

Appendix 1. Checklist of Apoidea, Anthophila species recorded in the four investigated sites: agroecosystem (AC); nature reserve (SG); central urban park (PG); peripheral urban park (PU); and in the control site of Leucatia (LE).

| | Species | Sites: | AC | SG | PG | PU | LE |
|---|---|--------|----|----|----|----|----|
| Family COLLETIDAE | | | | | | | |
| Gen. <i>Hylaeus</i> Fabricius, 1793 | | | | | | | |
| 1 | <i>Hylaeus angustatus</i> (Schenck, 1859) | | | | | x | |
| 2 | <i>Hylaeus annularis</i> (Kirby, 1802) | | | | | x | |
| 3 | <i>Hylaeus brevicornis</i> Nylander, 1852 | | | | | x | |
| 4 | <i>Hylaeus clypearis</i> (Schenck, 1853) | | | | | x | |
| 5 | <i>Hylaeus gibbus</i> Saunders, 1850 | | | | | x | |
| 6 | <i>Hylaeus imparilis</i> Förster, 1871 | | | | | x | |
| 7 | <i>Hylaeus lineolatus</i> (Schenck, 1859) | | | | | x | |
| 8 | <i>Hylaeus punctatus</i> (Brullé, 1832) | | | | | x | |
| Gen. <i>Colletes</i> Latreille, 1802 | | | | | | | |
| 9 | <i>Colletes fodiens</i> (Geoffroy, 1765) | | | | | x | |
| 10 | <i>Colletes similis</i> Schenck, 1853 | | | | | x | |
| Family ANDRENIDAE | | | | | | | |
| Gen. <i>Panurgus</i> Panzer, 1806 | | | | | | | |
| 11 | <i>Panurgus siculus</i> Morawitz, 1871 | | x | x | x | x | |
| Gen. <i>Andrena</i> Fabricius, 1775 | | | | | | | |
| 12 | <i>Andrena aeneiventris</i> Morawitz, 1872 | | | | | x | |
| 13 | <i>Andrena agilissima italicica</i> Warncke, 1968 | | x | x | x | x | |
| 14 | <i>Andrena albopunctata</i> (Rossi, 1792) | | | | x | x | |
| 15 | <i>Andrena combinata</i> (Christ, 1791) | x | x | | x | | |
| 16 | <i>Andrena decipiens</i> Schenck, 1859 | | | | | x | |
| 17 | <i>Andrena ferrugineicrus</i> Dours, 1872 | | | | | x | |
| 18 | <i>Andrena fimbriata</i> Brullé, 1832 | | | | | x | |
| 19 | <i>Andrena flavipes</i> Panzer, 1799 | | | x | | | |
| 20 | <i>Andrena florea</i> Fabricius, 1793 | | | | | x | |
| 21 | <i>Andrena forsterella</i> Osytshnjuk, 1978 | | | | | x | |
| 22 | <i>Andrena fumida</i> Pérez, 1895 | | | | x | | |
| 23 | <i>Andrena gravida</i> Imhoff, 1832 | | | | | x | |
| 24 | <i>Andrena hesperia</i> Smith, 1853 | | x | | | | |
| 25 | <i>Andrena kamarti</i> Schmiedeknecht, 1900 | | | x | | | |
| 26 | <i>Andrena limata</i> Smith, 1853 | | | x | | | |
| 27 | <i>Andrena minutula</i> (Kirby, 1802) | | x | | | | |
| 28 | <i>Andrena morio</i> Brullé, 1832 | | | x | | | |
| 29 | <i>Andrena nigroaenea</i> (Kirby, 1802) | x | | x | x | x | |
| 30 | <i>Andrena nigroolivacea</i> Dours, 1873 | | | x | x | x | |
| 31 | <i>Andrena ovatula</i> (Kirby, 1802) | x | x | x | x | x | |
| 32 | <i>Andrena panurgina</i> De Stefani, 1889 | | | x | | | |

| | | | | | |
|----|--|---|---|---|---|
| 33 | <i>Andrena schmiedeknechti</i> Magretti, 1883 | x | x | | |
| 34 | <i>Andrena similis</i> Smith, 1849 | x | | x | |
| 35 | <i>Andrena spreta pseudasuniensis</i> Strand, 1921 | | | x | x |
| 36 | <i>Andrena stabiana</i> Morice, 1889 | x | | | |
| 37 | <i>Andrena wilkella</i> (Kirby, 1802) | | x | | |

Family HALICTIDAE

Gen. ***Halictus*** Latreille, 1804

| | | | | | |
|----|---|---|---|---|---|
| 38 | <i>Halictus asperulus</i> Pérez, 1895 | x | x | x | x |
| 39 | <i>Halictus brunnescens</i> (Eversmann, 1852) | | | | x |
| 40 | <i>Halictus compressus</i> (Walckenaer, 1802) | | x | | x |
| 41 | <i>Halictus constantinensis</i> Strand, 1910 | | x | | |
| 42 | <i>Halictus fulvipes</i> (Klug, 1817) | x | x | | x |
| 43 | <i>Halictus gemmeus</i> Dours, 1872 | | | | x |
| 44 | <i>Halictus langobardicus</i> Blüthgen, 1944 | | | | x |
| 45 | <i>Halictus kessleri</i> Bramson, 1879 | | x | | |
| 46 | <i>Halictus pollinosus</i> Sichel, 1860 | | x | | x |
| 47 | <i>Halictus quadricinctus</i> (Fabricius, 1776) | | x | | x |
| 48 | <i>Halictus scabiosae</i> (Rossi, 1790) | | x | x | x |
| 49 | <i>Halictus sexcinctus</i> (Fabricius, 1775) | | x | | |
| 50 | <i>Halictus subauratus</i> (Rossi, 1792) | | | | x |
| 51 | <i>Halictus vestitus</i> Lepelletier, 1841 | | | | x |

Gen. ***Lasioglossum*** Curtis, 1833

| | | | | | |
|----|--|---|---|---|---|
| 52 | <i>Lasioglossum bimaculatum</i> (Dours, 1872) | x | x | x | x |
| 53 | <i>Lasioglossum calceatum</i> (Scopoli, 1763) | x | | | x |
| 54 | <i>Lasioglossum callizonium</i> (Pérez, 1895) | | | | x |
| 55 | <i>Lasioglossum glabriusculum</i> (Morawitz, 1872) | | | | x |
| 56 | <i>Lasioglossum laeve</i> (Kirby, 1802) | | | | x |
| 57 | <i>Lasioglossum laterale</i> (Brullé, 1832) | | | | x |
| 58 | <i>Lasioglossum lativentre</i> (Schenck, 1853) | | | | x |
| 59 | <i>Lasioglossum malachurum</i> (Kirby, 1802) | | x | x | |
| 60 | <i>Lasioglossum morio</i> (Fabricius, 1793) | | | | x |
| 61 | <i>Lasioglossum nitidulum</i> (Fabricius, 1804) | | | | x |
| 62 | <i>Lasioglossum opacum</i> (Pérez, 1895) | x | | x | x |
| 63 | <i>Lasioglossum pauxillum</i> (Schenck, 1853) | | | | x |
| 64 | <i>Lasioglossum politum</i> (Schenck, 1853) | | | | x |
| 65 | <i>Lasioglossum truncaticolle</i> (Morawitz, 1878) | | | | x |

Gen. ***Sphecodes*** Latreille, 1804

| | | | | | |
|----|--|--|--|--|---|
| 66 | <i>Sphecodes gibbus</i> (Linnaeus, 1758) | | | | x |
|----|--|--|--|--|---|

Gen. ***Nomiooides*** Schenck, 1867

| | | |
|----|---|---|
| 67 | <i>Nomiooides facilis</i> (Smith, 1853) | x |
|----|---|---|

Gen. ***Nomiapis*** Cockerell, 1919

| | | |
|----|--|---|
| 68 | <i>Nomiapis diversipes</i> (Latreille, 1806) | x |
|----|--|---|

Family MELITTIDAE

Gen. ***Dasypoda*** Latreille, 1802

| | | |
|----|--|---|
| 69 | <i>Dasypoda hirtipes</i> (Fabricius, 1793) | x |
|----|--|---|

Family MEGACHILIDAE

Gen. ***Megachile*** Latreille, 1802

| | | | | |
|----|---|---|---|---|
| 70 | <i>Megachile albisecta</i> (Klug, 1817) | x | x | x |
| 71 | <i>Megachile apicalis</i> Spinola, 1808 | | | x |
| 72 | <i>Megachile centuncularis</i> (Linnaeus, 1758) | | | x |
| 73 | <i>Megachile circumcincta aetnensis</i> Zanden, 1989 | x | x | x |
| 74 | <i>Megachile giraudi intermixta</i> Gerstaecker, 1869 | | x | x |
| 75 | <i>Megachile lagopoda</i> (Linnaeus, 1761) | x | | x |
| 76 | <i>Megachile maritima</i> (Kirby, 1802) | | | x |
| 77 | <i>Megachile melanopyga</i> A. Costa, 1863 | | | x |
| 78 | <i>Megachile nigrita</i> (Radoszkowski, 1876) | | | x |
| 79 | <i>Megachile parietina</i> (Geoffroy, 1762) | x | x | x |
| 80 | <i>Megachile pilidens</i> Alfken, 1923 | | | x |
| 81 | <i>Megachile pusilla</i> Pérez, 1884 | | | x |
| 82 | <i>Megachile rotundata</i> (Fabricius, 1787) | | | x |
| 83 | <i>Megachile sicula</i> (Rossi, 1792) | x | x | x |

Gen. ***Coelioxys*** Latreille, 1809

| | | |
|----|---|---|
| 84 | <i>Coelioxys afra</i> Lepelletier, 1841 | x |
| 85 | <i>Coelioxys inermis</i> (Kirby, 1802) | x |

Gen. ***Dioxys*** Lepelletier & Serville, 1825

| | | |
|----|-------------------------------------|---|
| 86 | <i>Dioxys cincta</i> (Jurine, 1807) | x |
|----|-------------------------------------|---|

Gen. ***Hoplitis*** Klug, 1807

| | | | | |
|----|---|---|---|---|
| 87 | <i>Hoplitis acuticornis</i> (Dufour & Perris, 1840) | x | x | x |
| 88 | <i>Hoplitis adunca</i> (Panzer, 1798) | x | x | x |
| 89 | <i>Hoplitis anthocopoides</i> (Schenck, 1853) | x | x | x |
| 90 | <i>Hoplitis illyrica</i> Noskiewicz, 1926 | x | | |
| 91 | <i>Hoplitis leucomelana</i> (Kirby, 1802) | x | | |

Gen. ***Osmia*** Panzer, 1806

| | | | | |
|-----|--|---|---|---|
| 92 | <i>Osmia aurulenta</i> (Panzer, 1799) | x | x | x |
| 93 | <i>Osmia bicornis</i> (Linnaeus, 1758) | | | x |
| 94 | <i>Osmia brevicornis</i> (Fabricius, 1798) | | | x |
| 95 | <i>Osmia caerulescens</i> (Linnaeus, 1758) | x | x | x |
| 96 | <i>Osmia gallarum</i> Spinola, 1808 | | | x |
| 97 | <i>Osmia kohli</i> Ducke, 1900 | x | x | x |
| 98 | <i>Osmia latreillei iberoafricana</i> Peters, 1975 | x | x | x |
| 99 | <i>Osmia ligurica</i> (Morawitz, 1868) | x | | |
| 100 | <i>Osmia melanogaster</i> Spinola, 1808 | x | x | x |
| 101 | <i>Osmia niveata</i> (Fabricius, 1804) | | | x |

| | | | | | |
|-----|---|---|---|---|---|
| 102 | <i>Osmia niveocincta</i> Pérez, 1897 | | | | x |
| 103 | <i>Osmia notata</i> (Fabricius, 1804) | | | | x |
| 104 | <i>Osmia rufohirta</i> (Latreille, 1811) | | | | x |
| 105 | <i>Osmia signata</i> Erichson, 1835 | x | x | x | |
| 106 | <i>Osmia submicens hebraea</i> Benoist, 1934 | x | x | | |
| 107 | <i>Osmia tunensis</i> (Fabricius, 1787) | x | | x | |
| | Gen. <i>Heriades</i> Spinola, 1808 | | | | |
| 108 | <i>Heriades crenulata</i> Nylander, 1856 | | x | | x |
| | Gen. <i>Anthidium</i> Fabricius, 1804 | | | | |
| 109 | <i>Anthidium florentinum</i> (Fabricius, 1775) | | | | x |
| 110 | <i>Anthidium manicatum</i> (Linnaeus, 1758) | x | x | x | x |
| | Gen. <i>Anthidiellum</i> Cockerell, 1904 | | | | |
| 111 | <i>Anthidiellum strigatum luteum</i> (Friese, 1897) | | | | x |
| | Gen. <i>Icteranthidium</i> Michener, 1948 | | | | |
| 112 | <i>Icteranthidium grohmanni</i> (Spinola, 1838) | | x | | x |
| | Gen. <i>Pseudoanthidium</i> Friese, 1898 | | | | |
| 113 | <i>Pseudoanthidium gregoriense</i> Nobile, 1989 | x | | | |
| 114 | <i>Pseudoanthidium scapulare</i> (Latreille, 1809) | x | | | x |
| | Gen. <i>Rhodanthidium</i> Isensee, 1927 | | | | |
| 115 | <i>Rhodanthidium septemdentatum</i> (Latreille, 1809) | | x | x | x |
| 116 | <i>Rhodanthidium sticticum</i> (Fabricius, 1787) | x | x | x | |
| | Gen. <i>Stelis</i> Panzer, 1806 | | | | |
| 117 | <i>Stelis breviuscula</i> (Nylander, 1848) | | | | x |
| 118 | <i>Stelis nasuta</i> (Latreille, 1809) | | | x | |

Family APIDAE

| | | | | | |
|-----|--|---|---|---|---|
| | Gen. <i>Habropoda</i> Smith, 1854 | | | | |
| 119 | <i>Habropoda tarsata</i> (Spinola, 1838) | x | x | x | x |
| 120 | <i>Habropoda zonatula</i> (Smith, 1854) | | x | x | x |
| | Gen. <i>Anthophora</i> Latreille, 1803 | | | | |
| 121 | <i>Anthophora atroalba</i> Lepelletier, 1841 | | | | x |
| 122 | <i>Anthophora balneorum</i> Lepelletier, 1841 | x | x | x | x |
| 123 | <i>Anthophora crassipes</i> Lepelletier, 1841 | | | x | |
| 124 | <i>Anthophora crinipes</i> Smith, 1854 | x | x | x | x |
| 125 | <i>Anthophora mucida</i> Gribodo, 1873 | | x | | |
| 126 | <i>Anthophora plumipes</i> (Pallas, 1772) | x | x | x | x |
| 127 | <i>Anthophora quadricolor</i> (Erichson, 1840) | | x | | |
| 128 | <i>Anthophora retusa</i> (Linnaeus, 1758) | x | | | |
| | Gen. <i>Amegilla</i> Friese, 1897 | | | | |

| | | | | | |
|---|--|---|---|---|---|
| 129 | <i>Amegilla albigena</i> (Lepeletier, 1841) | | x | x | x |
| 130 | <i>Amegilla garrula</i> (Rossi, 1790) | x | | | x |
| Gen. <i>Melecta</i> Latreille, 1802 | | | | | |
| 131 | <i>Melecta albifrons nigra</i> Spinola, 1806 | x | | x | x |
| 132 | <i>Melecta funeralia</i> (Smith, 1854) | x | | | x |
| 133 | <i>Melecta obscura</i> (Friese, 1895) | x | x | | x |
| Gen. <i>Thyreus</i> Panzer, 1806 | | | | | |
| 134 | <i>Thyreus affinis</i> (Morawitz, 1873) | | x | | |
| 135 | <i>Thyreus histrionicus</i> (Illiger, 1806) | | | | x |
| 136 | <i>Thyreus orbatus</i> (Lepeletier, 1841) | x | | x | |
| 137 | <i>Thyreus ramosus</i> (Lepeletier, 1841) | x | | x | x |
| Gen. <i>Eucera</i> Scopoli, 1770 | | | | | |
| 138 | <i>Eucera algira</i> Brullé, 1840 | | | x | |
| 139 | <i>Eucera caspica</i> Morawitz, 1873 | x | x | x | x |
| 140 | <i>Eucera eucnemidea</i> Dours, 1873 | x | x | x | x |
| 141 | <i>Eucera longicornis</i> (Linnaeus, 1758) | | x | | |
| 142 | <i>Eucera nigrescens</i> Pérez, 1879 | x | x | x | x |
| 143 | <i>Eucera oraniensis</i> Lepeletier, 1841 | x | | x | x |
| 144 | <i>Eucera vulpes</i> Brullé, 1832 | | | | x |
| Gen. <i>Xylocopa</i> Latreille, 1802 | | | | | |
| 145 | <i>Xylocopa iris</i> (Christ, 1791) | | x | x | x |
| 146 | <i>Xylocopa valga</i> Gerstaecker, 1872 | | | | x |
| 147 | <i>Xylocopa violacea</i> (Linnaeus, 1758) | x | x | x | x |
| Gen. <i>Ceratina</i> Latreille, 1802 | | | | | |
| 148 | <i>Ceratina chalcites</i> Latreille, 1809 | | | | x |
| 149 | <i>Ceratina chalybea</i> Chevrier, 1872 | x | | | x |
| 150 | <i>Ceratina cucurbitina</i> (Rossi, 1792) | x | x | x | x |
| 151 | <i>Ceratina cyanea</i> (Kirby, 1802) | x | x | x | x |
| 152 | <i>Ceratina dallatorreana</i> Friese, 1896 | | x | | |
| 153 | <i>Ceratina dentiventris</i> Gerstaecker, 1869 | | x | | |
| 154 | <i>Ceratina parvula</i> Smith, 1854 | x | | | |
| Gen. <i>Nomada</i> Scopoli, 1770 | | | | | |
| 155 | <i>Nomada numida manni</i> Morawitz, 1872 | | | | x |
| 156 | <i>Nomada sexfasciata</i> Panzer, 1799 | | | | x |
| Gen. <i>Epeorus</i> Latreille, 1802 | | | | | |
| 157 | <i>Epeorus transitorius</i> Eversmann, 1852 | | | | x |
| Gen. <i>Bombus</i> Latreille, 1802 | | | | | |
| 158 | <i>Bombus bohemicus</i> Seidl, 1837 | | | | x |
| 159 | <i>Bombus hortorum</i> (Linnaeus, 1761) | x | x | x | x |
| 160 | <i>Bombus maxillosus</i> Klug, 1817 | | | | x |
| 161 | <i>Bombus pascuorum siciliensis</i> Tkalcu, 1977 | x | x | x | x |

| | | | | | |
|----------------------|--|-----------|-----------|-----------|-----------|
| 162 | <i>Bombus ruderatus autumnalis</i> Fabricius, 1793 | x | x | | x |
| 163 | <i>Bombus terrestris calabricus</i> Krueger, 1958 | x | x | x | x |
| Total species | | 46 | 63 | 54 | 53 |

Appendix 2. Seasonal data: species and cumulative number of specimens collected at the four investigated sites.

| Species | Months | | | | | | | | | | | | Tot. |
|---------------------------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| <i>Panurgus siculus</i> | | | | 14 | 18 | | | | | | | | 32 |
| <i>Andrena agilissima italica</i> | | | | 7 | 12 | | | | | | | | 19 |
| <i>Andrena albopunctata</i> | | | 1 | | | | | | | | | | 1 |
| <i>Andrena combinata</i> | | | | 1 | 3 | | | | | | | | 4 |
| <i>Andrena flavipes</i> | | | | 1 | | | | | | | | | 1 |
| <i>Andrena fumida</i> | | | 2 | 2 | | | | | | | | | 4 |
| <i>Andrena hesperia</i> | | | 1 | | | | | | | | | | 1 |
| <i>Andrena kamarti</i> | | | | 1 | | | | | | | | | 1 |
| <i>Andrena limata</i> | | 1 | | | | | | | | | | | 1 |
| <i>Andrena minutula</i> | | | | 1 | | | | | | | | | 1 |
| <i>Andrena morio</i> | | | | 1 | | | | | | | | | 1 |
| <i>Andrena nigroaena</i> | | | 13 | 1 | | | | | | | | | 14 |
| <i>Andrena nigroolivacea</i> | | | 2 | 2 | | | | | | | | | 4 |
| <i>Andrena ovatula</i> | | | | 6 | | | | | | | | | 6 |
| <i>Andrena panurgina</i> | | | 1 | | | | | | | | | | 1 |
| <i>Andrena schmiedeknechti</i> | | | | 1 | 1 | | | | | | | | 2 |
| <i>Andrena similis</i> | | | | 4 | | | | | | | | | 4 |
| <i>Andrena spreta pseudasuniensis</i> | | | | 3 | | | | | | | | | 3 |
| <i>Andrena stabiana</i> | | | | 2 | | | | | | | | | 2 |
| <i>Andrena wilkella</i> | | | | 1 | | | | | | | | | 1 |
| <i>Halictus asperulus</i> | | | 1 | 5 | 1 | 4 | | | | | | | 11 |
| <i>Halictus compressus</i> | | | | | | 2 | 2 | | | | | | 4 |
| <i>Halictus costantinensis</i> | | | | | | 2 | | | | | | | 2 |
| <i>Halictus fulvipes</i> | | | 2 | | 1 | 3 | 10 | | | | | | 16 |

| | | | | | | | | | | | | |
|-------------------------------------|--|---|----|----|----|---|---|---|---|---|--|-----|
| <i>Melecta funeralia</i> | | | | 4 | | | | | | | | 4 |
| <i>Melecta obscura</i> | | | | 3 | 1 | | | | | | | 4 |
| <i>Thyreus affinis</i> | | | | | 1 | | | | | | | 1 |
| <i>Thyreus orbatus</i> | | | | 1 | 3 | | | | | | | 4 |
| <i>Thyreus ramosus</i> | | | | | 3 | 2 | | | | | | 5 |
| <i>Eucera algira</i> | | | 2 | | 1 | | | | | | | 3 |
| <i>Eucera caspica</i> | | | 14 | 4 | 1 | | | | | | | 19 |
| <i>Eucera eucnemidea</i> | | | 6 | 13 | 16 | | | | | | | 35 |
| <i>Eucera longicornis</i> | | | | | 3 | | | | | | | 3 |
| <i>Eucera nigrescens</i> | | | 31 | 76 | 13 | | | | | | | 120 |
| <i>Eucera oraniensis</i> | | | | 1 | 1 | | | | | | | 2 |
| <i>Xylocopa iris</i> | | | 12 | 13 | 4 | 3 | 3 | 1 | 2 | 1 | | 39 |
| <i>Xylocopa valga</i> | | | | | | 1 | | | | | | 1 |
| <i>Xylocopa violacea</i> | | 1 | 7 | 12 | 14 | 1 | 2 | 1 | 2 | 1 | | 41 |
| <i>Ceratina chalybea</i> | | | | | 1 | | | | | | | 1 |
| <i>Ceratina cucurbitina</i> | | | 4 | 2 | 6 | 2 | 2 | | | | | 16 |
| <i>Ceratina cyanea</i> | | | | 1 | 2 | 5 | 2 | | | | | 10 |
| <i>Ceratina dallatorreana</i> | | | | | | 6 | | | | | | 6 |
| <i>Ceratina dentiventris</i> | | | | | | 6 | | | | | | 6 |
| <i>Ceratina parvula</i> | | | | | 1 | | | | | | | 1 |
| <i>Bombus bohemicus</i> | | | | | 1 | | | | | | | 1 |
| <i>Bombus hortorum</i> | | | 2 | 1 | 4 | | | | | | | 7 |
| <i>Bombus maxillosus</i> | | | 1 | | | | | | | | | 1 |
| <i>Bombus pascuorum siciliensis</i> | | | | 2 | 1 | 2 | 4 | | 1 | | | 10 |
| <i>Bombus ruderatus autumnalis</i> | | | 1 | 2 | 2 | | | | | | | 5 |
| <i>Bombus terrestris calabricus</i> | | 1 | 5 | 15 | 24 | 3 | 3 | 1 | 2 | 2 | | 56 |

Appendix 3. Circadian abundance of bee species for each site.

| | | | | | | | | | | | | | | | | | |
|-------------------------------------|---|---|---|---|---|---|---|---|----|----|---|----|---|---|---|----|----|
| <i>Osmia aurulenta</i> | | | | | | | 1 | 3 | 10 | | 3 | 4 | 4 | 1 | 1 | 27 | |
| <i>Osmia caerulescens</i> | 1 | 8 | 6 | | | | 2 | 1 | | 1 | | 2 | | | | 21 | |
| <i>Osmia kohli</i> | | | | | | 1 | 1 | | 10 | 6 | 4 | 2 | 2 | | | 26 | |
| <i>Osmia latreillei</i> | | | | | | | | | | | | | | | | | |
| <i>iberoafricana</i> | 1 | 1 | 2 | | | | | | 3 | 1 | | 10 | 3 | | | 21 | |
| <i>Osmia ligurica</i> | | | 1 | | | | | | | | | | | | | 1 | |
| <i>Osmia melanogaster</i> | 8 | 4 | | | | | 3 | | 2 | 2 | 1 | | 3 | 5 | | 28 | |
| <i>Osmia notata</i> | | | | | | | | | | | | 1 | 1 | | 1 | 3 | |
| <i>Osmia rufohirta</i> | | | | | | | | | | | | | | 1 | 1 | | |
| <i>Osmia signata</i> | | | | | 1 | 2 | 2 | | 1 | | | | | | | 6 | |
| <i>Osmia submicans hebraea</i> | | | 2 | | | | | 1 | | | | | | | | 3 | |
| <i>Osmia tunensis</i> | 1 | 2 | | | | | | | | 2 | | | | | | 5 | |
| <i>Heriades crenulata</i> | | | | | | 2 | | | | | | | | | | 2 | |
| <i>Anthidium manicatum</i> | 1 | 3 | 3 | | 1 | 3 | 2 | 1 | 6 | 11 | 5 | 4 | | | | 40 | |
| <i>Icteranthidium grohmanni</i> | | | | | | 2 | | 1 | | | | | | | | 3 | |
| <i>Pseudoanthidium gregoriense</i> | | | | | | 1 | | | | | | | | | | 1 | |
| <i>Pseudoanthidium scapulare</i> | | | | | 6 | 2 | 1 | 1 | | | | | | | | 10 | |
| <i>Rhodanthidium septemdentatum</i> | | | | | | | | | | 1 | | | 1 | 1 | | 3 | |
| <i>Rhodanthidium sticticum</i> | | | | | 2 | 2 | 3 | 1 | 4 | 3 | 3 | 3 | 3 | 7 | 5 | 1 | 37 |
| <i>Stelis nasuta</i> | | | | | | | | | | | 1 | | | | | 1 | |
| <i>Habropoda tarsata</i> | 8 | 2 | 4 | 6 | 6 | 4 | 3 | 1 | | | 1 | 1 | 1 | | | 37 | |
| <i>Habropoda zonatula</i> | | | | | | 1 | | 1 | 3 | | | 1 | | | | 6 | |
| <i>Anthophora balneorum</i> | | 4 | 1 | 1 | 3 | 3 | 5 | 5 | 3 | 2 | 2 | 3 | 2 | | 1 | 1 | 36 |
| <i>Anthophora crassipes</i> | | | | | | | | | | | 1 | 2 | | | | 3 | |
| <i>Anthophora crinipes</i> | 2 | 3 | 2 | 2 | 1 | | | | 5 | 4 | 1 | 1 | | 1 | 1 | 23 | |
| <i>Anthophora mucida</i> | | | | | | | 1 | | | | | | | | | 1 | |
| <i>Anthophora plumipes</i> | 6 | 3 | 4 | 3 | 2 | 2 | 3 | | 6 | 4 | | 4 | 2 | 1 | | 40 | |

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|--------------------------------|----|----|---|---|---|---|----|---|---|---|----|---|----|---|---|---|---|---|---|-----|
| <i>Anthophora quadricolor</i> | | | | | | | | 1 | | | | | | | | | | | | 1 |
| <i>Anthophora retusa</i> | 1 | | | | | | | | | | | | | | | | | | | 1 |
| <i>Amegilla albigena</i> | | | | | | | | | 2 | 3 | 1 | | | | | 2 | | | | 8 |
| <i>Amegilla garrula</i> | | | | | | 1 | 2 | | | | | | | | | | | | | 3 |
| <i>Melecta albifrons nigra</i> | 3 | 2 | | | | | | | | | | | | | | | | 1 | 6 | |
| <i>Melecta funeralia</i> | 1 | 3 | | | | | | | | | | | | | | | | | | 4 |
| <i>Melecta obscura</i> | 1 | | 1 | | | | 2 | | | | | | | | | | | | | 4 |
| <i>Thyreus affinis</i> | | | | | | 1 | | | | | | | | | | | | | | 1 |
| <i>Thyreus orbatus</i> | 1 | | | | | | | | | 3 | | | | | | | | | | 4 |
| <i>Thyreus ramosus</i> | 1 | 1 | | | | | | | 1 | | | | | | | 1 | 1 | | | 5 |
| <i>Eucera algira</i> | | | | | | | | | 1 | 2 | | | | | | | | | | 3 |
| <i>Eucera caspica</i> | | 2 | | | 1 | 1 | 1 | | 2 | 1 | 3 | 1 | 3 | 2 | 1 | 1 | | | | 19 |
| <i>Eucera eucnemidea</i> | 3 | 2 | 1 | 3 | 2 | 1 | 2 | | 9 | 4 | 3 | 2 | | 1 | 2 | | | | | 35 |
| <i>Eucera longicornis</i> | | | | | | | 3 | | | | | | | | | | | | | 3 |
| <i>Eucera nigrescens</i> | 12 | 11 | 9 | 6 | 6 | 7 | 12 | 3 | 8 | 6 | 12 | 8 | 10 | 4 | 2 | 4 | | | | 120 |
| <i>Eucera oraniensis</i> | | | 1 | | | | | | | | | | | | | | | 1 | | 2 |
| <i>Xylocopa iris</i> | | | | | 3 | 9 | 1 | 2 | 8 | 4 | 2 | 1 | 3 | 3 | 3 | | | | | 39 |
| <i>Xylocopa valga</i> | | | | | | | | | | | | | | | 1 | | | | | 1 |
| <i>Xylocopa violacea</i> | 2 | | 3 | | 6 | 2 | 1 | 1 | 6 | 2 | 2 | 4 | 2 | 6 | 2 | 2 | | | | 41 |
| <i>Ceratina chalybea</i> | | | 1 | | | | | | | | | | | | | | | | | 1 |
| <i>Ceratina cucurbitina</i> | | 2 | 1 | 1 | 4 | 5 | | | | 1 | | | | | | | 2 | | | 16 |
| <i>Ceratina cyanea</i> | | | | 2 | 1 | 2 | 1 | 2 | 1 | 1 | | | | | | | | | | 10 |
| <i>Ceratina dallatorreana</i> | | | | | | 6 | | | | | | | | | | | | | | 6 |
| <i>Ceratina dentiventris</i> | | | | | | 4 | | 2 | | | | | | | | | | | | 6 |
| <i>Ceratina parvula</i> | | | 1 | | | | | | | | | | | | | | | | | 1 |
| <i>Bombus bohemicus</i> | | | | | | | | | | | | | | | | | 1 | 1 | | |
| <i>Bombus hortorum</i> | | 2 | | | | | 1 | 1 | | 1 | | | | | | | 2 | 7 | | |

| | | | | | | | | | | | | | | | | | |
|---|------------|---|---|---|------------|---|---|---|------------|---|---|---|------------|---|---|-------------|----|
| <i>Bombus maxillosus</i> | | | | | | | | | | | | | 1 | | | | 1 |
| <i>Bombus pascuorum</i> <i>siciliensis</i> | 1 | | | | 3 | 3 | | 2 | | | | | | | 1 | | 10 |
| <i>Bombus ruderatus</i> <i>autumnalis</i> | | | 1 | | | 2 | | | | | | | | 2 | | | 5 |
| <i>Bombus terrestris calabricus</i> | 4 | 1 | 3 | 2 | 5 | 6 | 4 | 3 | 4 | 3 | 3 | 2 | 4 | 6 | 4 | 2 | 56 |
| Total specimens | 247 | | | | 313 | | | | 354 | | | | 226 | | | 1140 | |

Appendix 4. Nesting behaviour and social behaviour of recorded bees. Abbreviations: hypergeic (HY), endogeic (EN), nesting less (NL); solitary (SO), eusocial (ES), pre-social (PS), cleptoparasitic (CP), social parasitic (PAS), gregarious (GR); short-tongued (S-T), long-tongued (LT).

| Genus | Nesting method | Behavior | Tongue |
|---------------------------|----------------|----------|--------|
| <i>Panurgus</i> | EN | SO/GR | S-T |
| <i>Andrena</i> | EN | SO/GR | |
| <i>Halictus</i> | EN | SO/PS/ES | |
| <i>Lasioglossum</i> | EN | SO/PS/ES | |
| <i>Nomiooides</i> | EN | SO/GR | |
| <i>Megachile</i> | HY | SO/GR | L-T |
| <i>Dioxys</i> | NL | CP | |
| <i>Hoplitis</i> | HY | SO | |
| <i>Osmia</i> | HY | SO | |
| <i>Heriades</i> | HY | SO | |
| <i>Anthidium</i> | HY | SO | |
| <i>Icteranthidium</i> | HY | SO | |
| <i>Pseudoanthidium</i> | HY | SO | |
| <i>Rhodanthidium</i> | HY | SO | |
| <i>Stelis</i> | NL | CP | |
| <i>Habropoda</i> | EN | SO | |
| <i>Anthophora</i> | EN | SO/GR | |
| <i>Amegilla</i> | EN | SO/GR | |
| <i>Melecta</i> | NL | CP | |
| <i>Thyreus</i> | NL | CP | |
| <i>Eucera</i> | EN | SO/GR | |
| <i>Xylocopa</i> | HY | PS | |
| <i>Ceratina</i> | HY | SO | |
| <i>Bombus (Psithyrus)</i> | HY/(NL) | ES/(PAS) | |