograph of female); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Di Giovanni and Mei, 2012:42 (Italy: Lazio: Roma: San Paolo Fuori le Mura); Prismany, 2012:47 (Russia: Belgorod Oblast'); Saure, 2012:29 (Germany: Berlin-Moabit); Vieira, Oliveira, Brewster, and Gayubo, 2013:19 (Portugal: Douro International Natural Park); Baldock, 2014:359 (Spain: Island of Mallorca); Bitsch, 2014:409 (France: Loiret: Ardon; recorded from Germany by Saure, 2012); Schmid-Egger, 2014:609 (United Arab Emirates); Yıldırım, Ljubomirov, and Lelej, 2014:10 (distribution in Turkey by biogeographic provinces).

*Spilomena capitata* Gussakovskij, 1931b:464, ♀, ♂. Syntypes: Turkmenistan: Firyuza (ZIN). Synonymized with *Spilomena mocsaryi* by Gussakovskij, 1935:421. – Blüthgen, 1953:175 (bibliographic reference); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Kazenas, 1978b:161 (in key to Sphecidae of Kazakhstan and Central Asia), 2001:22 (in checklist of Sphecidae of Kazakhstan and Central Asia).

*Spilomena zavadii* Šnoflák, 1942:128, ♀. Syntypes: Czechoslovakia: Vlkos near Bisenz and Brno (coll. Šnoflák, now?). Synonymized with *Spilomena mocsaryi* by Blüthgen, 1953:175. – Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno), 1944b:108 (description of ♂); Šnoflák in Zavadii and Šnoflák, 1948:44 (in key to Sphecidae of Czechoslovakia); Blüthgen, 1949:89 (may occur in Germany); de Beaumont, 1950a:70 (first record from Switzerland); Nouvel and Ribaut, 1953:181 (France: Haute-Garonne: Saint-Béat); Bajári, 1957a:91 (in key to Hungarian Sphecidae), 1957b:139 (first record from Hungary); Benedek, 1968:75 (Hungary, visiting flowers of *Angelica silvestris* L. and *Conium maculatum* L.).

#### 54. *mongolica* Tsuneki

*Spilomena mongolica* Tsuneki, 1972a:229, ♀. Holotype: ♀, Mongolia: Bayanhongor Aymag: Ekhingol (TMB). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

#### 55. *montana* R. Bohart

*Spilomena montana* R. Bohart in R. Bohart and N. Smith, 1995:328, ♀, ♂. Holotype: ♀, USA: California: Nevada County: Sagehen Creek near Hobart Mills (UCD).

#### 56. *nasuta* Antropov

*Spilomena nasuta* Antropov, 1993a:50, ♀. Holotype: ♀, Chile: Tarapacá Region: Parca in Iquique Province (Kansas Univ.). – Amarante, 2002:52 (in catalog of Neotropical Crabronidae).

#### 57. *nigrifrons* Simon Thomas

*Spilomena nigrifrons* Simon Thomas, 1995:69, ♀, ♂. Holotype: ♂, Yemen: Sanaa (Zool. Mus. Amsterdam).

#### 58. *nozela* Vardy

*Spilomena nozela* Vardy, 1987a:250, ♂, ♀. Holotype: ♂, New Zealand: Poor Knights Island: Tawhiti (DSIR). – Valentine and Walker, 1991:41 (in catalog of New Zealand Hymenoptera); Harris, 1994:26 (in Fauna of New Zealand, description of mature larva, cocoon, nest); Melo, 2000:92 (use of nest by more than one female).

#### 59. *obliterata* R. Turner

*Spilomena obliterata* R. Turner, 1914b:248, ♀. Holotype or syntypes: ♀, Malaysia: Penang: Penang (BMNH). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

#### 60. *obscurior* Gussakovskij

*Spilomena obscurior* Gussakovskij, 1952:218, ♀, ♂. Syntypes: Tajikistan: Kondara 35 km N Dushanbe (ZIN). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Dollfuss, 1983c:355 (locality records), 361-367 (genitalia),

1986:497 (in revision of Western and Central Palearctic *Spilomena*); Kazenas, 2000e:167 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986), 2001:22 (in checklist of Sphecidae of Kazakhstan and Central Asia).

### 61. *occidentalis* R. Bohart

*Spilomena occidentalis* R. Bohart in R. Bohart and N. Smith, 1995:329, ♀, ♂. Holotype: ♀, USA: Arizona: Navajo County: Dinnebito Wash (UCD).

### 62. *palawanensis* Tsuneki

*Spilomena palawanensis* Tsuneki, 1976b:102, ♀. Holotype: ♀, Philippines: Palawan: Pinigisan (ZMK).

### 63. *peruensis* Dollfuss

*Spilomena peruensis* Dollfuss, 1982:77, ♀. Holotype: ♀, Peru: Urubamba (NHMW). – Dollfuss, 1989:12 (holotype in NHMW); Antropov, 1991a:61 (redescription of female), 1993a:50 (Bolivia); Melo, 2000:94 (may be social); Amarante, 2002:52 (in catalog of Neotropical Crabronidae); Rasmussen and Asenjo, 2009:14 (in checklist of Crabronidae of Peru).

### 64. *pondola* Leclercq

*Spilomena pondola* Leclercq, 1959a:34, ♀. Holotype: ♀, South Africa: Cape Province: Pondoland: Port St. John (BMNH). – Leclercq, 1959a:32 (in key to Afrotropical *Spilomena*), 1961b:59 (description of ♂, Zaire: Garamba National Park); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

### 65. *punctatissima* Blüthgen

*Spilomena punctatissima* Blüthgen, 1953:176, ♂, ♀. Holotype: ♂, Italy: Piemonte: St. Martin near Aosta (ZMHU). – Wolf, 1959b:28 (known from Germany, but not from Nassau); Noskiewicz and Puławski, 1960:68, 69 (in key to Polish Sphecidae, not yet found in Poland); Babiş, 1964:116 (Austria: Land Salzburg); de Beaumont, 1964c:118 (in Sphecidae Fauna of Switzerland, not recorded from Switzerland), 1965a:65 (Greece: Crete: Heraklion); Gauss, 1967:557 (Germany: Baden-Württemberg: Kaiserstuhl); Balthasar, 1972:180 (in Sphecidae Fauna of Czechoslovakia: can be expected in the country); Erlandsson, 1974:81 (Yugoslavia: Krk Island); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Puławski, 1978:249, 251 (in key to Sphecidae of European part of former USSR); Pagliano, 1980:132 (Italy: Piemonte); Dollfuss and Ressler, 1981:316, 322 (Austria: Niederösterreich: Scheibbs District); Skibińska, 1982:119, 122 (Poland: Mazovian Voivodship: Hamernia); Dollfuss, 1983a:76 (endangered in Niederösterreich, Austria), 78 (endangered in Oberösterreich, Austria), 79 (endangered in Salzburg area, Austria), 1983b:8 (in catalog of Sphecidae of Austria), 1983c:354 (locality records), 361-367 (genitalia); Schmidt, 1984:291 (Germany: Baden-Württemberg); Westrich and Schmidt, 1985b:112 (Germany: endangered in Baden-Württemberg); Dollfuss, 1986:498 (in revision of Western and Central Palearctic *Spilomena*); Pagliano, 1990:118 (in catalog of Italian Sphecidae); Schwammerberger and Priesner, 1990:538 (Austria: Kärnten); Day, 1991:xix (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:81 (in key to Sphecidae of North and Central Europe), 1994:103 (endangered in Austria); Negrisolò *in* Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Schmidt-Egger, 1995:64 (Germany: NW Baden-Württemberg); Skibińska, 1995:423, 426 (Poland: pine forest in Białowieża Primeval Forest); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: endangered); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:28 (in checklist of German Sphecidae); Neumayer, Schwarz, and Bregant, 1999:225 (Austria: in checklist of Sphecidae of Land Kärnten); Blösch, 2000:204 (in Sphecidae Fauna of Germany); Kazenas, 2000e:167, 168 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands), 48 (locality records); Dollfuss and Bitsch *in* Bitsch et al., 2001:122 (in Sphecidae Fauna of Western Europe); Ljubomirov, 2001b:48 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:142 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Wiśniowski, 2002:70 (Poland: Ojców National Park); Dollfuss, 2004a:123 (Austria: Oberösterreich: Gründberg); Wiśniowski *in* Dylewska and Wiśniowski, 2003:148 (Poland: Ojców National Park); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); Wiśniowski, 2004:42 and 60 (in checklist of Polish Sphecidae); Pagliano and Negrisolò, 2005:481 (in Sphecidae Fauna of Italy); Wiśniowski, 2005a:312 (Poland: Ojców National Park; occurring only in xerothermic grass-



lands), 2005b:340 (Poland: Ojców National Park, of secondary faunistic value); Kroupa, 2006a:232 (Germany: first record from Bayern: Waischenfeld, summary of all previous records with distribution map), 2006b:26 (Germany: Bayern: Oberfranken Region); Tomarchio and Turrisi, 2006:958 (Italy: first record from Sicilia: Mount Etna); Jacobs, 2007:83, 85 (in key to Crabronidae of Germany); Pagliano, 2009:188 (Italy: recorded from Sicilia by Tomarchio and Turrisi, 2006); Schmid-Egger, 2010a:19 (in red list of Aculeata of Germany: very rare); U. Frommer, 2011:1 (Germany: first record from Hessen: city of Gießen); Gogala, 2011:13 (Slovenia); Tischendorf, Frommer, Flügel et al., 2011:96 (Germany: Hessen: insufficient data to evaluate degree of endangerment); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (first record from Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Yıldırım, Ljubomirov, and Lelej, 2014:10 (distribution in Turkey by biogeographic provinces).

### 66. *pusilla* (Say)

*Stigmus pusillus* Say, 1837:378, sex not indicated. Holotype or syntypes: USA: Indiana: no specific locality (lost). – Le Conte, 1859b:760 (original description copied); Cresson, 1962:236 (in catalog of North American Hymenoptera); Packard, 1867:387 (bibliographic reference). – **As *Cemonus pusillus***: F. Smith, 1856:434 (new combination, in catalog of Hymenoptera in British Museum). – **As *Passaloeus pusillus***: Rau, 1943:648 (new combination, determination tentative; Mexico: Acapulco, reusing nests of *Trypoxylon* sp., *fabricator* group, prey: aphids; nest parasites). – **As *Spilomena pusilla***: Patton, 1879b:213 (new combination); Cresson, 1887:283 (in catalog of North American Hymenoptera); W. Fox, 1892h:321 (original description copied); Dalla Torre, 1897:363 (in catalog of world Hymenoptera); Ashmead, 1899d:222 (in checklist of North American Crabronidae); J. Smith, 1900:516 (in list of insects of New Jersey), 676 (in new list of insects of New Jersey); Rohwer, 1916b:689 (in catalog of Hymenoptera of Connecticut); Rohwer *in* Viereck, 1925:689 (in key to Sphecidae of Connecticut; Branford, Waterbury); Krombein, 1939:141 (New York: Millwood); Brimley, 1942:36 (North Carolina: Edgecombe County); Krombein *in* Muesebeck et al., 1951:969 (in catalog of North American Hymenoptera); Krombein, 1952a:94 (USA: Virginia: Westmoreland State Park), 1952b:181 (USA: West Virginia: Lost River State Park), 1954a:6 (West Virginia: Lost River State Park), 1956b:155 (prey: adult thrips); 1958a:53 (prey: a nymphal *Sericothrips*), 61 (in key to *Spilomena* of Lost River State Park), 1958f:190 (in supplement to catalog of North American Hymenoptera: New York, Virginia, West Virginia), 1962b:13 (infestation by acarid *Lackerbaueria krombeini* Baker), 1963f:275 (Maryland: Plummers Island near Washington, D.C.); Wray, 1967:125 (North Carolina: Edgecombe County); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Krombein, 1979b:1609 (in catalog of North American Hymenoptera); Kurczewski and Miller, 1991:253 (New York: Cayuga County); Ahlstrom, 1995:108 (in checklist of insects of North Carolina); R. Bohart and N. Smith, 1995:329 (in revision of North American *Spilomena*); Buck, 2004:25 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within Ontario), 43 (first record from Canada: Ontario: Oakville, Penetang).

### 67. *quinteroi* Antropov and Cambra

*Spilomena quinteroi* Antropov and Cambra, 2004:69, ♀. Holotype: ♀, Guatemala: Suchitepeque: Finca Moca Grande (ZMMU).

### 68. *rhytithoracica* Li and He

*Spilomena rhytithoracica* Li and He, 1998a:73, ♀, China: Yunnan Province: Lianghe (Zhejiang Agricultural University).

### 69. *robusta* Arnold

*Spilomena robusta* Arnold, 1927:120, ♀. Holotype: ♀, South Africa: Western Cape Province: Mossel Bay (BMNH). – Arnold, 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1959a:33 (in key to Afrotropical *Spilomena*), 35 (bibliographic reference, South Africa: Eastern and Western Cape provinces: locality records); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

### 70. *roshanica* Gussakovskij

*Spilomena roshanica* Gussakovskij, 1952:219, ♀, ♂. Syntypes: Tajikistan: western Pamir: Roshan: Kalai-Vamar (ZIN). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Dollfuss, 1983c:355 (locality records), 361-367 (gen-

italia), 1986:499 (in revision of Western and Central Palearctic *Spilomena*); Kazenas, 2000e:167, 168 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986), 2001:23 (in checklist of Sphecidae of Kazakhstan and Central Asia); Atbaei, Fallahzadeh, and Ljubomirov, 2015:24 (first record from Iran: Fars Province).

#### 71. *rossi* Antropov

*Spilomena rossi* Antropov, 1993a:50, ♀, ♂. Holotype: ♀, Peru: Tingo Maria (CAS). – Amarante, 2002:52 (in catalog of Neotropical Crabronidae); Rasmussen and Asenjo, 2009:14 (in checklist of Crabronidae of Peru).

#### 72. *rudesculpta* Gussakovskij

*Spilomena rudesculpta* Gussakovskij, 1952:217, ♀, ♂. Syntypes: Tajikistan: Kondara 35 km N Dushanbe (ZIN). – R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Dollfuss, 1983c:355 (locality records), 361-367 (genitalia), 1986:501 (in revision of Western and Central Palearctic *Spilomena*); Kazenas, 2000e:167, 168 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986), 2001:23 (in checklist of Sphecidae of Kazakhstan and Central Asia); Dollfuss, 2004a:123 (Uzbekistan: Makhtali 120 km E Tashkent).

#### 73. *rufitarsus* (Rayment)

*Microglossa rufitarsus* Rayment, 1930:215, ♀. Syntypes: ♀, Australia: Victoria: Sandringham and Malvern (ANIC). – *Spilomena rufitarsus*: R. Bohart and Menke, 1976:193 (new combination, in checklist of world Sphecidae); Cardale, 1985:23 (232 (in catalog of Australian Sphecidae).

#### 74. *schlingeri* Antropov

*Spilomena schlingeri* Antropov, 1993a:53, ♀. Holotype: ♀, Peru: Huánuco (CAS). Paratypes: Ecuador. – Amarante, 2002:52 (in catalog of Neotropical Crabronidae); Rasmussen and Asenjo, 2009:14 (in checklist of Crabronidae of Peru).

#### 75. *seyrigi* Arnold

*Spilomena seyrigi* Arnold, 1945:142, ♀, ♂ (as *Seyrigi*, incorrect original capitalization). Syntypes: Madagascar: Bekily (MNHN). – Leclercq, 1959a:33 (in key to Afrotropical *Spilomena*), 34 (bibliographic reference, Madagascar: Ankaratra); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Leclercq, 1990b:120 (Madagascar); Pulawski, 2003b:797 (in checklist of Malagasy Sphecidae); Madl, 2014a:997 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Madagascar, with synonymy and locality records).

#### 76. *spinosa* Antropov

*Spilomena spinosa* Antropov, 1993a:54, ♀. Holotype: ♀, Peru: Colonia Perenne on Río Perenne, 18 mi NE La Merced (CAS). – Amarante, 2002:52 (in catalog of Neotropical Crabronidae); Rasmussen and Asenjo, 2009:14 (in checklist of Crabronidae of Peru).

#### 77. *stangei* Antropov

*Spilomena stangei* Antropov, 1992c:71, ♀. Holotype: ♀, Argentina: Mendoza: Chacras de Coria (IML). – Amarante, 2002:53 (in catalog of Neotropical Crabronidae).

#### 78. *stevensoni* Arnold

*Spilomena stevensoni* Arnold, 1924:40, ♀, ♂ (as *Stevensoni*, incorrect original capitalization). Holotype: sex not indicated: Zimbabwe: Hillside in Bulawayo (SAM). – Arnold, 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1959a:34 (in key to Afrotropical *Spilomena*), 37 (bibliographic reference, Zimbabwe: Bulawayo); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

#### 79. *subterranea* McCorquodale and Naumann

*Spilomena subterranea* McCorquodale and Naumann, 1988:221, ♀, ♂. Holotype: ♀, Australia: New South Wales: Brisbane Water National Park (ANIC). – de Melo, 1997:4 (adult females lack abdominal silk glands), 2000:92 (use of nest by more than one female).

**80. troglodytes (Vander Linden)**

*Stigmus troglodytes* Vander Linden, 1829:76, ♀. Lectotype: ♀, Belgium: Liège area (Inst. Roy. Sci. Nat. Belgique, Bruxelles), designated by Blüthgen, 1953:170. – Haliday, 1833:516 (Ireland: eastern coast N Dublin); Herrich-Schaeffer, 1840:292 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:99 (in revision of world Hymenoptera); Belke, 1853:433 (Ukraine: Kamieniec Podolski); Acloque, 1897:86 (in Sphecidae Fauna of France and Algeria); Adlerz, 1904:139 (known prey: larvae of *Thrips*). – **As *Celia troglodytes***: Shuckard, 1837a:182 (new combination, in revision of British Aculeata); Dahlbom, 1942a:12 (in review of Scandinavian aculeates), 1844:238 (in revision of Sphecidae and Pompilidae), 1845:504 (in key); Kiesenwetter, 1849:99 (Germany: Kingdom of Saxony); Wissmann, 1849:13 (Germany: Kingdom of Hannover: Münden); Kirschbaum, 1853:47 (Germany: Herzogtum Nassau: Wilburg); Kirchner, 1854:312 (Czech Republic: Kaplitz in Budweiser District, now České Budějovice); Goureau, 1857:CVIII (nest and prey); Ruthe and Stein, 1857:315 (Germany: Berlin area); Schenck, 1857:141 (Germany: in revision of fossorial wasps of Nassau Region); Taschenberg, 1858:94 (in key to Sphecidae of Germany); Assmus, 1859:614 (Russia: Moscow Oblast); Schenck, 1860:147 (Germany: Nassau Region), 1861:142 (Germany: Nassau Region); Brischke, 1862:103 (Germany: Preussen Province, now Poland: Pomorze Region); Taschenberg, 1866:186 (in revision of Hymenoptera of Germany); Kirchner, 1867:221 (in catalog of European Hymenoptera); Schenck, 1867a:354 (Germany: Nassau Region); Marquet, 1875:206 (France: Haute-Garonne: Toulouse); Brischke, 1888b:99 (Germany: Preussen Province, now Poland: Pomorze Region); V. Perkins, 1892:201 (Great Britain: Gloucestershire: Wotton-under-Edge); Rudow, 1912:64 (nesting in decaying wood); Schirmer, 1912:166 (Germany: Berlin area); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection); Pagliano, 2011a:159 (specimens in coll. Spinola, Torino, are *Spilomena troglodytes*). – **As *Spilomena troglodytes***: Wesmael, 1852:589 (new combination, Belgium: Bruxelles; F. Smith, 1851c:32 (Great Britain: London district), 1853:64 (in checklist of British Hymenoptera), 1856:425 (in catalog of Hymenoptera in British Museum), 1858c:168 (in review of British Aculeata, redescription); A. Costa, 1867c:116 (in revision of Italian Sphecidae); Thomson, 1870:239 (in revision of Swedish wasps); A. Costa, 1871b:45 (in revision of Italian Sphecidae); F. Smith, 1871b:17 (in catalog of British Aculeata); Dours, 1874:144 (in catalog of Sphecidae of France); Thomson, 1874:203 (in revision of Hymenoptera of Scandinavia); Daly, 1878:46 (Great Britain: Dorset: Glanville's Wootton); Girard, 1879:943 (morphology and habits); Kohl, 1880:137 (Italy: Trentino–Alto Adige); E. Saunders, 1880:254 (in revision of British Aculeata); Marquet, 1881:183 (southern France); Kohl, 1883e:659 (Switzerland); Wüstnei, 1886:38 (Germany: Schleswig-Holstein: Emmelsbüll, Husum, Sonderburg); von Heyden, 1884:120 (Germany: Frankfurt am Main area); Ed. André, 1888:225 (in revision of Sphecidae of Europe and Algeria), 21\* (bibliographic references); Kohl, 1893a:37 (Austria: Niederösterreich); Sickmann, 1893:80 (Germany: Niedersachsen: Iburg); Krieger, 1894:15 (Germany: Kingdom of Saxony); Freke, 1896:40 (Ireland); E. Saunders, 1896:89 (in revision of British Aculeata); Dalla Torre, 1897:363 (in catalog of world Hymenoptera); Mocsáry, 1897:79 (Kingdom of Hungary, one locality is in today's Romania); Strand, 1898b:93 (Norway); J. Nielsen, 1901a:275 (nesting habits); de Cobelli, 1903:108 (Italy: Province of Trentino); Antiga and Bofill, 1904:7 (Spain: Cataluña Province); Aurivillius, 1904:263 (in revision of Swedish Sphecidae); W. Schulz, 1904b:92 (Austria: Steiermark; Romania: Siebenbürgen); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); Mantero, 1905:67 (Italy: Toscana: Isola del Giglio); Nielsen, 1907:40 (Denmark, partly *Spilomena differens*, correction by Lomholdt, 1971:125); Schmiedeknecht, 1907:208 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Orr, 1909a:25 (Ireland: Down County); Dittrich, 1911b:21 (Germany: Niederschlesien: Agnetendorf, now Poland: Dolny Śląsk: Jagniątkowo); Graeffe, 1911:50 (Italy: Trieste area); W. Schulz, 1911b:142 (Morocco: Tanger); Zilahi Kiss, 1915:80 (Hungary: Hadad, Pecsétszeg, Simontornya); Honoré, 1919:268 (France: Seine-et-Oise: Saclas, marais de Guillerval); O. Meyer, 1919:152 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:39 (Germany: Franken); A. Wagner, 1920:40 (can be expected in Germany: Lower Elbe region); Dubois, 1921c:196 (in key to Belgian Sphecidae); nec Enslin, 1922b:132 (= *Spilomena enslini*), 1922c:246 (Germany: North Bayern); Fahringer, 1922:175 (Turkey); Noskiewicz, 1924b:181 (Poland: Podole Region: Horyhlady near Niżniów, now Ukraine); R. Perkins, 1924:223 (Great Britain: Devon); Berland, 1925d:148 (in Sphecidae Fauna of France); Coulon, 1925:114 (France: Evreux, Seine-et-Oise); R. Perkins, 1925:151 (Great Britain: Gloucestershire and

Somersetshire); Schütze, 1925:112 (Germany: Lausitz Region); Crèvecoeur and Maréchal, 1927:139 (Belgium: Saint-André-les-Bruges); Harttig, 1927:17 (Germany: Bremen); Stelfox, 1927:294 (Ireland: list of localities); Berland, 1928b:179 (add Schenck, 1857 and Enslin, 1922 to bibliography in Berland, 1925d; France: Charente-Inférieure: Saintes); Bouwman, 1928b:212 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:672 (in keys to Hymenoptera of North and Central Europe); Gussakovskij, 1931b:463 (redescription; Russia: Kursk); Pulkkinen, 1931:99 (in revision of Sphecidae of Finland); Spooner, 1931:14 (Great Britain: Cambridgeshire); Bondroit, 1932:35 (Belgium: Solbosch, Uccle); Giordani Soika, 1932a:22 (Italy: Lido di Venezia); Gussakovskij, 1932:9 (Russia: Primorskiy Kray); Hukkinen, 1932:21 (preying on Thysanoptera including *Anaphothrips obscurus* Müller); Bondroit, 1933:30 (Belgium: Forêt de Soignes, Uccle); Enslin, 1933:140 (in key to Hymenoptera nesting in stems of *Rubus*); Balles, 1934:18 (Germany: Baden-Württemberg: Hopfengarten); Bondroit, 1934:61 (Belgium: no specific locality); Jansson, 1934:289 (Sweden); Bernard, 1935:66 (France: Var: Fréjus area); Forsius *in* Forsius and Hellén, 1935:11 (in checklist of Hymenoptera of Finland); Harttig, 1935:4 (Germany: Niedersachsen: Bremen, Oyten); Crèvecoeur and Maréchal, 1936:251 (in catalog of Belgian Hymenoptera); Hallett, 1937:72 (Great Britain: Herefordshire: Mathon); Richards, 1937b:104 (in checklist of British aculeates); Zavadil, Šusterka, and Baťa, 1937:180 (in catalog of Sphecidae of Czechoslovakia); J. Murray, 1938b:258 (Great Britain: Scotland: Dumfriesshire: Gretna); A. Wagner, 1938a:120 (northwestern Germany); Giordani Soika, 1939b:74 (Italy: Venezia); Harttig, 1939:31 (nesting in twigs, prey: Thysanoptera); Stelfox, 1939a:39, 40 (Great Britain: Scotland: Garelochhead), 1939c:205 (Ireland: Kerry County); Teunissen, 1939:174 (Netherlands: Voorburg); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Fairbourne and Wilmslow); J. Perkins, 1942:198 (Sweden: Skåne: Kivik); Giner Mari, 1943a:32 (in Sphecidae Fauna of Spain); Spooner, 1943:71 (Great Britain: St. Margaret's Bay); Guiglia, 1944a:149 (Cyprus: Limassol); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Filton, Kilcot); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Spooner, 1946:26 (Britain: Leicestershire: Charnwood Forest; prey: thrips nymph); Guichard and Yarrow, 1948:90 (Great Britain: London: Hampstead Heath); Guiglia, 1948c:202 (Italy: Sardinia: Cagliari); Šnoflák *in* Zavadil and Šnoflák, 1948:44 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:3 (Portugal: Lisboa); Chambers, 1949:224 (England: Bedfordshire); Pittioni, 1950:27 (Cyprus); Stelfox, 1950:102 (Great Britain: distribution in Scotland); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Leininger, 1951:117 (Germany: Baden-Württemberg: Karlsruhe, Stutensee); Blüthgen, 1953:169 (in revision of European *Spilomena*), 177 (nesting habits); Nouvel and Ribaut, 1953:181 (France: Haute-Garonne: Saint-Béat); Bischoff and Stadler, 1954:126 (Germany: Bayern: Romberg); Fahlander, 1954:250 (Sweden: Gästrikland Region); Hellén, 1954:62 (in revision of Finnish *Spilomena*, specimen from Keuru = *Spilomena expectata*); Macko and Noskiewicz, 1954:180 (Poland: Dolny Śląsk: Stolec at 50°35'N 16°53'E); Aerts, 1955:61 (Germany: Rheinland); van Lith, 1955:526 (in review of *Spilomena* of Netherlands); Vergne, 1955:5 (France: Auvergne); Vogrin, 1955:40 (Yugoslavia); Ceballos, 1956:357 (in catalog of Hymenoptera of Spain); Bajári, 1957a:91 (in key to Hungarian Sphecidae); van der Zanden, 1958a:14 (Netherlands: Eindhoven); de Beaumont, 1956e:388 (Switzerland; diagnostic characters); Valkeila, 1957:167 (specimen from Finland: Keuruu = *Spilomena vagans*); Yeo, 1957:19 (England: Middlesex, now in London); Benno, 1958b:17 (in review of Dutch Sphecidae); Nouvel and Ribaut, 1958:15 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Diniz, 1959:26 (Portugal: Lisboa); Wolf, 1959b:28 (Germany: Nassau); Blüthgen, 1960:1 (locality records from Austria and Switzerland), 2 (nesting habits); Noskiewicz and Puławski, 1960:69, 70 (in key to Polish Sphecidae); Tolstova, 1962:287 (Russia: Pushkin, nesting in raspberry stems); Valkeila, 1962b:67 (southwestern Finland); Babić, 1964:116 (Austria: Land Salzburg); de Beaumont, 1964c:118 (in Sphecidae Fauna of Switzerland); Benedek, 1966a:164 (Hungary; nests occasionally in galls of *Cynips kollari* Htg.); Lefeber, 1966:209 (Netherlands: St. Pietersberg); Vegter, 1966:141 (Netherlands: Emmen); Benno, 1967:37 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:348 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:79 (Germany: Bayern: Unterfranken District); Lefeber, 1967c:219 (Netherlands: Gronsveld, St. Pietersberg); Niedl and Deneš, 1967:76 (Czech Republic: Třeboň area); Benedek, 1968:75 (Hungary, floral records); Lefeber, 1968b:95 (Netherlands: Amby, St. Pietersberg); Benedek, 1969a:84 (Hungary; hygrophilous meadow); Lefeber, 1969b:99 (Netherlands: Bemelen, St. Pietersberg), 1969c:234 (Netherlands: St. Pieters-

berg = Montagne Saint Pierre); Yarrow, 1969:101 (in key to British *Spilomena*); Zangheri, 1969:1706 (Italy); Benedek, 1970:101 (Hungary: Tapolca); Oehlke, 1970:754 (Democratic Germany); Danks, 1971a:343 (nest parasites: *Neorhacodes enslini* (Ruschka), an ichneumonid, and *Diomorus armatus* (Boheman), a chalcidoid); Schmidt, 1971b:45 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Stritt, 1971a:105 (Baden-Württemberg: Germany: Karlsruhe); Balthasar, 1972:178 (in Sphecidae Fauna of Czechoslovakia); Guichard, 1972:244 (England: London: Bushey Park); Haeseler, 1972:156, 200 (Germany: Schleswig Holstein; anthropogenic habitats); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area); Erlandsson, 1974:81 (Italy, Yugoslavia); Leclercq, 1974b:209 (locality records); Lefebvre and Petit, 1974:163 (Belgium: Plombières); Lefebvre, 1975b:154 (Belgium); Lomholdt, 1975c:141 (in Sphecidae Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Haeseler, 1976b:72 (Germany: Friesian Islands: Amrum Island); Georghiou, 1977:192 (Cyprus); Guichard, 1977:252 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Kazenas, 1978b:162 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:251 (in key to Sphecidae of European part of former USSR); Schwammerberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Pagliano, 1980:133 (Italy: Piemonte); Richards, 1980:75 (in key to Sphecidae of British Isles); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:322 (Austria: Niederösterreich: Scheibbs District); Gayubo, 1981a:147 (N Spain: Sierra de Béjar); Haeseler, 1981:52 (Germany: Friesian Islands: Island of Amrum); Józán, 1981:305 (Hungary: Hortobágy National Park); Woydak, 1981:38 (Germany: Westfalen: Hamm); Gayubo and Nieves, 1982:191 (nesting in abandoned galls on oak); Haeseler, 1982c:63 (Germany: Island of Mellum); Leclercq, 1982a:124 (Belgium: Liège); Skibińska, 1982:119, 122 (Poland: Mazovian Voivodship: Warszawa); Dollfuss, 1983b:8 (in catalog of Sphecidae of Austria), 1983c:351 (locality records), 361-367 (genitalia); Lefebvre, 1983a:84 (Netherlands: Waddendistrict: northern coast sand dunes); Chevin and Silvestre de Sacy, 1984:7 (France: Yvelines Department); Gayubo, 1984a:168 (Spain: previously recorded from Salamanca Province); Haack, Tschartke, and Vidal, 1984:133 (Germany: Hamburg area); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Lefebvre, 1984:29 (Netherlands: Maastricht); Mingo and Gayubo, 1984:114 (Spain; as *troglobites*); Schmidt, 1984:292 (Germany: Baden-Württemberg); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985c:571 (Germany: Friesian Islands), 577 (Island of Mellum); Józán, 1985b:56 (Hungary: Mernye), 83 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:65 (Germany: Südpfalz); Dollfuss, 1986:502 (in revision of Western and Central Palearctic *Spilomena*); Skibińska, 1986b:162 (Poland: urban parks of Warszawa), 173 (various green urban habitats); Schmidt and Westrich, 1987:370 (Germany: Mainz area); Dollfuss, 1988:11, 23 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Haeseler, 1988:211 (Germany: Friesian Islands); Kowalczyk, 1988b:64 (Poland: environs of Łódź); Wolf, 1988b:143 (Germany: Rheinland-Westfalen); Pádr in Šedivý, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Jacobs and Oehlke, 1990:127 (in key to selected *Spilomena* of Democratic Germany); Jacobs, 1989:10 (Germany: Mecklenburg-Vorpommern); Weiffenbach, 1989:107 (Germany: Hessen: Gießen area); Archer, 1990c:17 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:158 (new records from Democratic Germany); Kowalczyk, 1990:290 (Poland: Góry Świętokrzyskie); Pádr, 1990:80 (Czech Republic: Praha area); Pagliano, 1990:118 (in catalog of Italian Sphecidae); von der Heide and Witt, 1990:64 (Germany: Niedersachsen); Schwammerberger and Priesner, 1990:538 (Austria: Kärnten); Day, 1991:xix (summary of European Endangered Hymenoptera Lists); Jakubzik, 1991:74 (Germany: Köln); Nilsson, 1991:83 (Sweden: Lake Mälaren); N. Schneider, 1991:93 (Luxembourg); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve SE Koblenz); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:23 (in list of Sphecidae of Lithuania); Crellin, 1992:69 (Great Britain: first record from the Isle of Man); Józán, 1992b:173 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nilsson, 1992:56 (known from Sweden); N. Schneider and Jacob-Remacle, 1992:43 (Luxembourg), 52 (nest structure); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:88 (Germany: Bayern: Bamberg District); Wolf, 1992c:23 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Józán, 1993:413 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Schmid-Egger, 1994a:688 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Theunert,

1994c:50 (Germany: summary of records from Niedersachsen and Bremen); Negrisola *in* Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Pagliano and Pesarini, 1995:86 (Italy: Ferrara Province); Schmid-Egger, 1995:64 (Germany: NW Baden-Württemberg); K. Schmidt, Schmid-Egger, and Doczkal, 1995:8 (relationship to *Spilomena vagans* is unclear); Archer, 1996b:121 (Great Britain: Yorkshire); Schmid-Egger, Risch, and Niehuis, 1995:210 (summary of records from Germany: Rheinland-Pfalz Province); Skibińska, 1995:423, 427 (Poland: pine forest in Białowieża Primeval Forest); Arens, 1996:441 (Germany: Bayern: Bayreuth area); Chaubet, 1996:115 (France: Bretagne: Corps-Nuds); Harvey and Plant, 1996:75 (Great Britain: summary of records from Essex); Jakubzik, 1996:253 (Germany: Köln); Jakubzik and Cölln, 1996b:401 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:34 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:28 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province); Jakubzik, Schlüter, and Cölln, 1998:1182, 1184 (Germany: Rheinland-Pfalz); Józán, 1998:311 (Hungary: Duna-Dráva National Park); Lefebvre, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Tschardtke, Gathmann, and Stefan-Deventer, 1998:719 (trap-nesting in Germany); van der Smissen, 1998:68 (Germany: Schleswig-Holstein: Bad Schwartau, sea coast NW Oldenburg, Seeretz); Archer, 1999a:9 (Great Britain: Lancashire); Cölln and Jakubzik, 1999:29 (Germany: Rheinland-Pfalz: Keuper-Scharren SW Hungerburg); González, Gayubo, and Torres, 1999:354 (Spain: Valladolid: Viana de Cega); Ljubomirov, 1999b:49 (Bulgaria: Mt. Vitosha near Sofia); Luig and Voolma, 1999:178 (Estonia); Neumayer, Schwarz, and Bregant, 1999:225 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:109 (in catalog of Belgian aculeates); M. Schwarz, 1999:85 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:204 (in Sphecidae Fauna of Germany); Dressler, 2000:34 (Germany: Hessen: Darmstadt area); Gayubo, González, and Torres, 2000:184 (Spain: Salamanca Province); González, Gayubo, and Tormos, 2000:19 (Andorra: Santa Coloma); Jacobs, 2000:12 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:106 (Hungary: Bakony Mountains); Kazenas, 2000e:167, 168 (in key to *Spilomena* of Kazakhstan, based on Dollfuss, 1986); M. Mader and Chalwatzis, 2000:60 (Germany: Hessen: Oderwald Mts.); Schmid-Egger, 2000b:276 (Germany: Baden-Württemberg: shores of Rhine River); Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands), 48 (locality records), 51 (distribution in Scandinavia); Dollfuss and Bitsch *in* Bitsch et al., 2001:122 (in Sphecidae Fauna of Western Europe); Ivanov and Ljubomirov, 2001:211 (Bulgaria: Kresna Gorge at 41°48'N 23°10'E); Józán, 2001:278 (Hungary: Somogy County); Kazenas, 2001:23 (in checklist of Sphecidae of Kazakhstan and Central Asia), 127 (review of known biology); Ohl et al., 2001:142 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:71 (Austria: Wien); Archer, 2002b:123 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:110 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:79 (Liechtenstein); Kazenas, 2002a:53 (geographic distribution, in Kazakhstan: near Alma-Ata); Shlyakhtenok and Skibinska, 2002:33 (Belarus: no specific locality); Wiśniowski, 2002:70 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:63 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Generani, Pagliano, Scaramozzino, and Strumia, 2003:66 (Italy: Arcipelago Toscano); Haeseler, 2003:340 (Germany: Niedersachsen: Harriersand Island near Bremen); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:70 (Germany: in catalog of wasps and bees of Bayern); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Schmid-Egger, 2003:757 (Italy: Sicilia: Castelammare; Malta: Busket, Mgarr); Steffan-Dewenter and Leschke, 2003:1966 (Germany: Niedersachsen: orchard meadows); Wiśniowski *in* Dylewska and Wiśniowski, 2003:148 (Poland: Ojców National Park); Deván, 2004:148 (western Slovakia); Dollfuss, 2004a:123 (Greece, Italy, Turkey); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:264 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:132 (Spain: Madrid: Estación Biogeo-

lógica de El Ventorrillo in Sierra de Guadarrama); Schneider and Carrières, 2004:98 (Luxemburg: Bon-Pays Region); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:42 and 60 (in checklist of Polish Sphecidae); Asís, Gayubo, and Tormos, 2005:89 (description of larva); Cruz-Sánchez, Gayubo, González, and Torres, 2005:221 (Spain: Salamanca: San Martín del Castañar); Gülmez and Tüzün, 2005:54 (Turkey: Ankara Province); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Hallin, 2005:29 (Sweden: Örebro County: Nydalen); Kofler, 2005:172 (Austria: Tirol: Lienz District: Weiherburg in Ainet Common); Pagliano and Negrisoló, 2005:482 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:565 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:37 (Great Britain: Cumbria County); Saure, 2005:19 (Germany: Berlin); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Buck, Paiero, and Marshall, 2006:40 (first record from North America: Canada: Ontario: Wellington County: University of Guelph Campus); N. Schneider, 2006:133, 134, 140 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:111 (Belarus': Polesye Radiological Nature Reserve); Vepřek, 2006:511 (Czech Republic: Kokořínsko area); Baños-Picón, Gayubo, Asís, and González, 2007:257, 259 (Spain: Zamora: Cabañas de Aliste); Beavis, 2007:95 (Great Britain: Tunbridge Wells and Central High Weald); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:457 (larva described by Asís et al., 2005), 458 (first recorded from Sicily, Italy, by Schmid-Egger, 2003; Jacobs, 2007:83, 85 (in key to Crabronidae of Germany); Józán, 2007:179 (Hungary: Zselic hills); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belarus': Berezinsky Nature Reserve); Vago, 2007:174 (France: département du Nord); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Řiha, Smetana, Straka, and Šima, 2008:67 (Czech Republic: Hády Hill near Brno); Gayubo, González, Tormos, and Asís, 2008:140 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:309 (Germany: Friesian Islands); Kazenas, 2008a:100 (Southeastern Kazakhstan: near Alma Aata); Ljubomirov and Yildirim, 2008:186 (in catalog of Crabronidae of Turkey); Theunert, 2008:81 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009:24 (Great Britain: Yorkshire: Sheffield); Donie, 2009:10 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of Hessen); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:264 (Bulgaria: Maleshevska Planina); Holzschuh, Steffan-Deventer, and Tschamtké, 2009:127 (Germany: Niedersachsen: near Göttingen at 51°30'N 9°54'E, nesting in grass strip corridors in agricultural landscape); Pagliano, 2009:188 (Italy: recorded from Sicilia by Schmid-Egger, 2003); Venne, 2009:111 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Mokrousov, 2010a:63 (Russia: Kostroma and Nizhniy Novgorod Oblast's, Chuvash Republic: no specific localities); Schmid-Egger, 2010a:19 (in red list of Aculeata of Germany: relatively common); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:102 (Western Slovakia: recorded from Borská Nižina); van der Smissen, 2010a:352 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Gogala, 2011:13 (Slovenia); Mokrousov, Berezin, and Egorov, 2011:80 (Russia: Chuvash Republic); Saure, 2011a:7 (Germany: Berlin: former airport Tempelhof); Theunert, 2011a:221 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:175 (Germany: Hessen: not endangered); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Shlyakhtenok, 2012a:172 (Belarus', and Russia: Krasnaya Polana near Sochi: collected in private plots); Standfuss and Standfuss, 2012:427 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Strumia, Pagliano, and Gayubo, 2012:57 (Italy: Toscana: Riserva di San Rossore); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Mokrousov, Ruchin, and Egorov, 2013:203 (Russia: Mordovian Republic: Mordovian State Nature Reserve); Shlyakhtenok, 2013:161 (in annotated catalog of aculeate wasps of Belarus'); Vieira, Oliveira, Brewster, and Gayubo, 2013:19 (Portugal: Douro International

Natural Park, Serras de Aire e Candeeiros Natural Park, and Paúl do Boquilobo Nature Reserve); Wiśniowski and Szczepko, 2013:49 (Poland: Kampinos National Park near Warszawa); U. Frommer, 2014:28 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Yıldırım, Ljubomirov, and Lelej, 2014:10 (distribution in Turkey by biogeographic provinces); Saure, 2015:15 (Germany: Berlin-Lichterfelde).

*Stigmus minutissimus* Radoszkowski, 1877:65, ♂, ♀. Syntypes: Kyrgyzstan: Shahimardan; Kazakhstan: Kyzil-Kum: no specific locality; also: Djuzak (ZMMU). Synonymized with *Spilomena troglodytes* by Kohl, 1890a:62. – Ed. André, 1888:188 (in revision of Sphecidae of Europe and Algeria), 14\* (bibliographic references). – **As *Spilomena minutissima***: Kohl, 1889a:20 (new combination).

*Spilomena vagans* Blüthgen, 1953:172, ♂, ♀. Holotype: ♀, Germany: Dessau-Mosighau (originally P. Blüthgen coll., now?). Synonymized with *Spilomena troglodytes* by Dollfuss, 1986:502. – Hellén, 1954:62 (in revision of Finnish *Spilomena*); de Beaumont, 1956e:389 (Switzerland); Hellén, 1956:45 (recorded from Finland); Valkeila, 1957:167 (Finland), 168 (habitat, adult activity period), 169 (feeding on honeydew, nest structure), 175 (prey: larval Thysanoptera); Ceballos, 1959:228 (in supplement to catalog of Spanish Sphecidae); Evans, 1959b:167 (larva's description by Valkeila, 1957); Wolf, 1959b:28 (known from Germany, but not from Nassau); Blüthgen, 1960:2 (locality records from Finland and Switzerland), 4 (Valkeila's biological observations discussed); Noskiewicz and Puławski, 1960:68, 69 (in key to Polish Sphecidae, not yet found in Poland); Valkeila, 1962b:67 (southwestern Finland); Babiý, 1964:116 (Austria: Land Salzburg); de Beaumont, 1964a:300 (Switzerland), 1964c:118 (in Sphecid Fauna of Switzerland); Miczulski, 1967:189 (Poland: Sławin near Lublin); Yarrow, 1969:101 (in key to British *Spilomena*); Haeseler, 1970:74 (Germany: Schleswig-Holstein: city of Kiel); Oehlke, 1970:755 (Democratic Germany); Lomholdt, 1971:125 (Denmark: Falster, Hørsholm, Lolland, Strandmøllen, Tisvilde Hegn); Balthasar, 1972:178 (in Sphecid Fauna of Czechoslovakia); Haeseler, 1972:156, 204 (Germany: Schleswig-Holstein; anthropogenic habitats); Lomholdt, 1975c:142 (in Sphecid Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae); Pulawski, 1978:251 (in key to Sphecidae of European part of former USSR); Richards, 1980:75 (in key to Sphecidae of British Isles); Dollfuss and Ressler, 1981:322 (Austria: Niederösterreich: Scheibbs District); Skibińska, 1981:357 (Poland: Warszawa-Białoleka); Dollfuss, 1983b:8 (in catalog of Sphecidae of Austria), 1983c:352 (locality records), 356 (probable synonym of *Spilomena troglodytes*); Mingo and Gayubo, 1984:114 (Spain); Schmidt, 1984:292 (Germany: Baden-Württemberg); Nilsson, 1985:43 (Sweden); Skibińska, 1986b:150, 153 (Poland: suburbs of Warszawa); Vikberg, 1986b:76 (Finland); Pádr in Šedivý, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Bałazy, Banaszak, and Michalski, 1989:119 (Poland: Wielkopolski National Park); Skibińska, 1989a:204 (Poland: Warszawa area); Pádr, 1990:81 (Czech Republic: Praha area); Kowalczyk, 1991a:89 (Poland: Łódź); Leclercq, 1991a:274 (correction to Leclercq's, 1979, catalog of French and Benelux Sphecidae: *troglydytes* is the valid name for *vagans*); Luig, 1993:43 (Estonia); K. Schmidt, Schmid-Egger, and Doczkal, 1995:8 (relationship to *Spilomena troglodytes* is unclear); Skibińska, 1995:423, 426 (Poland: pine forest in Białowieża Primeval Forest).

As *Spilomena* sp.: de Beaumont, 1956e:390 (Switzerland), corrected to *Spilomena vagans* by de Beaumont, 1964a:300.

### 81. *tungurachua* Antropov

*Spilomena tungurachua* Antropov, 1993a:54, ♀, ♂ (misspelling of Tungurahua). Holotype: ♂, Ecuador: Tungurahua: Amabato (CAS). – Amarante, 2002:53 (in catalog of Neotropical Crabronidae).

### 82. *turneri* Arnold

*Spilomena turneri* Arnold, 1927:119, ♀ (as *Turneri*, incorrect original capitalization). Holotype: ♀, South Africa: Western Cape Province: Ceres (BMNH). – Arnold, 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1959a:32 (in key to Afrotropical *Spilomena*), 34 (bibliographic reference); R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).



**83. valkeilai Vikberg**

*Spilomena valkeilai* Vikberg, 2000:43, ♀, ♂. Holotype: ♂, Finland: Hämeenlinna (Department of Applied Zoology, Univ. Helsinki). Paratypes: Sweden, Norway. – Vikberg, 2000:47 (in key to *Spilomena* of Europe and Canary Islands), 53 (distribution in Scandinavia); Dollfuss and Bitsch in Bitsch et al., 2001:123 (in Sphecidae Fauna of Western Europe); Jacobs, 2007:84, 85 (in key to Crabronidae of Germany, not yet found in Germany); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces).

As *Spilomena troglodytes*: Hellén, 1954:62 (Finland: Keuruu), corrected to *Spilomena expectata* by Vikberg, 1986a:62, and to *Spilomena valkeilai* by Vikberg, 2000:45.

**84. willinki Antropov**

*Spilomena willinki* Antropov, 1992c:71, ♀. Holotype: ♀, Argentina: Neuquén: Collón Curá (IML). – Antropov, 1993a:57 (Chile); Amarante, 2002:53 (in catalog of Neotropical Crabronidae).

**85. wittei Leclercq**

*Spilomena wittei* Leclercq, 1959a:35, ♀. Holotype: ♀, Zaire: Upemba National Park: Lusinga (Inst. Nat. Sci. Nat. Belgique). – Leclercq, 1959a:33 (in key to Afrotropical *Spilomena*), R. Bohart and Menke, 1976:193 (in checklist of world Sphecidae).

**86. zhejiangana Li and He**

*Spilomena zhejiangana* Li and He, 1998b:398, ♂. Holotype: ♂, China: Longwangshan Nature Reserve (Zhejiang Agricultural Univ.). – Li and He, 2001:755 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E), 2004:1109 (in hymenopterous fauna of Zhejiang Province, China).

**sp.**

Gourlay, 1964:49 (nesting in galleries of *Anobium*, preying of thrips *Heliothrips haemorrhoidalis* (Bouché)); Horning and Barr, 1970:103 (USA: Idaho: Craters of the Moon National Monument); Danks, 1971a:342 (nesting habits), 1971c:80 (nest mortality); Haeseler, 1972:156 (Germany: Schleswig-Holstein; anthropogenic habitats); Callan, 1979:39 (New Zealand); Mingo and Gayubo, 1984:114 (Spain); Naumann, 1983b:155 (Australia; nesting habits); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); Dollfuss, 1986:505 (se. Egypt: Gebel Elba); de Carvalho and Zucchi, 1989a (Brazil), 1989b (= *Spilomena alini*); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Amarante, 1993:19 (ne. Brazil); Naumann, 1993:182 (Australia: Queensland: Heathlands area in Cape York); Genaro, Portuondo, and Garcés, 1995:25 (first record of the genus from Cuba); Naumann, 1998:183 (Australia: northwest Queensland: Musselbrook area, approximately 18°40'S 138°23'E); Esenbekova and Kazenas, 2000:22 (southeast Kazakhstan: village Rakhat in foothills of Zailiyskiy Alatau); Dollfuss, 2004a:124 (China, Kenya, Laos, South Africa, Thailand); Kazenas, 2004b:102 (Kazakhstan: western Tien Shan); Genaro, 2006:57 (in checklist of Cuban Sphecidae and Crabronidae); Baños-Picón, Gayubo, Asis, and González, 2007:257 (Spain: Zamora: Cabañas de Aliste, sp. aff. *mocsaryi*); Roche, 2007a:60 (in checklist of Egyptian Crabronidae), 2007b:3 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Pagliano, 2011a:159 (*Celia* sp. in coll. Spinola, Torino, are members of different genera); Vieira, Oliveira, Brewster, and Gayubo, 2013:19 (Portugal: Seras de Aire e Candeeiros Natural Park and Paúl do Boquilobo Nature Reserve).

**NOMEN NUDUM**

*Spilomena merelti* (as *Merelti*, incorrect original capitalization): Brauns, 1911a:139 (South Africa).

**MISIDENTIFICATIONS**

*Spilomena duplicata* Provancher: S. Frommer, 1988:96 (California: Riverside County: Deep Canyon) is probably *Steniolia duplicata* Provancher.

*Spilomena elegans* Parker: S. Frommer, 1988:96 (California: Riverside County: Deep Canyon) is probably *Steniolia elegans* J. Parker.

*Spilomena nigripes* Parker: S. Frommer, 1988:96 (California: Riverside County: Deep Canyon) is probably *Steniolia nigripes* J. Parker.