

Appendix 1. Preliminary State Species List of Minnesota Bees

Only 66 bee species were reported for Minnesota when Frederic Washburn published *The Hymenoptera of Minnesota* in 1919.

Through this project, the state species list of Minnesota bees now stands at 418 species. An additional 29 problematic species are listed in Appendix 2.

Please note: This is a preliminary list. Species are expected to be added or removed as surveys are completed and specimen identifications are confirmed.

In compiling this list, the project coordinator/bee specialist (Crystal Boyd) consulted 11 museum collections and 16 additional sources, including personal collections, student theses, informal reports, published literature, and recent survey data from collaborators.

The list was made possible through fieldwork and databasing efforts of MNDNR staff and volunteers. Joel Gardner with the ENRTF project *Enhancing Pollinator Landscape* also contributed to databasing and identifying museum specimens. A special thanks to the numerous collection managers who provided access to historical specimens. In particular, data was collected from large collections of Minnesota bees at the University of Minnesota Insect Collection, the American Museum of Natural History, and the Illinois Natural History Survey.

All data on flight season, nesting, sociality, and host plants/bees was compiled by John Ascher and simplified by MNDNR.

Flight Season: Numbers indicate months when a species is known to fly across its entire range. This data is not specific to Minnesota. For example, Minnesota has a shorter flight season than more southern states, and bees do not fly prior to April. Brackets indicate atypical months.

Nest: Categories include Burrow, Cavity, Hive, Pithy Stems, Soil, and Wood. Some bees parasitize other bee species, and their host's nesting habits are listed in brackets.

Sociality: Categories include Solitary, Communal, Subsocial, Eusocial, and Parasite.

Plant [or Insect] Host: Some bees—including species called oligoleges—collect pollen from only certain plant taxa, which are listed here. Some bees parasitize other bee species, and their host taxa are listed in brackets.



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Scientific Name	Flight Season	Nest [parasitic]	Sociality	Plant [or Insect] Host		
				Family	Genus	
Plasterer, Yellow-faced Bees -- Family Colletidae						
<i>Colletes</i>	<i>aberrans</i>	6-8	Soil	Solitary		
<i>Colletes</i>	<i>albescens</i>					
<i>Colletes</i>	<i>americanus</i>					
<i>Colletes</i>	<i>andrewsi</i>					
<i>Colletes</i>	<i>brevicornis</i>	3-6	Soil	Solitary		
<i>Colletes</i>	<i>compactus</i>					
<i>Colletes</i>	<i>consors</i>	4-8	Soil	Solitary		
<i>Colletes</i>	<i>hyalinus</i>	4-10	Soil	Solitary		
<i>Colletes</i>	<i>impunctatus</i>	6-7	Soil	Solitary		
<i>Colletes</i>	<i>inaequalis</i>	3-7 [8-9]	Soil	Solitary		
<i>Colletes</i>	<i>kincaidii</i>	6-9	Soil	Solitary		
<i>Colletes</i>	<i>latitarsis</i>	3-9	Soil	Solitary	Solanaceae	<i>Physalis</i>
<i>Colletes</i>	<i>nudus</i>					
<i>Colletes</i>	<i>phaceliae</i>	6-9	Soil	Solitary		
<i>Colletes</i>	<i>robertsonii</i>	6-8	Soil	Solitary		
<i>Colletes</i>	<i>rufocinctus</i>	8-9	Soil	Solitary		
<i>Colletes</i>	<i>simulans</i>	1, 5-11	Soil	Solitary	Asteraceae	
<i>Colletes</i>	<i>solidaginis</i>	7-9	Soil	Solitary		
<i>Colletes</i>	<i>speculiferus</i>	4-11	Soil	Solitary		
<i>Colletes</i>	<i>susannae</i>	7-8	Soil	Solitary		
<i>Colletes</i>	<i>willistoni</i>					
<i>Colletes</i>	<i>wilmattae</i>	6-9	Soil	Solitary		
<i>Hylaeus</i>	<i>affinis</i>	4-10	Cavity	Solitary		
<i>Hylaeus</i>	<i>annulatus</i>	4-10	Cavity	Solitary		
<i>Hylaeus</i>	<i>basalis</i>	5-8	Cavity	Solitary	Rosaceae	
<i>Hylaeus</i>	<i>fedorica</i>	6-7	Cavity	Solitary		
<i>Hylaeus</i>	<i>floridanus</i>	4-10	Cavity	Solitary		
<i>Hylaeus</i>	<i>illinoisensis</i>					
<i>Hylaeus</i>	<i>leptocephalus</i>					
<i>Hylaeus</i>	<i>mesillae</i>	4-10	Cavity	Solitary		
<i>Hylaeus</i>	<i>modestus</i>	5-9	Cavity	Solitary		
<i>Hylaeus</i>	<i>rudbeckiae</i>	5-10	Cavity	Solitary		
<i>Hylaeus</i>	<i>saniculae</i>	6-8	Cavity	Solitary		
<i>Hylaeus</i>	<i>sparsus</i>					
<i>Hylaeus</i>	<i>verticalis</i>	4-8	Cavity	Solitary		
Mining Bees -- Family Andrenidae						
<i>Andrena</i>	<i>algida</i>					
<i>Andrena</i>	<i>aliciae</i>	7-9	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>alleghaniensis</i>	4-7	Soil	Solitary		
<i>Andrena</i>	<i>andrenoides</i>	3-8	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>asteris</i>	8-10	Soil	Solitary	Asteraceae	



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<i>Andrena</i>	<i>barbilabris</i>	3-7 [8-9]	Soil	Solitary		
<i>Andrena</i>	<i>bisalicis</i>	2-9	Soil	Solitary		
<i>Andrena</i>	<i>bradleyi</i>	3-9	Soil	Solitary	Ericaceae	
<i>Andrena</i>	<i>brevipalpis</i>	5-10	Soil	Solitary		
<i>Andrena</i>	<i>canadensis</i>	8-10	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>carlini</i>	3-7 [8]	Soil	Solitary		
<i>Andrena</i>	<i>carolina</i>	4-7	Soil	Solitary	Ericaceae	<i>Vaccinium</i>
<i>Andrena</i>	<i>ceanothi</i>	5-6	Soil	Solitary		
<i>Andrena</i>	<i>chromotricha</i>	7-9	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>clarkella</i>	3-8	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>commoda</i>	4-7	Soil	Solitary		
<i>Andrena</i>	<i>cragini</i>	5-6	Soil	Solitary		<i>Amorpha</i>
<i>Andrena</i>	<i>crataegi</i>	3-8	Soil	Solitary		
<i>Andrena</i>	<i>cressonii</i>	3-8	Soil	Solitary		
<i>Andrena</i>	<i>distans</i>					
<i>Andrena</i>	<i>dunningi</i>	2-7 [8]	Soil	Solitary		
<i>Andrena</i>	<i>erigeniae</i>					
<i>Andrena</i>	<i>erythrogaster</i>	2-7	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>erythronii</i>	3-6	Soil	Solitary		<i>Erythronium</i>
<i>Andrena</i>	<i>forbesii</i>	4-6	Soil	Solitary		
<i>Andrena</i>	<i>frigida</i>	2-7	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>geranii</i>	4-7	Soil	Solitary		
<i>Andrena</i>	<i>helianthi</i>	7-9	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>helianthiformis</i>					
<i>Andrena</i>	<i>hippotes</i>	4-6	Soil	Solitary		
<i>Andrena</i>	<i>hirticincta</i>	8-10	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>illinoisensis</i>	3-7	Soil	Solitary		
<i>Andrena</i>	<i>imitatrix</i>	3-7	Soil	Solitary		
<i>Andrena</i>	<i>integra</i>	5-8	Soil	Solitary	Cornaceae	<i>Cornus (Svida)</i>
<i>Andrena</i>	<i>krigiana</i>	3-7	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>lupinorum</i>	5-8	Soil	Solitary		
<i>Andrena</i>	<i>macoupinensis</i>					
<i>Andrena</i>	<i>mandibularis</i>	3-7	Soil	Solitary		
<i>Andrena</i>	<i>mariae</i>	4-7	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>melanochroa</i>	3-7	Soil	Solitary	Rosaceae	
<i>Andrena</i>	<i>milwaukeeensis</i>	3-8	Soil	Solitary		
<i>Andrena</i>	<i>miranda</i>	5-8	Soil	Solitary		
<i>Andrena</i>	<i>miserabilis</i>	1-7 [8-9]	Soil	Solitary		
<i>Andrena</i>	<i>nasonii</i>	3-7	Soil	Solitary		
<i>Andrena</i>	<i>nigrae</i>	3-7	Soil	Solitary		
<i>Andrena</i>	<i>nigrihirta</i>	3-8	Soil	Solitary		
<i>Andrena</i>	<i>nivalis</i>	2-8	Soil	Solitary		
<i>Andrena</i>	<i>nubecula</i>	7-10	Soil	Solitary	Asteraceae	



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<i>Andrena</i>	<i>nuda</i>					
<i>Andrena</i>	<i>peckhami</i>	9	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>perplexa</i>					
<i>Andrena</i>	<i>persimulata</i>	4-7	Soil	Solitary	Cornaceae	<i>Cornus (Svida)</i>
<i>Andrena</i>	<i>placata</i>	7-9	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>platyparia</i>	5-7	Soil	Solitary	Cornaceae	<i>Cornus (Svida)</i>
<i>Andrena</i>	<i>polemonii</i>					
<i>Andrena</i>	<i>quintilis</i>	4-7	Soil	Solitary		
<i>Andrena</i>	<i>regularis</i>	4-7	Soil	Solitary		
<i>Andrena</i>	<i>robertsonii</i>	4-8	Soil	Solitary		
<i>Andrena</i>	<i>robervalensis</i>					
<i>Andrena</i>	<i>rudbeckiae</i>	6-8	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>rufosignata</i>	4-8	Soil	Solitary		
<i>Andrena</i>	<i>rugosa</i>	3-6	Soil	Solitary		
<i>Andrena</i>	<i>runcinatae</i>	7-10	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>salictaria</i>	3-6	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>sigmundi</i>	5-7	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>simplex</i>	7-9	Soil	Solitary	Asteraceae	
<i>Andrena</i>	<i>spiraeana</i>	6-8	Soil	Solitary		
<i>Andrena</i>	<i>thaspiae</i>	4-8	Soil	Solitary		
<i>Andrena</i>	<i>tridens</i>	3-7	Soil	Solitary		
<i>Andrena</i>	<i>vicina</i>	3-7 [8-9]	Soil	Solitary		
<i>Andrena</i>	<i>virginiana</i>	6-8	Soil	Solitary		
<i>Andrena</i>	<i>wellesleyana</i>	3-7	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Andrena</i>	<i>wheeleri</i>	4-7	Soil	Solitary		
<i>Andrena</i>	<i>wilkella</i>	4-9	Soil	Solitary		
<i>Andrena</i>	<i>w-scripta</i>	2-9 [10]	Soil	Solitary		
<i>Andrena</i>	<i>ziziae</i>	4-6 [7, 9]	Soil	Solitary		
<i>Andrena</i>	<i>wilmattae</i>	5-7	Soil	Solitary		
<i>Calliopsis</i>	<i>andreniformis</i>	4-10	Soil	Solitary	esp. Fabaceae	
<i>Calliopsis</i>	<i>coloradensis</i>	6-10	Soil	Solitary	Asteraceae	
<i>Calliopsis</i>	<i>nebraskensis</i>	6-9	Soil	Solitary	Verbenaceae	<i>Verbena</i>
<i>Perdita</i>	<i>albipennis</i>	6-9	Soil	Solitary	Asteraceae	<i>Helianthus</i>
<i>Perdita</i>	<i>bequaerti</i>	7-10	Soil	Solitary	Asteraceae	
<i>Perdita</i>	<i>bruneri</i>					
<i>Perdita</i>	<i>halictoides</i>					
<i>Perdita</i>	<i>maculigera</i>	3-7	Soil	Solitary	Salicaceae	<i>Salix</i>
<i>Perdita</i>	<i>octomaculata</i>	7-10	Soil	Solitary	Asteraceae	
<i>Perdita</i>	<i>perpallida</i>	7-8	Soil	Solitary		<i>Petalostemon</i>
<i>Perdita</i>	<i>swenki</i>	7-9	Soil	Solitary	Asteraceae	
<i>Protandrena</i>	<i>bancrofti</i>					
<i>Pseudopanurgus</i>	<i>aestivalis</i>	8-9	Soil	Solitary	Asteraceae	
<i>Pseudopanurgus</i>	<i>albitarsis</i>					



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<i>Pseudopanurgus</i>	<i>andrenoides</i>	8-10	Soil	Solitary	Asteraceae	
<i>Pseudopanurgus</i>	<i>labrosus</i>	7-9	Soil	Solitary	Asteraceae	
<i>Pseudopanurgus</i>	<i>parvus</i>					
<i>Pseudopanurgus</i>	<i>pauper</i>	7	Soil	Solitary	Rhamnaceae	<i>Ceanothus</i>
<i>Pseudopanurgus</i>	<i>simulans</i>		Soil	Solitary	Asteraceae	
Sweat Bees -- Family Halictidae						
<i>Agapostemon</i>	<i>sericeus</i>	4-10	Soil	Solitary, Communal		
<i>Agapostemon</i>	<i>splendens</i>	4-8	Soil	Solitary, Communal		
<i>Agapostemon</i>	<i>texanus</i>	4-9	Soil	Solitary, Communal		
<i>Agapostemon</i>	<i>virescens</i>	5-10	Soil	Solitary, Communal		
<i>Augochlora</i>	<i>pura</i>	4-10	Wood	Solitary		
<i>Augochlorella</i>	<i>aurata</i>	4-10	Soil	Eusocial		
<i>Augochlorella</i>	<i>persimilis</i>	3-9	Soil	Eusocial		
<i>Augochloropsis</i>	<i>metallica</i>	3-11	Soil	Solitary		
<i>Augochloropsis</i>	<i>sumptuosa</i>					
<i>Dieunomia</i>	<i>heteropoda</i>	6-10	Soil	Solitary, Communal	Asteraceae	<i>Helianthus</i>
<i>Dieunomia</i>	<i>triangulifera</i>	8-10	Soil	Solitary, Communal		
<i>Dufourea</i>	<i>marginata</i>	6-9	Soil	Solitary	Asteraceae	
<i>Dufourea</i>	<i>monardae</i>	7-8	Soil	Solitary	Lamiaceae	<i>Monarda</i>
<i>Dufourea</i>	<i>novaeangliae</i>					
<i>Halictus</i>	<i>confusus</i>	4-10	Soil	Eusocial		
<i>Halictus</i>	<i>ligatus</i>	1-12	Soil	Eusocial		
<i>Halictus</i>	<i>parallelus</i>	3-8	Soil	Eusocial		
<i>Halictus</i>	<i>rubicundus</i>	3-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>acuminatum</i>	4-10	Soil	Solitary, Communal		
<i>Lasioglossum</i>	<i>admirandum</i>	3-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>albipenne</i>	5-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>anomalum</i>	5-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>athabascense</i>	4-10	Soil	Solitary, Communal		
<i>Lasioglossum</i>	<i>birkmanni</i>	4-9	Soil	Solitary		
<i>Lasioglossum</i>	<i>bruneri</i>					
<i>Lasioglossum</i>	<i>callidum</i>	3-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>cinctipes</i>	3-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>coeruleum</i>	3-10	Wood	Eusocial		
<i>Lasioglossum</i>	<i>comagenense</i>	6-7	Soil	Eusocial		
<i>Lasioglossum</i>	<i>coriaceum</i>					
<i>Lasioglossum</i>	<i>coriaceum</i>	3-10	Soil	Solitary, Communal		
<i>Lasioglossum</i>	<i>ressonii</i>	3-10	Wood	Eusocial		
<i>Lasioglossum</i>	<i>dreisbachi</i>	5-8	Soil	Eusocial		
<i>Lasioglossum</i>	<i>ellisiae</i>		Soil	Eusocial		
<i>Lasioglossum</i>	<i>ephialtum</i>	6-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>foveolatum</i>					
<i>Lasioglossum</i>	<i>foxii</i>	4-9	Soil	Solitary		



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<i>Lasioglossum</i>	<i>hartii</i>	5-8	Soil	Eusocial		
<i>Lasioglossum</i>	<i>heterognathum</i>	4-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>imitatum</i>	4-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>inconditum</i>		Soil			
<i>Lasioglossum</i>	<i>laevissimum</i>	3-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>leucocomum</i>	5-8	Soil	Eusocial		
<i>Lasioglossum</i>	<i>leucozonium</i>	5-10	Soil	Solitary, Communal		
<i>Lasioglossum</i>	<i>lineatulum</i>	4-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>lustrans</i>					
<i>Lasioglossum</i>	<i>macoupinense</i>	6-7	Soil	Solitary		
<i>Lasioglossum</i>	<i>nelumbonis</i>	3-11	Soil	Solitary	Nymphaeales	
<i>Lasioglossum</i>	<i>nigroviride</i>					
<i>Lasioglossum</i>	<i>nymphaearum</i>	4-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>oblongum</i>	3-10	Wood	Eusocial		
<i>Lasioglossum</i>	<i>obscurum</i>	4-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>paradmirandum</i>	4-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>paraforbesii</i>	4-10	Soil	Solitary, Communal		
<i>Lasioglossum</i>	<i>pectinatum</i>					
<i>Lasioglossum</i>	<i>pectorale</i>	3-11	Soil	Solitary		
<i>Lasioglossum</i>	<i>perpunctatum</i>	4-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>pictum</i>	4-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>planatum</i>					
<i>Lasioglossum</i>	<i>platyparium</i>	10-11	[Soil]	Parasite	[Halictidae]	[<i>Lasioglossum</i>]
<i>Lasioglossum</i>	<i>pruinatum</i>	3-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>quebecense</i>	3-9	Soil			
<i>Lasioglossum</i>	<i>semicaeruleum</i>	8	Soil	Eusocial		
<i>Lasioglossum</i>	<i>subversans</i>					
<i>Lasioglossum</i>	<i>succinipenne</i>		Soil	Eusocial		
<i>Lasioglossum</i>	<i>swenki</i>		Soil	Solitary		
<i>Lasioglossum</i>	<i>testaceum</i>	7	Soil	Eusocial		
<i>Lasioglossum</i>	<i>texanum</i>	4-12	Soil	Solitary, Communal	Onagraceae	<i>Oenothera</i>
<i>Lasioglossum</i>	<i>truncatum</i>	3-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>versans</i>	4-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>versatum</i>	4-11	Soil	Eusocial		
<i>Lasioglossum</i>	<i>vierecki</i>	4-9	Soil	Eusocial		
<i>Lasioglossum</i>	<i>zephyrum</i>	3-10	Soil	Eusocial		
<i>Lasioglossum</i>	<i>zonulum</i>	4-10	Soil	Solitary, Communal		
<i>Nomia</i>	<i>melanderi</i>					
<i>Nomia</i>	<i>nortoni</i>					
<i>Sphecodes</i>	<i>atlantis</i>	5-9	[Soil]	Parasite		
<i>Sphecodes</i>	<i>banksii</i>	4-9	[Soil]	Parasite		
<i>Sphecodes</i>	<i>confertus</i>	3-8	[Soil]	Parasite		
<i>Sphecodes</i>	<i>coronus</i>	6-9	[Soil]	Parasite		



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<i>Sphecodes</i>	<i>cressonii</i>	1, 4-9	[Soil]	Parasite		
<i>Sphecodes</i>	<i>davisii</i>	5-10	[Soil]	Parasite		
<i>Sphecodes</i>	<i>dichrous</i>	4-9	[Soil]	Parasite		
<i>Sphecodes</i>	<i>fattigi</i>	4-8	[Soil]	Parasite		
<i>Sphecodes</i>	<i>galerus</i>					
<i>Sphecodes</i>	<i>heraclei</i>					
<i>Sphecodes</i>	<i>illinoensis</i>	5-10	[Soil]	Parasite		
<i>Sphecodes</i>	<i>johnsonii</i>					
<i>Sphecodes</i>	<i>levis</i>	5-8	[Soil]	Parasite		
<i>Sphecodes</i>	<i>mandibularis</i>	5-8	[Soil]	Parasite		
<i>Sphecodes</i>	<i>minor</i>					
<i>Sphecodes</i>	<i>pimpinellae</i>	5-9	[Soil]	Parasite		
<i>Sphecodes</i>	<i>prosporus</i>	5-9	[Soil]	Parasite		
<i>Sphecodes</i>	<i>ranunculi</i>	4-7	[Soil]	Parasite		
<i>Sphecodes</i>	<i>solonis</i>	5-8	[Soil]	Parasite		
Melittid Bees -- Family Melittidae						
<i>Macropis</i>	<i>ciliata</i>					
<i>Macropis</i>	<i>nuda</i>	6-8	Soil	Solitary	Primulaceae	<i>Lysimachia</i>
<i>Macropis</i>	<i>patellata</i>					
<i>Macropis</i>	<i>steironematis</i>	6-7	Soil	Solitary	Primulaceae	<i>Lysimachia</i>
Leaf-cutter, Mason Bees -- Family Megachilidae						
<i>Anthidium</i>	<i>manicatum</i>	6-10	Cavity	Solitary		
<i>Anthidium</i>	<i>oblongatum</i>	6-10	Cavity	Solitary		
<i>Anthidium</i>	<i>psoraleae</i>	7	Cavity	Solitary		
<i>Anthidium</i>	<i>tenuiflorae</i>					
<i>Ashmeadiella</i>	<i>bucconis</i>					
<i>Coelioxys</i>	<i>alternata</i>	6-10	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>banksi</i>	4-9	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>bisoncornua</i>	7-9	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>funeraria</i>	5-9	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>immaculata</i>					
<i>Coelioxys</i>	<i>modesta</i>					
<i>Coelioxys</i>	<i>moesta</i>	5-9	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>octodentata</i>	5-10	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>porterae</i>	6-9	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>rufitarsis</i>	4-10	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>sayi</i>	3-10	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>sodalis</i>	4-9	[Cavity]	Parasite		
<i>Coelioxys</i>	<i>texana</i>	3-11	[Cavity]	Parasite		
<i>Dianthidium</i>	<i>simile</i>	7-9	Cavity	Solitary		
<i>Heriades</i>	<i>carinata</i>	4-9	Cavity	Solitary		
<i>Heriades</i>	<i>leavitti</i>					
<i>Heriades</i>	<i>variolosa</i>	4-9	Cavity	Solitary		



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Appendix 1. Preliminary List of Minnesota Bees

<i>Hoplitis</i>	<i>albifrons</i>	5-8	Pithy stems	Solitary	
<i>Hoplitis</i>	<i>pilosifrons</i>	4-7	Pithy stems	Solitary	
<i>Hoplitis</i>	<i>producta</i>	4-7	Pithy stems	Solitary	
<i>Hoplitis</i>	<i>spoliata</i>	4-8	Pithy stems	Solitary	
<i>Hoplitis</i>	<i>truncata</i>	4-8	Pithy stems	Solitary	
<i>Megachile</i>	<i>addenda</i>				
<i>Megachile</i>	<i>brevis</i>	3-12	Cavity	Solitary	
<i>Megachile</i>	<i>campanulae</i>	2-11	Cavity	Solitary	
<i>Megachile</i>	<i>centuncularis</i>	5-9	Cavity	Solitary	
<i>Megachile</i>	<i>dakotensis</i>	7-8	Ground?	Solitary	
<i>Megachile</i>	<i>fortis</i>	7-8		Solitary	
<i>Megachile</i>	<i>frigida</i>	6-9	Cavity	Solitary	
<i>Megachile</i>	<i>gemula</i>	4-8	Cavity	Solitary	
<i>Megachile</i>	<i>inermis</i>	6-9	Cavity	Solitary	
<i>Megachile</i>	<i>lapponica</i>	6-8	Cavity	Solitary	
<i>Megachile</i>	<i>latimanus</i>	5-10	Soil	Solitary	
<i>Megachile</i>	<i>melanophaea</i>	5-8	Soil	Solitary	
<i>Megachile</i>	<i>mendica</i>	5-10	Cavity	Solitary	
<i>Megachile</i>	<i>montivaga</i>	4-9	Cavity	Solitary	
<i>Megachile</i>	<i>nivalis</i>				
<i>Megachile</i>	<i>parallela</i>				
<i>Megachile</i>	<i>perihirta</i>				
<i>Megachile</i>	<i>pugnata</i>	6-9	Cavity	Solitary	Asteraceae
<i>Megachile</i>	<i>relativa</i>	5-10	Cavity	Solitary	
<i>Megachile</i>	<i>rotundata</i>	6-9	Cavity	Solitary	
<i>Megachile</i>	<i>sculpturalis</i>				
<i>Megachile</i>	<i>texana</i>	6-8	Cavity	Solitary	
<i>Osmia</i>	<i>albiventris</i>	5-7	Cavity	Solitary	
<i>Osmia</i>	<i>atriventris</i>	4-7	Cavity	Solitary	
<i>Osmia</i>	<i>bucephala</i>	4-6	Cavity	Solitary	
<i>Osmia</i>	<i>caerulescens</i>	3-8	Cavity	Solitary	
<i>Osmia</i>	<i>collinsiae</i>	4-6	Cavity	Solitary	
<i>Osmia</i>	<i>conjuncta</i>	4-7	Cavity	Solitary	
<i>Osmia</i>	<i>distincta</i>	5-6	Cavity	Solitary	
<i>Osmia</i>	<i>felti</i>	6	Cavity	Solitary	
<i>Osmia</i>	<i>lignaria</i>				
<i>Osmia</i>	<i>nigriventris</i>		Cavity	Solitary	
<i>Osmia</i>	<i>proxima</i>				
<i>Osmia</i>	<i>pumila</i>	4-7	Cavity	Solitary	
<i>Osmia</i>	<i>sculleni</i>		Cavity	Solitary	
<i>Osmia</i>	<i>simillima</i>	5-8	Cavity	Solitary	
<i>Osmia</i>	<i>subarctica</i>				
<i>Osmia</i>	<i>tersula</i>	5-7	Cavity	Solitary	



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<i>Osmia</i>	<i>virga</i>	4-7	Cavity	Solitary	Ericaceae	
<i>Paranthidium</i>	<i>jugatorium</i>	7-9	Soil	Solitary		
<i>Stelis</i>	<i>coarctatus</i>	6-8	[Cavity]	Parasite	[Megachilidae]	
<i>Stelis</i>	<i>foederalis</i>	5-7	[Cavity]	Parasite	[Megachilidae]	
<i>Stelis</i>	<i>labiata</i>					
<i>Stelis</i>	<i>lateralis</i>	3-7	[Cavity]	Parasite	[Megachilidae]	
<i>Stelis</i>	<i>nitida</i>					
<i>Stelis</i>	<i>submarginata</i>					
<i>Trachusa</i>	<i>zebrata</i>					
Cuckoo, Digger, Bumble, Honey Bees -- Family Apidae						
<i>Anthophora</i>	<i>bomboides</i>	3-8	Burrow	Solitary		
<i>Anthophora</i>	<i>terminalis</i>	5-9	Wood	Solitary		
<i>Anthophora</i>	<i>walshii</i>	7-8	Soil	Solitary		
<i>Apis</i>	<i>mellifera</i>	1-12	Hive	Eusocial		
<i>Bombus</i>	<i>affinis</i>	4-10	Hive	Eusocial		
<i>Bombus</i>	<i>ashtoni</i>	5-10	[Hive]	Parasite	[Apidae]	[<i>Bombus</i>]
<i>Bombus</i>	<i>bimaculatus</i>	2-9	Hive	Eusocial		
<i>Bombus</i>	<i>borealis</i>	5-10	Hive	Eusocial		
<i>Bombus</i>	<i>citrinus</i>	5-10	[Hive]	Parasite	[Apidae]	[<i>Bombus</i>]
<i>Bombus</i>	<i>fernaldae</i>					
<i>Bombus</i>	<i>fervidus</i>	4-10	Hive	Eusocial		
<i>Bombus</i>	<i>fraternus</i>					
<i>Bombus</i>	<i>frigidus</i>					
<i>Bombus</i>	<i>griseocollis</i>	2-10	Hive	Eusocial		
<i>Bombus</i>	<i>huntii</i>					
<i>Bombus</i>	<i>impatiens</i>	1-11	Hive	Eusocial		
<i>Bombus</i>	<i>insularis</i>	3-10	[Hive]	Parasite	[Apidae]	[<i>Bombus</i>]
<i>Bombus</i>	<i>melanopygus</i>					
<i>Bombus</i>	<i>pensylvanicus</i>	4-10	Hive	Eusocial		
<i>Bombus</i>	<i>perplexus</i>	4-10	Hive	Eusocial		
<i>Bombus</i>	<i>rufocinctus</i>	2-10	Hive	Eusocial		
<i>Bombus</i>	<i>sandersoni</i>	4-10	Hive	Eusocial		
<i>Bombus</i>	<i>suckleyi</i>					
<i>Bombus</i>	<i>ternarius</i>	4-10	Hive	Eusocial		
<i>Bombus</i>	<i>terricola</i>	4-10	Hive	Eusocial		
<i>Bombus</i>	<i>vagans</i>	5-10	Hive	Eusocial		
<i>Bombus</i>	<i>variabilis</i>					
<i>Ceratina</i>	<i>calcarata</i>	3-10	Pithy stems	Subsocial		
<i>Ceratina</i>	<i>mikmaqi</i>					
<i>Epeolus</i>	<i>autumnalis</i>	7-10 [6]	[Soil]	Parasite	[Colletidae]	[<i>Colletes</i>]
<i>Epeolus</i>	<i>bifasciatus</i>	2-9	[Soil]	Parasite	[Colletidae]	[<i>Colletes</i>]
<i>Epeolus</i>	<i>interruptus</i>					
<i>Epeolus</i>	<i>lectoides</i>					



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<i>Epeolus</i>	<i>minimus</i>					
<i>Epeolus</i>	<i>scutellaris</i>	6-10	[Soil]	Parasite	[Colletidae]	[<i>Colletes</i>]
<i>Eucera</i>	<i>atriventris</i>	3-8	Soil	Solitary		
<i>Eucera</i>	<i>belfragei</i>					
<i>Eucera</i>	<i>dubitata</i>	3-6	Soil	Solitary		
<i>Eucera</i>	<i>hamata</i>	4-8	Soil	Solitary		
<i>Eucera</i>	<i>rosae</i>					
<i>Holcopasites</i>	<i>calliopsidis</i>	5-10	[Soil]	Parasite	[Andrenidae]	
<i>Melecta</i>	<i>separata</i>					
<i>Melissodes</i>	<i>agilis</i>	5-11	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>bidentis</i>	7-8	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>bimaculatus</i>	2-10	Soil	Solitary		
<i>Melissodes</i>	<i>boltoniae</i>	7-11	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>communis</i>	3-9	Soil	Solitary		
<i>Melissodes</i>	<i>confusus</i>	8	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>coreopsis</i>	6-10	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>denticulatus</i>	5-10	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>dentiventris</i>					
<i>Melissodes</i>	<i>desponsus</i>	6-10	Soil	Solitary	Asteraceae	<i>Cirsium</i>
<i>Melissodes</i>	<i>druriellus</i>	5-11	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>gelida</i>					
<i>Melissodes</i>	<i>grindeliae</i>		Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>illatus</i>	7-9	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>menuachus</i>	7-10	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>niveus</i>	7-10	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>rivalis</i>	5-10	Soil	Solitary	Asteraceae	<i>Cirsium</i>
<i>Melissodes</i>	<i>subagilis</i>			Solitary	Asteraceae	
<i>Melissodes</i>	<i>subillatus</i>	6-9	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>tinctus</i>	8-12	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>trinodis</i>	7-10	Soil	Solitary	Asteraceae	
<i>Melissodes</i>	<i>wheeleri</i>	4-10	Soil	Solitary	Asteraceae	
<i>Nomada</i>	<i>aquilarum</i>	7-8	[Soil]	Parasite		
<i>Nomada</i>	<i>articulata</i>	5-7	[Soil]	Parasite	[Halictidae]	[<i>Agapostemon</i>]
<i>Nomada</i>	<i>australis</i>	4-6	[Soil]	Parasite	[Halictidae]	[<i>Agapostemon</i>]
<i>Nomada</i>	<i>banksi</i>					
<i>Nomada</i>	<i>bella</i>	3-4	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>besseyi</i>	7-9 [4]	[Soil]	Parasite		
<i>Nomada</i>	<i>bethunei</i>					
<i>Nomada</i>	<i>cressonii</i>	4-7	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>cuneata</i>	6 [10]	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>depressa</i>	4-7	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>erigeronis</i>	5	[Soil]	Parasite		
<i>Nomada</i>	<i>fervida</i>	6-8	[Soil]	Parasite	[Halictidae]	[<i>Agapostemon</i>]



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<i>Nomada</i>	<i>florilega</i>					
<i>Nomada</i>	<i>gracilis</i>	4-6	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>illinoensis</i>	4-6	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>imbricata</i>	4-6	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>lehighensis</i>	4	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>lepida</i>	5-7	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>louisianae</i>	5	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>luteoloides</i>	4-7	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>maculata</i>	4-6	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>obliterata</i>	5-6	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>ovata</i>	5-6	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>perplexa</i>	6-7	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>pygmaea</i>	4-6 [8]	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>rubi</i>		[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>rubicunda</i>	5-7	[Soil]	Parasite		
<i>Nomada</i>	<i>sayi</i>	4-7	[Soil]	Parasite	[Andrenidae]	[<i>Andrena</i>]
<i>Nomada</i>	<i>vegana</i>					
<i>Nomada</i>	<i>vincta</i>	7-9	[Soil]	Parasite		
<i>Peponapis</i>	<i>pruinosa</i>					
<i>Svastra</i>	<i>obliqua</i>	4-11	Soil	Solitary		
<i>Triepeolus</i>	<i>concausus</i>	5-10	[Soil]	Parasite	[Apidae]	[<i>Svastra</i>]
<i>Triepeolus</i>	<i>ressonii</i>	6-10	[Soil]	Parasite		
<i>Triepeolus</i>	<i>distinctus</i>	5-10	[Soil]	Parasite	[Halictidae]	[<i>Dieunomia</i>]
<i>Triepeolus</i>	<i>donatus</i>	7-10	[Soil]	Parasite		
<i>Triepeolus</i>	<i>helianthi</i>	6-10	[Soil]	Parasite	[Apidae]	[<i>Melissodes</i>]
<i>Triepeolus</i>	<i>lunatus</i>	3-10	[Soil]	Parasite		
<i>Triepeolus</i>	<i>obliteratus</i>	7-10	[Soil]	Parasite		
<i>Triepeolus</i>	<i>pectoralis</i>	5, 7-11	[Soil]	Parasite		
<i>Triepeolus</i>	<i>rhododontus</i>	8	[Soil]	Parasite		
<i>Triepeolus</i>	<i>simplex</i>	7-8	[Soil]	Parasite	[Apidae?]	[<i>Svastra?</i>]
<i>Xenoglossa</i>	<i>kansensis</i>	6-9	Soil	Solitary	[Cucurbitaceae]	[<i>Cucurbita</i>]
<i>Xenoglossa</i>	<i>strenua</i>					
<i>Xeromelecta</i>	<i>interrupta</i>		[Soil]	Parasite	[Apidae]	



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Appendix 2. List of Problematic Bee Records in Minnesota

	Scientific Name
Plasterer, Yellow-faced Bees Family Colletidae	<i>Colletes mandibularis</i>
	<i>Colletes validus</i>
Mining Bees Family Andrenidae	<i>Andrena pruni</i>
	<i>Perdita albipennis palidipennis</i>
	<i>Pseudopanurgus perlaevis</i>
	<i>Pseudopanurgus piercei</i>
	<i>Pseudopanurgus solidaginis</i>
Sweat Bees Family Halictidae	<i>Agapostemon femoratus</i>
	<i>Augochlorella gratiosa</i>
	<i>Lasioglossum cattellae</i>
	<i>Lasioglossum cephalotes</i>
	<i>Lasioglossum forbesii</i>
	<i>Lasioglossum nymphale</i>
	<i>Lasioglossum pilosum</i>
	<i>Lasioglossum tegulare</i>
	<i>Lasioglossum viridatum</i>
	<i>Sphecodes carolinus</i>
	<i>Sphecodes clematidis</i>
	<i>Sphecodes shawi</i>
<i>Sphecodes stygius</i>	
Leaf-cutter, Mason Bees Family Megachilidae	<i>Stelis vernalis</i>
Cuckoo, Digger, Bumble, Honey Bees Family Apidae	<i>Bombus pascuorum</i>
	<i>Ceratina dupla</i>
	<i>Epeolus banksi</i>
	<i>Eucera speciosa</i>
	<i>Nomada graenicheri</i>
	<i>Nomada luteola</i>
	<i>Nomada tiftonensis</i>
	<i>Triepeolus remigatus</i>



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