

Appendix 2. Annotated list of bees collected or observed at Jerry Smith Park and Rocky Point (Swope Park) in 2016 (Jackson Co., MO)

Family Andrenidae

1. ***Andrena carlini*** – solitary, polylectic, univoltine ground-nesting spring bee, common throughout Missouri in a great variety of habitats. JSE, at *Barbarea vulgaris* flowers.
2. ***Andrena commoda*** - solitary, polylectic, univoltine ground-nesting late spring/early summer bee usually associated with native prairies and glades; conservative. RP, at *Camassia scilloides*; also collected in 2002 at Blue River Glades NA at *Amorpha canescens*.
3. ***Andrena cressonii*** - solitary, polylectic, univoltine ground-nesting spring bee, common throughout the state in many habitats. JSE, in a bee bowl.
4. ***Andrena imitatrix*** - solitary, polylectic, univoltine ground-nesting spring bee, common throughout the state in many habitats. JSE, collected in flight.
5. ***Andrena nasonii*** - solitary, polylectic, univoltine ground-nesting spring bee, common throughout the state in many habitats. JSE, at *Sisyrinchium* sp.; RP, at *Camassia scilloides* and *Packera obovata*.
6. ***Andrena perplexa*** - solitary, polylectic, univoltine ground-nesting spring bee, common throughout the state in many habitats. RP, at *Camassia scilloides* and *Packera obovata*.
7. ***Andrena personata*** - solitary, polylectic, univoltine ground-nesting spring bee, common throughout the state in many habitats. JSW, at *Packera pseud aurea*; RP at *Packera obovata*.
8. ***Andrena robertsonii*** - solitary, polylectic, univoltine ground-nesting spring bee, occurs throughout the state in many habitats but is relatively uncommon. RP, at *Rhus serotina*.
9. ***Andrena simplex*** - solitary, oligolectic (*Solidago* and *Symphyotrichum*) univoltine ground-nesting late summer/autumnal bee, occasional throughout the state in many habitats. JSE, at *Solidago altissima*.
10. ***Andrena violae*** - solitary, oligolectic (*Viola* spp.) univoltine ground-nesting spring bee, common throughout the state in a variety of habitats where violets occur. RP and JSE, in blue bee bowls.
11. ***Pseudopanurgus albitarsis*** - solitary, oligolectic (primarily at *Helianthus* spp.), probably univoltine, ground-nesting summer/late summer bee; conservative, occurring statewide on prairies, glades, woodlands, wetlands. JSW, at *Helianthus grosseserratus*.
12. ***Pseudopanurgus andreoides*** - solitary, oligolectic (on Asteraceae), univoltine, ground-nesting late summer bee/autumnal bee, probably occurring statewide in a variety of habitats. RP, at *Symphyotrichum* (blue species).
13. ***Pseudopanurgus compositarum*** - solitary, oligolectic (on Asteraceae), univoltine, ground-nesting late summer bee/autumnal bee, occurring statewide in a variety of habitats, characteristic of native prairies. JSW, at *Amphiachyris dracunculoides*, *Symphyotrichum ericoides*, *S. pilosum*, *S. praealtum*.
14. ***Pseudopanurgus sp. 1*** - solitary, oligolectic (possibly on *Amphiachyris* only, but may use other Asteraceae), univoltine, ground-nesting late summer/autumnal bee, its proper name at present uncertain; probably conservative; JSW, at *Amphiachyris dracunculoides*. This is the first record of the species from Missouri; other recent records are from several Oklahoma prairies.

Family Apidae

15. ***Xylocopa virginica*** - wood-nesting species, the only large carpenter bee in the Midwest; subsocial (offspring often overwinter with the mother), often communal, polylectic, occurring statewide; a habitual nectar-robber (pierces corollas from the outside); usually nests in structural timbers (softwoods), in natural habitats occasionally nests in red cedar (live and dead), rarely in hardwoods. Has clearly benefitted from human developments, in presettlement times was probably uncommon in Missouri. Will forage a mile or more from nest sites. Seen at JSE, JSW, RP.

16. ***Ceratina calcarata*** - stem/twig-nesting species, will excavate pith to make nesting space, will also use existing cavities; multivoltine, subsocial (offspring often overwinter with the mother), polylectic, occurring statewide in most open habitats (prairies, glades, old fields, wetlands, yards, roadsides, etc.). RP, at *Symphotrichum* (blue sp.), *Vernonia* sp., and in a bee bowl.
17. ***Ceratina strenua*** - stem/twig-nesting species, will excavate pith to make nesting space, will also use existing cavities; multivoltine, probably subsocial like *C. calcarata* above, polylectic, occurring statewide in most open habitats (prairies, glades, old fields, wetlands, yards, roadsides, etc.). RP, at *Erigeron* sp., and in a bee bowl.
18. ***Eucera rosae*** – solitary, polylectic, univoltine, ground-nesting spring bee, occurring in a variety of habitats throughout most of the state; JSE, at *Penstemon digitalis*.
19. ***Svastra obliqua*** – solitary, oligolectic (primarily *Helianthus* but occasionally collects pollen from other Asteraceae), univoltine, ground-nesting summer bee, occurring in all habitats where *Helianthus* spp. are found. JSE (at *Dalea purpurea*), JSW (at *Vernonia* sp.), RP (at *Ratibida pinnata*).
20. ***Tetraloniella cressoniana*** – solitary, oligolectic (*Salvia*, *S. azurea* in tallgrass prairie portion of range), univoltine, ground-nesting late summer/autumnal bee; primarily a Great Plains species known in Missouri only from prairie remnants that have *Salvia azurea* populations. Conservative, but has been found on reconstructed prairies in eastern Nebraska. JSW, at *Salvia azurea*.
21. ***Melissodes agilis*** – solitary, oligolectic (*Helianthus* spp.), univoltine, ground-nesting summer/late summer bee, occurring statewide in all habitats that have sunflowers. JSE (*Helianthus pauciflorus*, *H. salicifolius*), JSW (at *H. annuus*, *H. pauciflorus*, *H. salicifolius*).
22. ***Melissodes boltoniae*** - solitary, oligolectic (various Asteraceae), univoltine, ground-nesting summer/late summer bee, occurring statewide in many habitats. JSW, at *Amphiachyris*, *Helianthus salicifolius*, and *Solidago altissima*.
23. ***Melissodes coreopsis*** - solitary, oligolectic (various Asteraceae, especially sunflowers), univoltine, ground-nesting summer/late summer bee, occurring statewide in many habitats but characteristic of native prairies. JSW, at *Liatris pycnostachya*.
24. ***Melissodes desponsa*** - solitary, oligolectic on *Cirsium* species, univoltine, ground-nesting summer/late summer bee, occurring statewide in many habitats. JSW, JSE, Rocky Point, all at *Cirsium altissimum*
25. ***Melissodes trinodis*** - solitary, oligolectic (various Asteraceae, especially sunflowers), univoltine, ground-nesting summer/late summer bee, occurring statewide in many habitats. JSW at *Helianthus salicifolius*, *H. grosseserratus*, *H. pauciflorus*, *Cirsium altissimum*, *Silphium integrifolium*; JSE at *H. pauciflorus*, Rocky Point at *H. hirsutus*.
26. ***Melissodes vernoniae*** - solitary, oligolectic on *Vernonia* species, univoltine, ground-nesting summer/late summer bee, occurring statewide in many habitats. JSW, at *Vernonia* sp.
27. ***Nomada* sp. 1** – specific name uncertain at present; cleptoparasitic, presumably on vernal *Andrena* species; RP, at *Packera obovata*
28. ***Nomada parva*** – specific name uncertain at present; cleptoparasitic, presumably on vernal *Andrena* species; RP, at *Packera obovata*
29. ***Nomada imbricata*** - cleptoparasitic on vernal *Andrena*, occurring statewide in a variety of habitats; JSE, at *Barbarea vulgaris*.
30. ***Nomada cressonii*** - specific name uncertain at present; cleptoparasitic, presumably on vernal *Andrena* species; JSE, at *Barbarea vulgaris*, RP at *Rhus serotina* and *Packera obovata*.
31. ***Nomada* sp. 5** - specific name uncertain at present; cleptoparasitic, presumably on vernal *Andrena* species; RP at *Camassia scilloides*.
32. ***Triepeolus scelestus*** – first Missouri record of this rarely collected southern Great Plains cleptoparasitic species (hosts are presumably *Melissodes* species); known from only a handful of specimens (nearest known record is Douglas Co. KS). JSW, in a malaise trap.

33. ***Bombus auricomus*** - occurs statewide but somewhat sporadically; seen at JSW at *Helianthus annuus* and *H. grosseserratus*, and at RP on *Cirsium altissimum*. Not collected.
34. ***Bombus bimaculatus*** – occurs statewide, common; seen at JSW at *Penstemon digitalis* and on several sunflower species; at RP on *Aesculus glabra* and *Teucrium canadense*. Not collected.
35. ***Bombus fraternus*** – occurs statewide but uncommon; seen only at JSW (on *Echinacea pallida* and *Silphium laciniatum*). Not collected.
36. ***Bombus griseocollis*** – occurs statewide, very common; seen at all sites on a variety of flowers.
37. ***Bombus impatiens*** - occurs statewide, very common; seen at all sites on a variety of flowers.
38. ***Bombus pensylvanicus*** – occurs statewide but has become less common over the past few decades, and is declining in many parts of its range in the US; seen only at JSE, not collected.
39. ***Apis mellifera*** – occurs statewide; seen at all sites, but not common at any of the sites.

Family Colletidae

40. ***Colletes inaequalis*** - solitary, univoltine, polylectic (but favors pollen from woody plants) ground-nesting vernal species, common throughout the state in a variety of habitats, but usually not on prairies unless spring-blooming woody plants (plums or prairie willow) are present. RP, at *Camassia scillodes*.
41. ***Hylaeus affinis*** – solitary, cavity-nesting (in pre-existing cavities in stems, twigs, holes in wood), bi/multivoltine polylectic species; characteristic of native prairies but occurs in other habitats also; occurs statewide. JSW, at *Apocynum*, *Daucus*, and *Packera*. This and the next species are the two most common and characteristic *Hylaeus* species on our native prairies.
42. ***Hylaeus mesillae*** - solitary, cavity-nesting (in pre-existing cavities in stems, twigs, holes in wood), bi/multivoltine polylectic species; characteristic of native prairies but occurs in other habitats also; occurs statewide. JSW, at *Apocynum*.

Family Halictidae

43. ***Augochlora pura*** – solitary (occasionally communal), multivoltine, polylectic species nesting in downed, decaying logs (occasionally upright dead trees); common statewide in woody habitats, often abundant. RP, at *Erigeron*, *Eupatorium*, *Helianthus*, *Packera*, *Rhus*, *Salvia*, *Symphotrichum*.
44. ***Augochlorella aurata*** – multivoltine solitary to social, polylectic ground-nesting species, occurring statewide in many habitat types, usually one of the most common and abundant species on native prairies. At all sites: JSW, at *Pycnanthemum*, *Helianthus annuus*, *H. pauciflorus*, and *Solidago altissima*; JSE, at *Barbarea vulgaris*, *Eryngium yuccafolium*, *Helianthus pauciflorus*, and *Ratibida pinnata*; RP, at *Camassia scillodes* and *Helianthus hirsutus*.
45. ***Augochlorella persimilis*** – very similar in most respects to *A. aurata* above, and like it, often very abundant on prairies, but also abundant on glades, more so than *A. aurata*; females of the two species are not always reliably separable. At all sites: JSW, at *Amphiachyris*, *Leucanthemum*, *Packera*, *Chamaecrista fasciculata*, *Euphorbia* sp.; JSE, at *Astragalus distortus*, *Glandularia*, *Penstemon digitalis*, *Pycnanthemum*, *Sisyrinchium*; RP, at *Erigeron* sp.
46. ***Augochloropsis fulgida*** – solitary, multivoltine, polylectic ground-nesting species, characteristic of native prairies but occurring statewide in a variety of habitat types; JSW at *Amphiachyris* and *Symphotrichum praealtum*; JSE at *Eryngium yuccafolium*
47. ***Augochloropsis metallica*** - – solitary, multivoltine, polylectic ground-nesting species, found statewide in a variety of habitat types; JSW at *Ratibida pinnata*
48. ***Agapostemon texanus*** - solitary, multivoltine, polylectic ground-nesting species, found around the state in a variety of habitat types; JSW at *Symphotrichum praealtum*, JSE at *Dalea purpureum*
49. ***Agapostemon virescens*** - solitary, multivoltine, polylectic ground-nesting species, found statewide in a variety of habitat types, and much more common in Missouri than *A. texanus*, above; JSE at *Helianthus salicifolius*

50. ***Halictus ligatus*** – eusocial species, ground-nesting, polylectic but favoring Asteraceae; common and abundant throughout the state in many habitat types; JSW at *Leucanthemum*, *Ratibida pinnata* and *Packera*; JSE at *Helianthus pauciflorus*, RP at *Ratibida pinnata* and *Vernonia* sp.
51. ***Halictus rubicundus*** – eusocial ground-nesting polylectic species, occurring statewide in many habitat types; JSW at *Pycnanthemum*, JSE at *Pycnanthemum*
52. ***Sphcodes cressonii*** – cleptoparasitic species, likely host(s) in Missouri are species of *Lasioglossum (Dialictus)*; occurs statewide; JSW, in a malaise trap
53. ***Sphcodes heraclei*** – cleptoparasitic species, likely host(s) in Missouri are species of *Agapostemon*; occurs statewide; JSW, at *Daucus*.
54. ***Lasioglossum callidum*** – social polylectic ground-nesting species, characteristic of native prairies but occurs across the state in other habitat types; JSE at *Penstemon digitalis*
55. ***Lasioglossum coeruleum*** – presumably solitary multivoltine polylectic wood-nesting species, characteristic of forests and woodlands, occurring statewide; RP in bee bowls
56. ***Lasioglossum coreopsis*** - presumably social ground-nesting polylectic species, characteristic of native prairies but occurs sporadically across the state in other habitat types; JSW at *Amphiachyris*, JSE at *Penstemon digitalis* and in bee bowls.
57. ***Lasioglossum cressonii*** - solitary multivoltine or social polylectic wood-nesting species (dead and decaying logs), characteristic of forests and woodlands, distributed statewide; what is currently recognized as *L. cressonii* may include one or more additional cryptic and unrecognized species. JSW, in a malaise trap.
58. ***Lasioglossum disparile*** – presumed social polylectic ground-nesting species, characteristic of native prairies, largely restricted to prairie remnants in Missouri; JSW, at *Amphiachyris*, *Leucanthemum*, *Apocynum*, and in a malaise trap.
59. ***Lasioglossum foxii*** - social or solitary multivoltine polylectic ground-nesting species, characteristic species of forests and woodlands, occurring statewide; RP, at *Camassia scillodes*
60. ***Lasioglossum hitchensi*** – social ground-nesting species occurring statewide in many habitat types, often very abundant; JSW, at *Euphorbia* sp., *Rudbeckia triloba*, *Symphyotrichum pilosum*, *Daucus*, *Lythrum alatum*, *Penstemon digitalis*, *Pycnanthemum tenuifolium*, *Packera*, and in malaise traps; JSE at *Penstemon digitalis* and in bee bowls; RP at *Camassia scillodes* and *Eupatorium rugosum*.
61. ***Lasioglossum imitatum*** - social ground-nesting species occurring statewide in many habitat types; JSW at *Daucus*, *Symphyotrichum ericoides*, *S. pilosum*; JSE at *Cirsium altissimum*, *Solidago altissima*; RP at *Eupatorium rugosum*, *Cirsium altissimum*, *Erigeron* sp.
62. ***Lasioglossum nymphaearum*** – ground-nesting social or solitary multivoltine polylectic species characteristic of native prairies, also occurring occasionally in other “open” habitat types; conservative; JSW at *Apocynum* and *Solidago altissima*.
63. ***Lasioglossum trigeminum*** - social ground-nesting polylectic species characteristic of native prairies but occurring in other “open” habitats around the state. JSE, at *Penstemon digitalis*.
64. ***Lasioglossum versatum*** – social ground-nesting species occurring in many habitats statewide, often very abundant. Found at all sites: JSW at *Pycnanthemum tenuifolium*, *Penstemon digitalis*, *Daucus*, *Lythrum alatum*; JSE at *Eryngium yuccafolium*, *Penstemon digitalis*, *Pycnanthemum tenuifolium*; RP in bee bowls.
65. ***Lasioglossum* sp. 1** – represented by a single specimen from RP in a bee bowl, this may be just an aberrant individual of the common and abundant *L. hitchensi*.
66. ***Lasioglossum platyparium*** – cleptoparasitic species, host(s) being some unknown *Lasioglossum (Dialictus)* species. JSE, at *Solidago altissima*. All of the parasitic *Lasioglossum (Dialictus)* species are rare, only a handful are known from Missouri.

Family Megachilidae

67. ***Dolichostelis louisae*** – cleptoparasitic species, hosts include *Megachile exilis* and *M. campanulae*. Occurs statewide but sparingly. JSW, at *Symphotrichum pilosum*.
68. ***Heriades leavitti*** – stem/twig/cavity nesting species (including small holes in dead wood), bi/multivoltine, oligolectic on Asteraceae; occurs statewide in a variety of habitats. JSW at *Rudbeckia triloba*, *Leucanthemum*, *Symphotrichum pilosum*; RP at *Erigeron sp.*, *Solidago ulmifolia*, *Cirsium altissimum*, *Helianthus hirsutus*.
69. ***Heriades carinatus*** - stem/twig nesting species (including small holes in dead wood), apparently univoltine, polylectic, occurring statewide in a variety of habitats. JSE, at *Penstemon digitalis*.
70. ***Hoplitis pilosifrons*** - stem/twig nesting species (including small holes in dead wood), univoltine, polylectic, occurring statewide in a variety of habitats. JSE, at *Astragalus distortus* and *Penstemon digitalis*
71. ***Hoplitis producta*** - stem/twig nesting species (including small holes in dead wood), univoltine, polylectic, occurring statewide in a variety of habitats. RP, at *Psoralegium tenuiflorum*.
72. ***Osmia collinsiae*** – univoltine polylectic spring bee; presumably an above-ground cavity-nester like other *Osmia*, but nests have never been found; occurs statewide but not common; conservative. JSE, at *Astragalus distortus*.
73. ***Osmia conjuncta*** – univoltine polylectic spring bee, nests in snail shells, possibly exclusively; occurs statewide; JSE, at *Astragalus distortus*.
74. ***Osmia distincta*** – univoltine spring bee, oligolectic of *Penstemon* spp.; nests are unknown, presumably an above-ground cavity nester like most *Osmia*; conservative, occurs locally around the state in natural communities that have *Penstemon* spp., but has not been found in plantings or reconstructions that include *Penstemon*; JSW, at *Penstemon digitalis*.
75. ***Osmia georgica*** – univoltine spring bee, oligolectic of vernal Asteraceae, above-ground cavity nester, occurring statewide in a variety of habitats; JSW at *Packera pseud aurea*, RP at *Packera obovata*
76. ***Osmia lignaria*** – univoltine polylectic spring bee, nests in above-ground cavities, occurs statewide in a variety of habitats; RP at *Camassia scilloides*
77. ***Osmia pumila*** – univoltine polylectic spring bee, nests in above-ground cavities, common statewide in a variety of habitats; JSE, in bee bowls.
78. ***Megachile addenda*** – univoltine late spring/early summer species, oligolectic of Fabaceae but favors *Tephrosia virginiana*; ground-nester; conservative, occurs around the state in prairies, woodlands and savannas, rarely in other areas. RP, at *Psoralegium tenuiflora*
79. ***Megachile brevis*** – multivoltine, polylectic, above-ground cavity-nesting species, occurs statewide in all kinds of habitats, the most common leaf-cutter bee in the state; JSW at *Lespedeza cuneata*, JSE at *Astragalus distortus*, *Barbarea vulgaris*, *Dalea purpurea*
80. ***Megachile campanulae*** – bivoltine, above-ground cavity-nesting summer bee, oligolectic of *Campanula americana* in most of its range; occurs statewide; JSW at *Campanula americana*, RP at *Campanula americana*
81. ***Megachile exilis*** – bivoltine, above-ground cavity-nesting summer bee, polylectic but favors Fabaceae; occurs statewide; RP at *Psoralegium tenuiflora*
82. ***Megachile inimica*** – bivoltine, above-ground cavity-nesting summer bee, oligolectic of Asteraceae; occurs statewide; RP at *Vernonia* sp.
83. ***Megachile mendica*** - – multivoltine, polylectic, above-ground cavity-nesting species, occurs statewide in all kinds of habitats, one of the most common leaf-cutter bees in the state; JSW at *Pycnanthemum tenuifolium*, *Vernonia* sp.; JSE at *Echinacea pallida*; RP at *Psoralegium tenuiflora*
84. ***Megachile montivaga*** – multivoltine, polylectic, usually above-ground cavity-nesting species, occurs statewide in a variety of habitat types; JSW at *Rosa carolina*.

85. ***Megachile petulans*** - multivoltine, polylectic (favors Asteraceae and Fabaceae), nests unknown but presumably a ground-nester; characteristic of native prairies but occurs statewide in other habitat types; JSW at *Vernonia* sp.

86. ***Megachile policularis*** - multivoltine, polylectic (but favors Asteraceae), above-ground cavity-nesting species; occurs infrequently in the southern half of the state in open habitats; JSW at *Ratibida pinnata*

87. ***Megachile texana*** - multivoltine, polylectic, ground-nesting species common throughout the state in many habitat types; RP at *Vernonia* sp.

88. ***Coelioxys modesta*** - cleptoparasite of *Megachile exilis* and *M. campanulae*, occurs throughout the state; found at all sites; JSW at *Lythrum alatum*; JSE at *Silphium integrifolium*; RP at *Vernonia* sp.

89. ***Coelioxys sayi*** – cleptoparasite of *Megachile brevis* and *M. mendica*, perhaps others; common statewide; JSW at *Pycnanthemum tenuifolium*, RP at *Psoraleidium tenuiflora*

end of list 11/9/16