

APPENDIX A. Problematic species records

Several records published in the literature and/or digitized data bases, as well as determined specimens found in collections of Massachusetts bees, are considered unconfirmed and are excluded from the primary checklist. These include records based on misidentified specimens, taxonomically ambiguous records, and published records that seem to reflect implausible range extensions that cannot be confirmed. See Appendix B for key to collectors initials and institution codes.

Hypothetical Species Occurances

Melissodes (Melissodes) communis communis Cresson, 1878

Massachusetts is the only state north of Delaware cited by Mitchell (1962) recorded for this species. This record is likely based on a single specimen examined by LaBerge (1956) from Woods Hole (Barnstable Co.). We were unable to locate this specimen and because there are no additional records of this species from anywhere in the region north of southern New Jersey, we regard the published occurrence in Massachusetts as questionable.

Nomada festiva Cresson, 1863

This species is known with certainty only from the female holotype from New Jersey in the ANSP. It is cited for Massachusetts without details by Mitchell (1962). We were unable to locate the specimen for verification and regard this record as questionable

Lasioglossum (Dialictus) abanci (Crawford, 1932)

Mitchell (1960) cited this species for Massachusetts without any details. A specimen with his determination label was found in the MCZ collection (Middlesex Co., Reading, 29 Jun 1933, 1 ♀, Richard Dow) that upon inspection by MFV had characters overlapping with *L. oblongum* (Lovell, 1905). According to Gibbs (2011), misidentification of *L. oblongum* as *L. abanci* has occurred in the past, contributing to uncertainty about their distributions. Modern collections from Franklin Co. of presumptive *L. abanci* were determined as “cf. *L. abanci*” by Gibbs (JM, pers. comm.). We consider this species a hypothetical occurrence in Massachusetts until a confirmable specimen is collected or subsequent genetic work confirms its identity.

Lasioglossum (Dialictus) floridanum (Robertson, 1892)

Several specimens collected at the Cape Cod National Seashore were determined by Sam Droege. Gibbs (2011) does not report this species north of Maryland in the East, although it has been found as far north as Michigan in the Midwest (Gibbs, 2017). This species was considered a subspecies of *L. pilosum* (Smith, 1853) until Gibbs (2011) separated them based on morphological and molecular evidence. Molecular diagnostics should be employed to verify any potential range extensions of this species.

Excluded Species

Colletes mandibularis Smith, 1853

This species was cited by Mitchell (1960) from Massachusetts and as far north as Nova Scotia. This species is readily confused with other members of the *C. americanus* species group, especially *C. speculiferus* Cockerell, 1927 (= *mitchelli*) which was overlooked by authors historically. Stephen (1954) recorded *C. mandibularis* from New Jersey, but we can verify records of this species only as far north as North Carolina, and we have re-determined putative specimens of *C. mandibularis* from New Jersey north to New England as *C. speculiferus*.

Andrena (Andrena) macoupinensis Robertson, 1900

Mitchell (1960) indicated Massachusetts as the only New England occurrence for this species. However, LaBerge (1980) did not include the Northeast within its range. *Andrena macoupinensis* is a widely distributed oligolege of *Salix* (Salicaceae) and is common from the Southeast to the mid-Atlantic as far as Maryland (LaBerge, 1980). The source of Mitchell's record is unknown; however, a single headless male from Massachusetts (Edgartown, 29 Jun 1912, no collector or identifier indicated) found in the MCZ collection was determined by MFV to be another *Andrena* species.

Andrena (Melandrena) sayi Robertson, 1891

Mitchell (1960) included both Massachusetts and Rhode Island within this species' range, but Bouseman and LaBerge (1978) recorded it only as far north as Maryland. Two specimens, both males, from Massachusetts were found in the MCZ (Berkshire Co., Great Barrington, 14 Jun 1915 det. Mitchell; Norfolk Co. Wellesley, 21 April 1891, det. Robertson). However, they were re-determined by MFV and JSA as *A. nivalis* Smith, 1853 and *A. dunningi* Cockerell, 1898, respectively.

Lasioglossum (Dialictus) cephalotes (Dalla Torre, 1896)

Gibbs included a 2006 Massachusetts record that he examined as *L. cephalotes* in his 2010 revision. However, in his 2011 revision Gibbs resolved that he had misidentified previously undescribed specimens of *L. rozeni*, as *L. cephalotes*. We presume the 2006 Massachusetts record to be *L. rozeni* until further inspection proves otherwise.

Lasioglossum (Dialictus) nymphale (Smith, 1853)

Massachusetts is the only New England state from which Mitchell (1960) or Moure and Hurd (1987) report this species. Their sources are unknown, and these records are likely the result of a misidentification. According to Gibbs (2011 and pers. comm.), there are no modern records of this species north of Maryland and it is unlikely to be found in Massachusetts. Putative New Jersey records of *L. nymphale* pertain to the recently described *L. (Dialictus) arantium* Gibbs 2011, but there is no evidence that this species occurs further north. Males of *L. vierecki* (Crawford, 1904) might also be mistaken for this species.

***Lasioglossum simplex* (Robertson, 1901)**

Lasioglossum simplex is a rarely collected social parasite, presumably of *L. trigeninum* Gibbs, 2011 and/or *L. versatum* (Robertson, 1902) (Gibbs, 2011). According to Gibbs (2011), its range extends as far north as Maryland in the East, although it was reported from Massachusetts by Mitchell (1962). A single female from Berkshire Co. was determined by Sam Droege (pers. comm.), but further confirmation is recommended due to ongoing taxonomic and identification challenges.

***Augochlorella gratiosa* (Smith, 1853)**

This species is reported by Mitchell (1960) from Massachusetts and Connecticut. However, *A. gratiosa* is now understood to be a primarily southeastern species. (Coelho, 2004; Ordway, 1966). A single specimen from Massachusetts in the INHS collection (Sherborn, 16 Sept 1917, C. A. Frost), was re-determined as *A. aurata* (Smith, 1853) by MFV. Unless a confirmed specimen of this species from north of southern New Jersey is located, it is excluded from the state list.

***Nomada affabilis* Cresson, 1878**

Mitchell (1962; pg. 362) described this species' distribution as "Massachusetts to Illinois, south to Florida." The only Massachusetts specimens of *N. affabilis* that could be located were two females in the MCZ collection that were re-determined as *Nomada luteoloides* Robertson, 1895 by JSA, and no other references regarding this species in Massachusetts were found. We have seen no recent specimens of this species in the East north of New Jersey, but its occurrence further north is plausible given the localized presence of its host *Eucera atriventris* (Smith, 1854) in Massachusetts.

***Nomada sulphurata* Smith, 1854**

Mitchell (1962) included Massachusetts as the only New England state within the range of this species, but we are aware of no records of this species north of Delaware. This species was often confused with *N. luteoloides* prior to a recent taxonomic review of *N. luteola* Olivier, 1812 and related species by Schwarz and Gusenleitner (2004).

***Osmia (Melanosmia) sandhouseae* Mitchell, 1927**

Sandhouse's (1939) record of this species from Massachusetts is likely the source of Mitchell's subsequent record from the state. No details were provided in either publication and we have seen no reliable records from northeast of southern New Jersey. Confusion with other members of this subgenus is very likely.

***Osmia (Melanosmia) tarsata* Provancher, 1888 [= *O. kenoyeri*]**

This species was recently recognized as a senior synonym of *Osmia kenoyeri* Cockerell, 1915 by Sheffield and Perron (2014). A single specimen identified as *O. kenoyeri* collected in 1917 in Amherst is databased in the SEMC collection, but attempts to confirm the identity of this specimen were unsuccessful. The nearest record in the East of this northern species is in northern Maine (Dibble, *et al.*, 2017). Sandhouse (1939) mistakenly considered *Osmia tarsata* to be a synonym of *O. bucephala* Cresson, 1864, a common species in Massachusetts. The SEMC specimen is most likely a misidentified *O. bucephala* and should be considered as such until it can be confirmed.

Appendix B. Accounts of new and notable species occurrences

These include species that: (1) are documented for the first time from Massachusetts; (2) are rare in modern Massachusetts collections (in most cases 2 or less records in past 15 yrs.); (3) biogeographically significant (e.g., represent a large range extension, are disjunct from other populations, or are at a known range limit); (4) are represented only by historical records > 45 yrs. old; (5) represent new host/parasite associations; (6) are of conservation interest; or (7) are of uncertain taxonomic status. See Appendix A Problematic Species for accounts of omitted species. Keys to collector and determiner initials and institutional abbreviations are located at the end of this appendix.

Andrenidae

Andrena (*Callandrena* s.l.) *aliciae* Robertson, 1891

New state record

This specialist on *Helianthus* is near its northern range limit in the Northeast. In Massachusetts, the only records are from the western counties, where specimens have been collected on both cultivated plants in small farms and community gardens and native plants in wild populations.

Material examined: **Berkshire Co.:** Great Barrington, Housatonic Flats Preserve, *Helianthus*, 21 Aug 2019, 2 ♀, MFV. **Franklin Co.:** Greenfield, Green River Recreational Area, *Helianthus*, 6 Sept 2015, 1 ♀; 24 Aug 2016, 1 ♂, MFV. **Hampden Co.:** Palmer, field beside Chicopee River, 27 Aug 2010, 1 ♀, LH; Ludlow, power line, *Helianthus*, 30 Aug 2010, 4 ♀/1 ♂, MFV. **Hampshire Co.:** Amherst, flower garden, 9 Aug 2012, 1 ♀, 5 Sept 2014, 1 ♀, JM; flower garden, Sheerman Ln. 29 Aug 2014, 1 ♂, JM; Northampton, College Lane, 25 Aug 2015, 1 ♂; Tyler Court, 18 Aug 2014, 1 ♀, FRM.

Andrena (*Callandrena* s.l.) *krigiana* Robertson, 1901

New state record

This species is known in Massachusetts from a single record although plants in its host genus, *Krigia*, are widespread throughout the state (*Go Botany*). This species ranges throughout the Midwest and in the East as far north as New Hampshire (Lagerberg, 1967).

Material examined: **Middlesex Co.:** Townsend, abandoned sandpit, 31 May 2009, 1 ♂, MFV.

Andrena (*Cnemidandrena*) *parnassiae* Cockerell, 1902

New state record

This species is a rarely collected specialist of *Parnassia* species. The only northeastern state recorded in Mitchell (1960) is Vermont, where it was rediscovered in 2019 (Hardy *et al.*, 2021). In Massachusetts it has only been collected in calcareous wetlands and almost exclusively on *Parnassia glauca*, the only regionally endemic species in its genus. Calcareous wetlands in the state are almost exclusively found in Berkshire Co.

Material examined: **Berkshire Co.:** Adams, *Parnassia glauca*, 20 Aug 2019, 5 ♀/1 ♂ (several males observed), MFV/JM; Egremont, *P. glauca*, 17 Aug 2020, 1 ♀/2 ♂, JM/FRM/MFV; Alford, *P. glauca*, 13 Sept 2020, 5 ♀, FRM/JM; Lee, *Daucus carota*, 17 Aug 2020, 3 ♂, JM/MFV; Richmond, *P. glauca* (6 ♀/2 ♂), *D. carota* (2 ♂), 18 Aug 2020, 6 ♀/4 ♂, JM/FRM/MFV; Williamstown, *P. glauca*, 20 Aug 2019, 2 ♀/10 ♂, MFV/JM. **Franklin Co.:** Colrain, *P. glauca*, 19 Aug 2019, 2 ♀/1 ♂, MFV.

Andrena (Melandrena) barbara* Bouseman and LaBerge, 1979*New state record, range extension**

Described by LaBerge (1978), this vernal species may be overlooked in collections. Massachusetts records represent the northeastern most limit of its known range. It is an early spring species, well known from the mid-Atlantic region but having few records in the Northeast (Bouseman and LaBerge, 1978).

Material examined: **Hampshire Co.:** Hadley, That's a Plenty Farm, *Prunus*, 4 Apr 2012, 1♂, (JM), det. JSA. **Middlesex Co.:** Pepperell, old orchard, 2 Apr 2017, 2♂, MFV. **Plymouth Co.:** Brockton, native meadow, 42.07368 -70.99235, bowl trap, 3-4 May 2017, 1♀, Erin Holdgate and M. McEachern, det. MFV, (MCC).

Additional records: **Hampshire Co.:** Amherst, 10 Jun (no year), (no sex), (BBSL).

Andrena (Micrandrena) neonana* Viereck, 1917*Range limit**

Although Mitchell (1960) did not record this uncommonly collected species in the East north of North Carolina, it has been recorded recently on Gardiners Island (Ascher *et al.*, 2014), off the eastern tip of Long Island, New York, and is recorded from Connecticut (AMNH). It is known from a single modern Massachusetts record from Martha's Vineyard (Goldstein and Ascher, 2016), which is the northern limit of this species' known range in the East (Ribble, 1968).

Material examined: **Dukes Co.:** Aquinnah, bowl trap, 20-22 Jun 2011, 1♀, PZG (AMNH).

Andrena (Scapteropsis) atlantica* Mitchell, 1960*First New England record, range extension**

Previously unknown from anywhere north of New Jersey (LaBerge, 1973), this species was originally included in the subgenus *Trachandrena* Lanham by Mitchell (1960). Males from the Northeast of the similar *A. alleghaniensis* have been misidentified as *A. atlantica*. Our records of this rarely collected species are the first for New England (LaBerge, 1973).

Material examined: **Barnstable Co.:** Sandwich, cranberry bog, 27 Jun 2012, 2♀, MFV. **Middlesex Co.:** Groton, powerline ROW, *Rubus*, 28 Jun 2019, 1♀, MFV.

Andrena (Scapteropsis) fenningeri* Viereck, 1922*Range limit**

This widely distributed species is uncommon in the Northeast but has been regularly collected in the Mid-Atlantic region. It reaches the northern limit of its range in Massachusetts (LaBerge, 1971).

Material examined: **Worcester Co.:** Ashburnham, Lincoln Pond fen, Amelanchier, 11 May 2008, 4♀, MFV.

Additional records: **Suffolk Co.:** Boston (no other data) from LaBerge 1971.

Andrena (Scapteropsis) ilicis* Mitchell, 1960*New state record, range extension**

Previously unknown north of New York (LaBerge, 1971), this species is now known to occur further northward along the coastal plain, including New York (AMNH), Connecticut (AMNH), and Massachusetts. All Massachusetts records are from coastal counties.

Material examined: **Barnstable Co.**: Falmouth, forest edge, *Ilex opaca*, 15 Jun 2013, 1 ♀, MFV; Sandwich, Camp Edwards Military Reservation, regenerating clearing, *Apocynum*, 11 Jul 2017, 1 ♀, MFV. **Bristol Co.**: Dartmouth, Noquochoke WMA, *Rhus*, 17 Jun 2013, 1 ♀, MFV. **Plymouth Co.**: West Wareham, commercial cranberry bog, *Ilex glabra*, 26 Jun 2013, 2 ♀, MFV.

Andrena (Trachandrena) heraclei Robertson, 1897

Range limit

Mitchell (1962) did not record this species from New England, but LaBerge (1973) indicated Massachusetts as the northern limit of this species range. It has potentially been under recorded regionally due to identification challenges in the subgenus *Trachandrena* (LaBerge, 1973). It was recently collected from the Montague Plains Wildlife Management Area (2020), Martha's Vineyard (Goldstein and Ascher, 2016) and Nantucket (AMNH). Tucker and Rehan (2017) report a single individual from the White Mountains of New Hampshire, but we regard this as questionable.

Material examined: **Dukes Co.**: Aquinnah, Moshup Trail, 1 May 2011, 1 ♂, PZG, (AMNH); Red Gate Farm, 30 Apr 2011, 1 ♀, PZG, (AMNH); West Tisbury, Poly Hill Arboretum, 2 May 2011, 1 ♂, PZG, (AMNH); West Tisbury School, 29 Apr 2011, 2 ♂, PZG (AMNH). **Franklin Co.**: Montague, MPWMA, blue vane trap, 20 May-3 Aug 2020, 1 ♀, JM/M. Cunningham-Minnick/P. Roberts. **Nantucket Co.**: Nantucket, Squam Swamp, 20 May 2011, 1 ♀, JK (AMNH).

Andrena (Trachandrena) rehni Viereck, 1907

Rediscovered

This is an uncommonly collected and unusual member of its subgenus, with a broad and shallow lower half of its facial foveae differing from that of other members of subgenus *Trachandrena* and thus potentially confused with bees of the subgenus *Scapteropsis* Viereck. This species was newly rediscovered in Massachusetts after being absent from collections for over fifty years. Our recent modern records are the result of targeted collecting on one of its presumed host plants, American Chestnut (*Castanea dentata*) (Sam Droege, pers. comm.). Populations of this tree in eastern North America were devastated in the early part of the 20th century after the introduction of a fungal pathogen from Asia. Most surviving trees are the result of stump/root sprouts and do not reach reproductive age before succumbing to the pathogen and consequently do not provide resources for bees. Efforts are underway by the American Chestnut Foundation and others to breed disease-resistant varieties and hybrids. *Andrena rehni* may be more widespread than recent collections indicate, and should be looked for not only on our native *Castanea* species, but also on introduced and hybrid specimens. LaBerge (1973) listed three records for Massachusetts by town only, and did not include any other record details (see Additional records below). Mitchell (1960) reported this species from Connecticut and Massachusetts.

Material examined: **Hampden Co.**: Monson, Mt. Ella, regenerating forest post-tornado event (2011), *Castanea dentata*, 13-16 Jul 2020, 8 ♀, FRM/MFV/JM. **Hampshire Co.**: Easthampton, Mt. Tom Reservation, regenerating forest post-microburst event (2014), *C. dentata*, 7 Jul 2021, 6 ♀, FRM/MFV.

Additional records: **Bristol Co.**: North Attleboro; **Essex Co.**: Beach Bluff. **Worcester Co.**: Petersham.

Panurginus potentillae* (Crawford, 1916)*New state record, range limit**

Massachusetts records of this uncommonly collected species represent the northernmost records of this genus in the eastern U.S (Hurd, 1979; Mitchell, 1960).

Material examined: **Franklin Co.:** Montague, Montague Plains WMA, thinned pitch-pine forest, bowl trap, 19-20 May 2009, 1 ♀, JM. **Hampden Co.:** Holyoke, water line ROW, 30 Apr 2010, 3 ♀/27 ♂, FRM; Westfield, regenerating forest, 20 May 2014, 4 ♀/1 ♂, MFV.

Perdita (Alloperdita) bradleyi* Viereck, 1907*New state record, range extension**

The single Massachusetts location is for an active nest site in a low, exposed, bank within a gully along a wide powerline (ROW). Cane (1989) describes *P. bradleyi* nesting in a similar location in Lee Co., Alabama. Barnstable Co. is northernmost record for this species, with historical recording extending only to New Jersey (Mitchell, 1960; Timberlake, 1956).

Material examined: **Barnstable Co.:** Brewster, Sektucket Rd, powerline ROW, nest site, 15 Jun 2014, 11 ♀; 11 Jun 2018, 6 ♀/1 ♂, MFV.

Perdita (Alloperdita) novaeangliae* Viereck, 1907*Range limit**

This species occurs sparsely along the east coast from Florida to Massachusetts (Hurd, 1979). Mitchell (1960) published New England records from Massachusetts, Connecticut, and Rhode Island. A *Lyonia* specialist which is likely overlooked due to its small size, this species is perhaps most reliably found by looking for males lekking in small “tornadoes” above taller plants where concentrations of *Lyonia* are found.

Material examined: **Barnstable Co.:** Hyannis, Hyannis Point, 4 Jul 1904, 1 ♀/1 ♂, CWJ (MCZ, USNM, paratypes). **Franklin Co.:** Montague, Montague Plains WMA, *Lyonia*, 23-27 Jun 2019, 24 ♀/17 ♂, JM. **Middlesex Co.:** Groton, wetland margin, 42.5848/-71.5849, *Lyonia*, 28 Jun 2019, 1 ♀, MFV; Townsend, Townsend Hill WMA, *Rubus*, 24 Jun 2008, 1 ♂, MFV; old sandpit, on *Lyonia*, 27-29 Jun 2018, 3 ♀/4 ♂, MFV; powerline ROW, 42.6559/-71.7056, *Lyonia*, 24 Jun 2019, 2 ♀/6 ♂, MFV.

Perdita (Cockerellia) bequaerti* Viereck, 1917*First New England record, range extension**

This Asteraceae specialist has not previously been recorded from New England, although it is known from New York (AMNH; Bried and Dillon, 2012) and from the type locality in New Jersey. Records are from two small farms in western Massachusetts on cultivated *Helianthus* plants (Roch *et al.*, 2021).

Material examined: **Hampshire Co.:** Hadley, *Helianthus* sp., 29 Aug 2019, 1 ♀/3 ♂, JR.

Perdita (Perdita) halictoides* Smith, 1853*New state record**

The only eastern state from which both Mitchell (1960) and Hurd (1979) reported this species was Florida. However, in addition to our records, other modern records include New Hampshire (UNH) and Vermont (Hardy *et al.*, 2021). This species is one of several bee species that specialize on *Physalis*.

Material examined: **Franklin Co.**: Montague, gravel pit, bowl trap with glycol, 25 Jul - 7 Aug 2012, 1 ♀, JM; Montague, field edge, 12 Jul 2018, *Physalis heterophylla*, 1 ♀/8 ♂, MFV. **Hampshire Co.**: Hadley, Silvio Conte National Fish and Wildlife Refuge, bowl trap, 14 Jul 2012, 1 ♂, JM.

***Pseudopanurgus pauper* (Cresson, 1878)**

Historical

Uncommonly collected throughout its range, *P. pauper* is considered a specialist on *Ceanothus* based on collection records (Hurd, 1979; Fowler, 2016; Fowler and Droege, 2020). Mitchell (1960) included Rhode Island and Massachusetts within this species' range, and Massachusetts is likely near its northern limit. This species is notably absent from recent collections from the northeastern U.S. and may be of conservation concern. Over-browsing by deer of *Ceanothus*, which is also an important host of several threatened Lepidoptera, may be responsible for its possible decline.

Material examined: **Suffolk Co.**: Boston, 4 Jul (no year), 1 ♀, CWJ, (MCZ).

Apidae

***Anthophora (Lophanthophora) ursina* Cresson, 1869**

New state record from historical museum material, range extension

Mitchell (1960) included Rhode Island as the only New England state within the range of this species. As far as we are aware, there are no modern records of this species in New England, although there are records from Staten Island, New York City, as recently as 1994 (AMNH), and it is known to persist locally in the Mid-Atlantic Region.

Material examined: **Hampshire Co.**: Amherst, Hatch Experiment Station of Massachusetts Agricultural College, 15 May 1897, 1 ♂ (no collector); 25 Aug 1904, 1 ♂, (no collector), (UMEC).

Additional record: **Suffolk Co.**: Forest Hills, 16 May 1914, 1 ♂, Francis Williams, (SEMC).

***Anthophora (Mystacanthophora) walshii* Cresson, 1869**

Disjunct population, range limit, conservation status

Mitchell (1962) listed Massachusetts as the only eastern state within the range of this species. New York, where it is poorly known, is the only other state in the Northeast from which it is recorded. In Massachusetts, this species is known only from a few locations on Cape Cod and the offshore islands (Goldstein and Ascher, 2016). The Massachusetts records appear represent a disjunct population that extends, or extended in the past, to the eastern tip of Long Island, New York (AMNH). In Massachusetts it has been collected almost exclusively on *Baptisia tinctoria*. *Anthophora walshii* is one of three bee species that have recently (2019) been added to the Massachusetts State List of Endangered, Threatened, and Special Concern Species (MANHESP, 2019b) and is listed as Endangered.

Material examined: **Barnstable Co.**: Sandwich, Camp Edwards Military Reservation, *Baptisia tinctoria*, 11 Jul 2017, 3 ♀; 26 Jul 2017, 1 ♀/2 ♂, MFV; Woods Hole, 7 Jul 1919, 1 ♂, J. Bequaert, (MCZ). **Dukes Co.**: Edgartown, bowl trap, 1-3 Aug 2011, 1 ♀, PZG, (AMNH); West Tisbury, bowl trap, 2 Aug 2010, 1 ♀; *B. tinctoria*, 15,16 Aug 2011, 2 ♀, PZG (AMNH); Penikese Island, 30 Sept 1974, 1 ♀, GIS, (UCMS); 30 Jul-1 Aug 1976, 3 ♀, GIS, (UCMS)

Habropoda laboriosa* (Fabricius, 1804)*New state record from historical and modern records**

Mitchell (1962) included “New England” within the range of this species (as *Emphoropsis laboriosa*) but did not indicate any state. *Habropoda laboriosa* is common in the Southeast where it is an important pollinator of blueberry. Currently in New England, there are records of this species as far north as Kennebunk, Maine (Dibble *et al.*, 2017).

Material examined: **Barnstable Co.:** Yarmouth, organic commercial cranberry bog, 25 Jun 2008, 1 ♀, KB; Brewster, Nickerson SP, *Lupinus perennis*, 11 Jun 2018, 7 ♀/1 ♂, MFV. **Hampshire Co.:** South Hadley near Lyman Terrace, *Lupinus*, 8 Jun 1994, 1 ♀, R. B. Miller, (PMNH).

Additional records: **Middlesex Co.:** Framingham, 27 Sept 1923, 1 ♂; 16 Sept 1918, 1 ♂, C.A. Frost, (INHS); Sherborn, 16 Sept 1918, 1 ♂, C.A. Frost, (INHS). **Suffolk Co.:** Forest Hills, 10 Aug 1919, (no sex), (no collector), (INHS).

Bombus (Bombias) auricomus* (Robertson, 1903)*Historical**

Rarely collected in the Northeast, Mitchell (1962), did not list it from any New England state, but Franklin (1912; pg. 415) cited it for Massachusetts as “rather rare in Amherst”. It was recently collected in Vermont as part of that state’s Bumble Bee Atlas (Richardson *et al.*, 2018). Reforestation may have reduced suitable habitat for this species.

Records: **Barnstable Co.:** Woods Hole, 17 Aug 1907, 1 (no sex), (no collector). (RMNH); **Essex Co.:** Plum Island, 19 Aug 1973, 1 ♀, (no collector), (PMNH). **Hampshire Co.:** Amherst, (no date), 1 ♀, (no collector), det. Bridwell, (USNM). **Norfolk Co.:** Needham, (no date) 1916, 1 ♀, (no collector), (PMNH).

Bombus (Bombus) affinis* Cresson, 1863*Federally endangered, rare and declining**

This species was recently designated as Endangered by USFWS (U.S. Fish and Wildlife Service), having declined dramatically since the late 1990s along with other northeastern bumble bees in the subgenus *Bombus* (Cameron *et al.*, 2011; Colla *et al.*, 2012; Colla and Packer, 2008; Richardson *et al.*, 2018). Mitchell (1962) reported occurrences in Massachusetts, Vermont, and Rhode Island. There are records from Barnstable and Bristol counties from the early 1990’s (Mackenzie and Averill, 1995; Loose *et al.*, 2005), but only one has been recorded in the state since 2009 (see below). Bequaert (1920) and Plath (1922, 1927) describe (as *Bremus affinis*) observations of color variants and nests from Forest Hills and Arnold Arboretum in the greater Boston area. There are historical records from all Massachusetts counties except Nantucket. Many records exist from the 1970s and earlier.

Most recent record: **Barnstable Co.:** Harwich, cranberry bog, 4 Jul 2009, 1 ♀, MMN.

Bombus (Bombus) terricola* Kirby, 1837*Conservation status, declining**

Once considered “perhaps the most common species of bumble-bee at Forest Hills; also at Auburndale (C.W. Johnson Coll.) and Sherborn (E.J. Smith Coll.)” (Bequaert, 1920), this species has experienced a recent widespread decline since the late 1990s especially towards the southern edge of its range (Cameron *et al.*, 2011; Colla *et al.*, 2012; Colla and Packer, 2008; Jacobson *et al.*, 2017; Richardson *et al.*, 2018). Present day populations appear more robust in the more

northern states and higher latitudes (Richardson *et al.*, 2018, Tucker and Rehan, 2017). Although records exist for all Massachusetts counties, the most recent records are from the highlands of western counties. We enumerate below the most recent records known to us. *Bombus terricola* is one of three bee species that have recently (2019) been added to the Massachusetts State List of Endangered, Threatened, and Special Concern Species (MANHESP, 2019c). Its official designation is Threatened.

Material examined: **Berkshire Co.**: Clarksburg, *Trifolium pratense*, 5 Aug 2008, 2 ♀, CS; Florida, *Prunella vulgaris/Eutrochium maculatum*, 22 Jul and 9 Aug, 2008, 2 ♀, CS; Great Barrington, Bearsden State Forest, 25 Aug 2019, 1 ♀/2 ♂, MFV; Pittsfield, photograph, 19 Jun 2015, 1 ♀, TM; Savoy, *E. maculatum*, 14 Aug 2008, 2 ♀, CS; Washington, October Mtn. State Forest, *Asclepias*, 28 Jul 2002, 1 ♀, MFV; West Stockbridge, Berkshire Botanical Gardens, 19 Jul 2019, 2 ♀, JM. **Franklin Co.**: Leyden, Leyden Wildlife Management Area, *Monarda* sp., 8 Aug 2015, 1 ♀, JM. **Hampshire Co.**: Westhampton, Crowley Rd., bowl trap, 62, 14-18 Apr 2013, 1 ♀, FRM.

***Bombus (Cullumanobombus) rufocinctus* Cresson, 1863**

Uncommon and remarkably local in the eastern U.S., most northeastern records of this species are from states north of Massachusetts. Richardson *et al.* (2019) reported that since 2000, of 17 species of bumble bees known from Vermont, this uncommon species ranked 14th in the number of records.

Records: **Barnstable Co.**: Cape Cod, natural cranberry bog in sand dunes, (no date)1990, 1 ♀, (Mackenzie and Averill, 1995); Cape Cod, 15 Jul 1969, (no other info. available), (BBSL).

***Bombus (Psithyrus) ashtoni* (Cresson, 1864)**

Conservation concern

This species is a social parasite of bumble bees in the subgenus *Bombus* Robertson, of which our only two species are *B. terricola* and *B. affinis*. Like its hosts, *B. ashtoni* appears to have declined substantially over the past two decades throughout its range, including at higher latitudes where *B. terricola* populations remain relatively robust (Colla *et al.*, 2012; Colla and Packer, 2009; Hatfield *et al.*, 2016; Dibble *et al.*, 2017; Gibbs *et al.*, 2017; Richardson *et al.*, 2018). In Massachusetts, *B. ashtoni* has been recorded historically from nine counties. Williams *et al.* (2014) consider *B. ashtoni* a junior synonym of *B. bohemicus* Seidl, 1838, a species that ranges throughout the Palearctic. The most recent confirmed Massachusetts record is from 1997.

Most recent record: **Middlesex Co.**: Groton, 19 Sept 1997, 1 ♂, Phillip Klaus.

***Bombus (Thoracobombus) pensylvanicus* (DeGeer, 1773)**

Conservation status

This species has been in widespread decline in the northern portions of its range in recent decades (Cameron *et al.*, 2011; Colla *et al.*, 2012; Colla and Packer, 2008), although it persists locally in southern Ontario and elsewhere (MacPhail *et al.*, 2019). In the eastern U.S., it is at present much more abundant in its core range further south. Although never common in Massachusetts, there are records from nine counties. Bequaert (1920; pg. 9) observed that it was “rather scarce near Boston.” We are aware of no specimens collected in the state since at least 2012. *Bombus pensylvanicus* is one of three bee species that have recently (2019) been added to the Massachusetts State List of Endangered, Threatened, and Special Concern Species (MANHESP, 2019a). Its official designation is Endangered.

Material examined: **Franklin Co.:** Montague, Montague Plains WMA, bowl trap, 7 Aug 2012, 1 ♀, JM; Whately, Nasami Farm, 2 Aug 2006, 1 ♀, MFV. **Hampshire Co.:** Westhampton, Burt Rd., former gravel pit, 28 Jul 2007, 1 ♀, FRM.

Epeoloides pilosulus (Cresson, 1878)

Rediscovered

This is a rarely collected cleptoparasite of *Macropis* species, and was previously known from only three historical records in Massachusetts, the most recent from 1927. Once thought to be extinct, this species was rediscovered in Nova Scotia in 2002 (Sheffield *et al.*, 2004). Since then, it has been collected in Connecticut (Wagner and Ascher, 2008), New York (<http://bugguide.net/node/view/954741>), Maine (Dibble *et al.*, 2017), New Hampshire (Wagner *et al.*, 2019) and most recently in Massachusetts.

Material examined: **Essex Co.:** Newbury, Martin Burns WMA, 30 Jun 2018, 1 ♂, MFV. **Hampden Co.:** Monson, Mt. Ella, regenerating forest post-tornado event (2011), *Apocynum androsaemifolium*, 13,16 Jul 2020, 3 ♀, FRM/JM. **Middlesex Co.:** Ayer, powerline ROW, *A. androsaemifolium* and nest searching, 15-28 Jun 2020, 11 ♀ / 4 ♂, MFV; Groton, powerline ROW, *A. androsaemifolium*, 13 Jul 2019, 1 ♀ / 2 ♂, MFV; Pepperell, roadside bank, 26 Jun 2020, 2 ♀, MFV. **Worcester Co.:** Lancaster, Bolton Flats WMA, Pine Hill section, bowl trap, 20 Jun 2018, 1 ♀, MFV.

Eucera (Synhalonia) atriventris (Smith, 1854)

New state record from historical and modern records, range limit

The state nearest Massachusetts from which Mitchell (1962) reported this species (as *Tetralonia atriventris*) was Pennsylvania. Hurd (1979) reports its eastern range as extending from Massachusetts to Georgia. Modern Massachusetts records are from a single location where it is regularly found visiting native *Lupinus perennis* (L.) (Fabaceae).

Material examined: **Hampshire Co.:** Amherst, 11 May 1897, 1 ♂, (no collector), (UMEC); Amherst, 26 May 1900, 1 ♂, (no collector), (UMEC); 10 Jun, (no year), 1 ♀, (no collector), (BBSL); Florence, *Lupinus perennis*, 19 May 2012, 1 ♀, FRM; 3 Jun 2013, 1 ♀ / 2 ♂ observed, JM; 25 May 2018, 1 ♀ observed, FRM.

Melissodes (Eumelissodes) dentiventris Smith, 1854

Range limit

This species is rarely found in New England, which represents its northern range limit in the east (Mitchell, 1962). Both Massachusetts records are coastal. It is considered a specialist of Asteraceae, particularly *Symphyttrichum*, but floral records include *Bidens*, *Chrysopsis*, and *Helianthus*, among others (Hurd, 1979).

Material examined: **Barnstable Co.:** Woods Hole, 22 Aug 1912, 1 ♀, det. WL (MCZ). **Dukes Co.:** Edgartown, Felix Neck, bowl trap, 31 Jul 2010, 1 ♂, PZG, (AMNH).

Holcopasites illinoiensis (Robertson, 1891)

Historical, range limit

This cleptoparasite of *Calliopsis andreniformis* (Hurd, 1979), is much less common than its congener *H. calliopsidis* (Linsley, 1943) and appears to be declining in the Northeast. The only two Massachusetts records, below, are from the literature (Hurd and Linsley, 1972) and represent the northernmost limit of this species in the East. Mitchell (1962) reported this species from Massachusetts and Maine.

Records: **Norfolk Co.:** Dover, *Chrysanthemum parthenium*, 4 Jul 1925, 1 ♀, J. C. Bequart, (EMEC). **Plymouth Co.:** Tremont, 30 Jul 1909, 1 ♀, W. L. McAtee, (USNM).

***Epeolus inornatus* Onuferko, 2018**

New host associations

This recently described species is similar to and has been confused with *E. ilicis* (Onuferko, 2018). Massachusetts specimens originally determined as *E. ilicis* have been redetermined as *E. inornatus*. MFV has twice collected specimens on *Lyonia* concurrently with *Colletes productus*, and JSA and GIS have also collected *E. inornatus* on *Lyonia*. MFV has also found this cleptoparasitic species in association with nesting *C. banksi* Swenk, 1908 (see *C. banksi* account below for details). It is presumed that *E. inornatus* is a brood parasite of both *C. productus* and *C. banksi*.

Material examined: **Barnstable Co.:** Sagamore, 12 Aug 1923, 1 ♀, J. Bequaert, (MCZ, paratype). **Middlesex Co.:** Dunstable, old sandpit, 42.690/-71.553, *Lyonia*, 3 Jul 2008, 1 ♀, MFV; Pepperell, embankment, 42.6941/-71.6327, 24 Jun 2015, 1 ♀, MFV; 25 Jun 2018, 1 ♀, MFV; Townsend, regenerating sandpit, 42.660/-71.707, *Lyonia*, 27 Jun 2018, 1 ♀, MFV. **Suffolk Co.:** Boston, Forest Hills, no date, 1 ♂, W. M. Wheeler, (MCZ).

Additional records: **Hampshire Co.:** Amherst, spring 1929, 1 ♂, L.A. Carruth, (USNM, paratype).

***Triepeolus helianthi* (Robertson, 1897)**

New state record

Although Mitchell (1962) did not report this species from any northeastern state, Rightmyer (2008) includes Connecticut and New Jersey in its range. It was recently found in Vermont (Hardy *et al.*, 2021). All Massachusetts records are from western counties. Parker *et al.* (1981) and Graenicher (1905) report *Melissodes agilis* and *M. trinodis* as hosts for this species; both of these are common in Massachusetts where they are frequently found foraging on native *Helianthus* and varieties planted on farms and community gardens.

Material examined: **Franklin Co.:** Erving, Dan's Veggie Farm, *Helianthus*, 3 Sept 2019, 1 ♀, JRD; Greenfield, Nash's Mill Rd., *Rubus*, 24 Aug 2016, 3 ♀, FRM. **Hampden Co.:** Wilbraham, Monson Rd., N42.1143° W72.3923°, net, 27 Aug 2020, 1 ♂, FRM. **Hampshire Co.:** Amherst, E. Pleasant St., garden, *Helianthus*, 24 Aug 2012, 1 ♀/1 ♂; 16 Sept 2014, 1 ♀/1 ♂; 3-9 Aug 2016, 9 ♀/5 ♂, JM; Northampton, garden, 4 Sept 2014, 1 ♀; 9 Sept 2015, 1 ♂; 29 Aug 2016 3 ♂; 7 Sept 2016 2 ♀/1 ♂, FRM; Tyler Court, 8-19 Aug 2014, 1 ♀/4 ♂, FRM; Westhampton, garden, 2 Sept 2013, 1 ♂; 19-29 Aug 2014, 2 ♀, FRM.

***Triepeolus obliteratus* Graenicher, 1911**

New state record, new host association

Mitchell (1962) reported *T. obliteratus* species only from Wisconsin. Massachusetts specimens match the morphological diagnosis of this species provided in the taxonomic revision by Rightmyer (2008), however the taxonomy of this group is problematic and subject to revision (T. Onuferko, M. Rightmyer pers. comm.), and further taxonomic studies are needed to confirm that bees from Massachusetts are conspecific with syntypes of *T. obliteratus* from western Wisconsin. Specimens also occur in recent collections from New Hampshire (MFV) and Connecticut (UCMS). Several individuals were collected and photographed by MFV at a *Melissodes apicatus* nest aggregation during consecutive seasons (2014-15) where they were observed perching on material nearby and entering nest openings.

Material examined: **Essex Co.:** North Andover, Weir Hill Reservation, 21 Aug 2019, 1 ♀, det. T. Onuferko, <https://www.inaturalist.org/observations/40378120>. **Franklin Co.:** Montague, North Rd, *Solidago*, 26 Jul 2017, 1 ♂, FRM. **Hampden Co.:** Holyoke, bowl trap, 20 Jul 2010, 1 ♂, FRM. **Hampshire Co.:** Florence, garden, *Solidago*, 29 Jul 2016, 1 ♀, FRM. **Middlesex Co.:** Groton, private garden, *Asclepias*, 15 Jul 2007, 1 ♀, MFV; Blackman Preserve, *Origanum*, 18 Jul 2018, 1 ♂, MFV; Pepperell, abandoned sandpit, *Centaurea*, 28 Jul 2008, 1 ♀, MFV; Townsend, field, *Solidago*, 31 Jul 2007, 1 ♂, MFV; field, *Solidago*, 28 Jul 2008, 1 ♂, MFV; powerline, *Solidago*, 15 Aug 2009, 1 ♀/1 ♂, MFV. **Worcester Co.:** Ashburnham, field, *Solidago*, 1 ♀, 15 Jul 2010; *Solidago/M. apicatus* nest aggregation, 9 Aug 2014, 10 ♀; *Solidago/M. apicatus* nest aggregation, 6 Aug 2015, 6 ♀, MFV; Petersham, powerline ROW, Munson Turnpike, 20 Jul 2016, 6 ♀/3 ♂, JM/FRM.

***Triepeolus remigatus* (Fabricius, 1804)**

New state record

This species is uncommon in New England even though its presumed host, *Peponapis pruinosa*, is widespread throughout our region. The nearest state record reported by Mitchell (1962) was from New Jersey. It was recently documented for the first time in Connecticut (Zarrillo *et al.*, 2016).

Material examined: **Hampshire Co.:** Florence, garden, 28 Aug 2016, 1 ♀, FRM; Northampton, garden, 24 Jul 2019, 1 ♂, FRM; Westhampton, flower garden, *Rudbeckia*, 17 Aug 2014, 1 ♀, FRM. **Franklin Co.:** Deerfield, 2 Aug 2019, 1 ♀, JCR.

***Nomada binotata* (Robertson, 1903)**

Status uncertain - data deficient

Gibbs *et al.* (2017) noted that the species reported from Martha's Vineyard by Goldstein and Ascher (2016) as "*Nomada [Gnathias] sp. ["multispine"]*" may prove to correspond with *N. binotata*, and we accept this as a working hypothesis in need of testing in revisionary studies.

Material examined: **Barnstable Co.:** Harwich, Bog Lane Bog, 25 Jun 2008, 1 ♀, K. Boyle. **Dukes Co.:** See Goldstein and Ascher, 2016, record details unavailable. **Franklin Co.:** Montague, Montague Plains WMA, bowl traps, 8 May - 26 Jun 2019, 46 ♀/21 ♂ JM.

***Nomada capillata* Mitchell, 1962**

Historical, taxonomic uncertainty

The male holotype, described by Mitchell (1962), is the only known specimen. Its taxonomic status is uncertain.

Material examined: **Norfolk Co.:** Milton, 4 May 1902, 1 ♀, col. Percy G. Bolster, det. T. Mitchell, (MCZ, holotype).

***Nomada sp. aff. composita* Mitchell, 1962**

Status uncertain - data deficient

This potential new species differs from true *N. composita* in the extent of its pseudopygidial hairs. In addition to Martha's Vineyard, it has also been recorded from Gardiners Island, NY (Ascher *et al.*, 2014) and other regional sites (S. Droege, pers. comm.). We accept its distinctness as a working hypothesis in need of testing in revisionary studies.

Material examined: **Dukes Co.:** Aquinnah, Red Hill Gate Farm, 30 Apr 2011, bowl traps, 3 ♀, PZG, (AMNH); West Tisbury, Polly Hill Arboretum, bowl traps, 29 Apr-2 May 2011, 42 ♀, PZG, (AMNH); 9 Apr 2012, 1 ♀/2 ♂, SB, (AMNH).

Nomada dreisbachi* Mitchell, 1962*Historical, taxonomic uncertainty**

Mitchell (1962) described the male of this species from a Michigan specimen, and designated paratypes from Maine, Massachusetts, and Michigan. The female has yet to be described. Gibbs *et al.* (2017) speculate that this species may be a junior synonym of *N. cressonii*, but its taxonomic status is uncertain.

Material examined: **Norfolk Co.:** Randolph, 12 May 1901, 1 ♂, Percey G. Bolster, det. T. Mitchell, (MCZ, paratype).

Nomada electella* Cockerell, 1903*New state record from historical and modern records**

This is a rarely collected bee primarily known from the East (Hurd, 1979). Mitchell (1962) reported its distribution as extending from Rhode Island to Georgia.

Material examined: **Berkshire Co.:** Sandisfield, riverbank, *Erigeron*, 24 Jun 2007, 1 ♂, MFV.

Additional records: **Middlesex Co.:** Lincoln, *Rhus glabra*, 8 Jul 1941, 1 ♂, C. H. Blake (UCMS).

Nomada integerrima* Dalla Torre, 1896*Historical**

Mitchell (1962) reported this species from Massachusetts, Connecticut, and Vermont. The only two known Massachusetts specimens, one intact female specimen (Middlesex Co., see below), and one that has only the thorax and one wing remaining (Worcester Co., see below), are housed in the MCZ. Both specimens were inspected, but neither could be confirmed with certainty. Despite this, we have little reason to believe that Mitchell's historically published record is inaccurate and therefore retain this species on the Massachusetts list. This is a scarce and enigmatic species and possibly overlooked in many collections. It is potentially the only regional representative of the former subgenus *Phor*.

Material examined: **Middlesex Co.:** Reading, 7 May 1933, 1 ♀, Richard Dow, (MCZ).

Worcester Co.: Winchendon, 14 May 1904, (sex undeterminable), Dr. F.W. Russell, (MCZ).

Nomada lehighensis* Cockerell, 1903*New state record**

Mitchell (1962) listed this species in the Northeast only from New York. It is currently known to have a wide distribution in the U.S. and Canada. In New England, Droege *et al.* (2010) indicates this species from Rhode Island, Connecticut, Massachusetts, and Maine, and Tucker and Rehan (2017) report a recent record from the White Mountains of New Hampshire. *Nomada lehighensis* is likely underreported due to its similarities to closely related species (Droege *et al.*, 2010). The male of this species has only recently been described (Droege *et al.*, 2010).

Material examined: **Middlesex Co.:** Shirley, abandoned sandpit, *Salix*, 18 Apr 2009, 1 ♀, MFV; Pepperell, *Cinquefoil*, 15 May 2009, 1 ♀ MFV. **Worcester Co.:** Douglas, Douglas State Forest, 25 Apr 2009, 1 ♀, MFV.

Nomada* sp. cf. *lepida**Status uncertain - data deficient**

A morphospecies in the poorly known group of *Gnathias* sensu lato, known from Martha's Vineyard (Goldstein and Ascher, 2016).

Material examined: **Dukes Co.:** See Goldstein and Ascher, 2016, record details unavailable.

Nomada rodecki* Mitchell, 1962*Range extension**

This is an uncommonly collected species recently discovered in Massachusetts and subsequently in New Jersey (D. Cariveau, unpubl.). Until its rediscovery in Massachusetts in 2007 (MFV), it was known only from the holotype collected by T. B. Mitchell in 1950 in North Carolina (Mitchell 1962). Unique among North American species of *Nomada* Scopoli, it is the presumed nest parasite of bees in the genus *Melitta* Kirby (Goldstein and Ascher, 2016). In Massachusetts, it has been collected together with *Melitta melittoides* on *Lyonia ligustrina* (MFV, PZG) and together with *Melitta americana* on *Vaccinium macrocarpon* (Ericaceae) (MFV).

Material examined: **Barnstable Co.:** Carver, Randall Cranberry Bog, 27 Jun 2014, 1♂, AA. **Bristol Co.:** Fall River, Squanit Commercial Organic Cranberry Bog, Jul 3, 2009, 1♂, MMN. **Dukes Co.:** West Tisbury, *Lyonia ligustrina*, 1 Jul 2010, 1♂, PZG, (AMNH). **Middlesex Co.:** Townsend, regenerating clearing, *L. ligustrina*, 30 Jul 2007, 1♂; 30 Jun 2013, 1♂; 29 Jun 2018, 2♂, MFV; abandoned sandpit, *Vaccinium macrocarpon*, 30 Jun 2008, 1♂, MFV; acidic shrub swamp, *L. ligustrina*, Jul 3, 2008, 1♀ MFV. **Plymouth Co.:** Rochester, Burgess Cranberry Bog, 1♂, 7 Jul 2014, AA.

Nomada valida* Smith, 1854*New state record**

The nearest state from which Mitchell (1962) reported this species was New York. Currently, records are known from New Hampshire (SEMC), Vermont (AMNH), and Maine (Dibble *et al.*, 2017). Many records, especially from the Mid-Atlantic, Southeast, and southern New England, likely pertain to the similar species *N. lehighensis*.

Material examined: **Middlesex Co.:** Townsend, old sandpit, 20 Apr 2007, 1♀, MFV.

Nomada vincta* Say, 1837*New state record**

This is a late summer flyer that has been recorded in Massachusetts only from counties west of the Connecticut River. It has most often been collected on *Helianthus* and often together with its presumed hosts *Andrena helianthi* and *A. aliciae*. The nearest state from which Mitchell (1962) reported this species was North Carolina, and Broemeling and Moalif (1988) include New York and New Jersey in their revision. However, there are recent New England records from Connecticut (UCMS), New Hampshire (MFV), and Maine (Dibble *et al.*, 2017).

Material examined: **Berkshire Co.:** Williamstown, Lower Linear Park, *Helianthus*, 25 Aug 2020, 1♂, MFV. **Franklin Co.:** Greenfield, Green River Recreational Area, *Helianthus*, 24 Aug 2016, 1♀/5♂, MFV. **Hampshire Co.:** Florence, garden, 19 Aug-16 Sept 2014-16, 3♀/8♂, FRM/JM; Northampton, garden, 3 Sept 2015, 1♂ FRM; garden, 8 Sept 2015, 1♂ FRM.

***Nomada xanthura* Cockerell, 1908**

This species was reported by Mitchell (1960) in the Northeast only from New York and Maine, but now is also known from Connecticut (UCMS) and Vermont (Hardy *et al.*, 2021).

Material examined: **Dukes Co.:** West Tisbury, Tiasquam Rd., 21 May 2011, 1♀, PZG (AMNH); Poly Hill Arboretum, 29 Apr 2011, 1♂, PZG (AMNH).

Colletidae

Colletes aestivalis Patton, 1879

Historical, range limit

This species is reportedly a specialist on *Heuchera* (Fowler 2016), but it is poorly studied and known to visit other flowers (Hurd, 1979). *Heuchera americana* L., the only member of its genus native to New England, is not known to occur north of Connecticut (*Go Botany*). However, several introduced species of *Heuchera* are grown as garden plants. This species is rare in collections with few or no recent records from the region.

Material examined: **Essex Co.**: Purgatory Swamp, (no date), 1 ♂, (no collector), (AMNH).

Colletes banksi Swenk, 1908

New state record, new parasite association

Several individuals were collected on *Ilex verticillata* at a roadside swamp in Middlesex County (see below). A nesting colony was later discovered approximately ¼ mi. distant in the embankment of an old earthen dam. Male and female *Epeolus inornatus* were observed flying and perching on sticks and twigs at the nest site, and females were observed entering and exiting nest openings. This nesting colony was revisited by MFV the following two seasons (2015-16) and again in 2018 and equivalent parasite activity was observed. The nearest state from which Mitchell (1962) reported this species is New York. This species is also known in New England from Connecticut (UCMS) and southern New Hampshire (MFV).

Material examined: **Middlesex Co.**: Pepperell, roadside swamp, 42.680/-71.648, *Ilex verticillata*, 28 Jun 2014, 1 ♂, MFV; roadside swamp, 42.700/-71.635, 3 Jul 2015, 5 ♀/1 ♂, MFV; embankment, 42.6941/-71.6327, 24 Jun 2015, 6 ♀; 25 Jun 2018, 3 ♀, MFV. **Hampshire Co.**: Amherst, powerline ROW, 42.3387/-72.4648, 1 Jul 2017, 1 ♂, MFV.

Colletes consors mesocopus Swenk, 1907

Historical - literature only, range limit

Massachusetts is near the southern limit of this species' range in the eastern U.S. There are no recent Massachusetts records. The single Massachusetts record was published by Stephen (1954), but no Massachusetts specimens could be located.

Records: **Norfolk Co.**: Needham (no other information noted).

Colletes speculiferus Cockerell, 1927

Formerly *C. mitchelli* (Kuhlmann and Ascher 2010), this is an uncommonly collected species with a primarily coastal distribution in the eastern U.S. Mitchell (1960) did not include this species from any state in the Northeast.

Material examined: **Essex Co.**: Ipswich, Crane Beach Reservation, *Solidago*, 24 Sept 2016, 1 ♀, MFV; Rowley, Parker River NWR, *Solidago*, 6 Oct 2007, 1 ♀/1 ♂, MFV. **Dukes Co.**: Aquinnah, bowl trap, 10 Sept 2010, 1 ♂, PZG, (AMNH); Penikese Island, 2 Oct 2009, 1 ♀, SK, (UCMS).

Colletes willistoni Robertson, 1891

New state record, potential new parasite association

This *Physalis* specialist is widely distributed, but not previously documented from New England (Hurd, 1979; Stephen, 1954). It has also recently been collected in New Hampshire (MFV) and Vermont (Hardy *et al.*, 2021). It may be under-reported due to its similarity to *C. latitarsis*. In 2014, several individuals were observed visiting flowers of *Physalis heterophylla* in an

old apple orchard together with *C. latitarsis*, another *Physalis* specialist. During subsequent visits in consecutive years (2015-16), *Epeolus bifasciatus* males and females were routinely collected visiting *Physalis* flowers, along with both *Colletes* species. *Colletes latitarsis* has been reported as a host of *E. bifasciatus* (Mitchell, 1962; Brumley, 1965). We add *C. willistoni* as a presumed host also.

Material examined: **Franklin Co.:** Charlemont, field, 42.634/-72.911, *Physalis heterophylla*, 13 Jun 2018, 1♂, MFV. **Middlesex Co.:** Groton, field, 42.622/-71.549, *P. heterophylla*, 7 Jul 2018, 4♀/1♂, MFV; Pepperell, orchard, 42.670 -71.627, *P. heterophylla*, 29 Jun 2014, 1♀; 29 Jun 2018, 1♂; 24 Jun 2015, 1♀; 13 Jul 2016, 3♀/1♂, MFV.

Hylaeus (Cephalylaeus) basalis (Smith, 1853)

New state record

In New England, Mitchell (1960) listed this species only from Maine; however, there exist museum records from Connecticut (UCMS) and New Hampshire (UNH) also. In the East, this species is largely restricted to higher latitudes.

Material examined: **Middlesex Co.:** Dunstable, *Lysimachia*, 3 Jul 2008, 1♀, MFV. **Franklin Co.:** Colrain, old sandpit, 27 May 2013, 1♀, MFV.

Hylaeus (Hylaeus) leptcephalus (Morawitz, 1870)

New state record

This is a very widespread exotic species introduced in early 1900's and is often found in urban areas and gardens (Matteson *et al.*, 2008).

Material examined: **Essex Co.:** Saugus, Saugus Ironworks National Historic Site, *Chrysanthemum* sp., 17 Jun 2019, 1♂, wefwef, from photograph (<https://www.inaturalist.org/observations/27150831>). **Hampshire Co.:** Northampton, College Lane, *Asclepias* sp., 8 Jul 8 - 29 Sept 2013, 10♀/20♂, FRM. **Middlesex Co.:** Belmont, 3 Sept 2019, 1♂, l3erdnik, from photograph (<https://www.inaturalist.org/observations/32190670>).

Hylaeus (Hylaeus) saniculae (Robertson, 1896)

Historical

This species is widespread in the central and eastern U.S., but rarely collected anywhere within its range. Its similarity to closely related species, especially *H. mesillae*, may result in under-recording (Snelling, 1970).

Material examined: **Middlesex Co.:** Holliston, 14 Jul (no year), 1♀, N. Banks, (MCZ). **Worcester Co.:** Southbridge, 8 Aug (no year), 1♀, C.W. Johnson (MCZ).

Hylaeus (Prosopis) illinoisensis (Robertson, 1896)

Identification difficulty

It is difficult to separate this species from the much more common *H. modestus* and thus it may be under-recorded. The paucity of modern records may indicate that this species is in decline in the Northeast. Mitchell (1960) reported it from Maine and Massachusetts, and it has recently been recorded (2012) from Connecticut (Zarrillo and Stoner, 2019).

Material examined: **Suffolk Co.:** Hull, Great Brewster Island, 8 Jun 2010, 1♂, MFV (MCZ).

Additional records: **Barnstable Co.:** Woods Hole, (no date), 1♀, A. L. Melander, (UCRC). **Suffolk Co.:** Forest Hills, 31 Jul 2013, (no sex), Francis Williams, det. R. Snelling, (SEMC).

Hylaeus (Prosopis) nelumbonis* (Robertson, 1890)*New state record**

This species, primarily found near wetlands, was recently documented for the first time in Connecticut (Zarrillo *et al.*, 2016) and Vermont (Hardy *et al.*, 2021) and was also reported from New Hampshire (Tucker and Rehan, 2017). It is associated with wetlands and is known to visit plant genera such as *Nelumbo* (Nelumbonaceae) (non-native) and *Nymphaea* (Nymphaeaceae) (Hurd 1979). The nearest state from which Mitchell (1960) recorded it was Maryland.

Material examined: **Essex Co.:** Rowley, Nelson Island, Solidago, 6 Aug 2010, 1 ♀, MFV; 2 Sept 2011, 6 ♀, MFV.

Hylaeus (Spatulariella) punctatus* (Brullé, 1832)*First New England record, range extension**

This exotic species was discovered in the New World in 1981 in California (Snelling, 1983), and in the East it was first recorded in Washington, D.C. (Ascher *et al.*, 2006). In the Northeast it is known from several locations in New Jersey (AMNH) and New York (Ascher *et al.*, 2006; Matteson *et al.*, 2008), but the Massachusetts records are the first from New England.

Material examined: **Plymouth Co.:** Carver, Rocky Bog, 28 Jun 2012, 1 ♀, AA. **Suffolk Co.:** Boston, 11 Sept 2016, 1 ♂, hallockk, from photograph (<https://bugguide.net/node/view/1315593>)

Halictidae***Lasioglossum (Dialictus) achilleae* (Mitchell, 1960)****Historical**

Rarely collected in New England, it is only known from historical records from Massachusetts. According to Gibbs (2011), it ranges from southern Ontario to Georgia.

Material examined: **Middlesex Co.:** Wellesley, 12 Jul 1903, 1 ♀, P. G. Bolster (MCZ, paratype). **Hampden Co.:** Springfield, 13 Jul 1905, 1 ♀, (no collector), (MCZ, paratype).

***Lasioglossum (Dialictus) cattellae* (Ellis, 1913)**

We are aware of only one modern record of this species in Massachusetts. Gibbs (2011) indicated that this species is similar in appearance to *L. tenax* but has a more southerly distribution.

Material examined: **Norfolk Co.:** Milton, 2 Sept (no year), 1 ♂ (*D. alternatus*), P. G. Bolster, (MCZ, paratype). **Suffolk Co.:** Forest Hills, 29-30 Aug 1922, 1 ♂ (*D. alternatus*), W. M. Wheeler, (MCZ, paratype).

Additional records: **Suffolk Co.:** Boston, Arnold Arboretum, 28 Jun 2011, 1 ♀, GS, det. SD, (MCZ).

***Lasioglossum (Dialictus) furunculum* Gibbs 2011**

This is a recently described species that was known only from its Massachusetts holotype until it was found in Ontario (Onuferko *et al.*, 2015). It is a presumed parasite of *Lasioglossum* (*Dialictus*; Robertson).

Records: **Franklin Co.:** Montague, Montague Plains WMA, treated pitch-pine, bowl trap, 5-6 Oct 2009, 2 ♀, JM, det. J. Gibbs, (PCYU, holotype).

***Lasioglossum (Dialictus) izawsum* Gibbs, 2011**

This recently described species is presumed to be a parasite of *Lasioglossum (Dialictus)* species (Gibbs, 2011). Large numbers have been captured in the Montague Plains WMA, Franklin Co. but only one specimen has been collected elsewhere in the state. Gibbs (2011) records it only from Massachusetts and Pennsylvania.

Material examined: **Franklin Co.:** Montague, Montague Plains WMA, several bowl trapping events, 18 Apr to 8 Oct 2008, 121 ♀/♂, JM, 7-8 Aug 2008, 1 ♀, JM, (PCYU, holotype). This species continued to be abundant in 2009 and 2010, JM. **Worcester Co.:** Lancaster, abandoned sand pit, bowl trap, 7 Apr 2012, 1 ♀, MFV.

Lasioglossum (Dialictus) lionotus* (Sandhouse, 1923) [=asteris (Mitchell, 1960)]*New state record**

This species is a known nest parasite of *Lasioglossum imitatum* and probably other *Lasioglossum (Dialictus)* species (Gibbs, 2011). Mitchell (1960) listed New York as the only northeastern state where this species occurs (as *L. asteris*), but it is currently known from Connecticut (CAES), New Hampshire (CUIC), Vermont (MFV), and New Jersey (AMNH).

Material examined: **Franklin Co.:** Charlemont, Zoar Outdoor Center, *L. imitatum* nest site, 42.6276, -72.8829, 23 Jun 2013, 1 ♀, JM; Greenfield, Green River Recreational Park, 6 Sept 2015, 1 ♀, MFV; Montague, Montague WMA, sandy riverbank, 24 Aug 2016, 1 ♀, MFV. **Hampshire Co.:** Hadley, Silvio Conte National Fish and Wildlife Refuge, bowl traps, 24-25 Sept 2012, 2 ♀, JM; Westhampton, 22 Jun 2010, 1 ♀, FRM. **Norfolk Co.:** Weymouth, Grape Island, 25 Sept 2005, 1 ♀, JJR, (MCZ).

Lasioglossum (Dialictus) michiganense* (Mitchell, 1960)*New state record**

This presumed cleptoparasite of *Lasioglossum (Dialictus)* is rare in collections (Gibbs, 2011; Gibbs *et al.*, 2010). It was recently reported for the first time in Connecticut (Zarrillo *et al.*, 2016). Mitchell (1960) did not report this species from any New England state.

Material examined: **Middlesex Co.:** Pepperell, old sandpit, 20 May 2006, 1 ♀, MFV, det. SD.

***Lasioglossum (Dialictus) perpunctatum* (Ellis, 1913)**

Although we know of only one Massachusetts record of this species, it is apparently common elsewhere in the East. (Gibbs, 2011). Mitchell (1960) reported it from Massachusetts but did not provide any details. This species is recorded from at least two other New England states, Connecticut (UCMS) and Maine (Dibble *et al.* 2017).

Records: **Suffolk Co.:** Boston, Thompson Island, 7 Jun 2010, 1 ♀, A. Rothwell, det. SD, (MCZ).

***Lasioglossum (Dialictus) platyparium* (Robertson, 1895)**

This presumed cleptoparasite of other *Lasioglossum (Dialictus)* species is infrequently collected throughout its range (Gibbs, 2011). Mitchell (1960) did not report it from any New England state. However, there are modern records from Connecticut (UCMS) and New York (AMNH).

Material examined: **Hampden Co.:** Springfield, urban lawn bowl captures, 5 May 2013 1 ♀, 17 May 2013 1 ♀, 3 Sept 2014 1 ♀, SBL. **Hampshire Co.:** Belchertown, Warren Wright Rd, field, 28 Apr 2013, 1 ♀, JM. **Franklin Co.:** Montague, Montague Plains WMA, main powerline, bowl trap, 12-18 Oct 2012, 1 ♀, JM.

Lasioglossum (Dialictus) wheeleri* (Mitchell, 1960)*Historical**

This species is known only from its male holotype. Gibbs (2011) writes that *Lasioglossum ascheri* Gibbs, 2011 or *Lasioglossum curculum* Gibbs, 2011 may be the female of this species; neither of these is currently known from Massachusetts.

Records: **Suffolk Co.:** Forest Hills, 29-30 Aug 1922, 1 ♂, (no collector), (NCSU, holotype).

***Lasioglossum (Evylaeus) pectinatum* (Robertson, 1890)**

The only northeastern state from which Mitchell (1960) reported this species was Connecticut, but Gibbs *et al.* (2013) reported records from New Jersey and New York. MFV has collected specimens in New Hampshire and Massachusetts, and it has recently been collected in Vermont (Hardy *et al.*, 2021). It is associated with *Physalis* (Gibbs *et al.*, 2013). This species may be under-collected due to its floral host specialization (Gibbs *et al.*, 2013).

Material examined: **Berkshire Co.:** Great Barrington, riverside field, *Solidago*, 23 Aug 2019, 1 ♀, MFV. **Franklin Co.:** Charlemont, roadside field, *Physalis heterophylla*, 13 Jul 2018, 1 ♀, MFV. **Middlesex Co.:** Groton, field, 42.590/-71.564, 8-29 Jul 2018-2019, 5 ♀, MFV; Pepperell, old apple orchard, *P. heterophylla*, 10 Jun-20 Jul 2014-2019, 26 ♀, MFV; Stow, field *P. heterophylla*, 26 Aug 2010, 1 ♂, TM.

Lasioglossum (Leuchalictus) zonulum* (Smith, 1848)*New state record**

Likely introduced to North America during colonial times (Giles and Ascher, 2006), this Holarctic species has a largely northern distribution in the U.S. In New England, it is known from Connecticut (UCMS), New Hampshire (AMNH), and Maine (AMNH), Vermont (Hardy *et al.*, 2021) as well as Massachusetts.

Material examined: **Berkshire Co.:** Adams, Greylock Glen, 20 Aug 2019, 1 ♀, JM.; **Franklin Co.:** Montague, Rt. 63 0.5 km. S. of Gunn Rd. sandpit, glycol trap, 14-28 Jun 2012, 1 ♀, JM.

Sphecodes banksii* Lovell, 1909*New state record**

This is a small and uncommonly collected species not reported by Mitchell (1960) from New England. However, in addition to Massachusetts, it is currently known from Connecticut (CAES) and New Hampshire (CUIC) and from the Albany Pine Bush in New York. *Sphecodes banksii* is potentially restricted to sandy substrates as a cleptoparasite of *Lasioglossum vierecki* (Gibbs *et al.*, 2017).

Material examined: **Middlesex Co.:** Bedford, 13-17 Sept 1967, 1 ♂, HEE, (MCZ); Pepperell, exposed sandy slope, 7 Aug 2015, 2 ♀/1 ♂, MFV.

Sphecodes clematidis* Robertson, 1897*Historical - literature only, identification difficulties**

The only Massachusetts record of this species is from Lovell (1909) as *S. obscurans*. No Massachusetts specimens could be located. Females are difficult to separate from the similar *S. prosporus*. Mitchell (1960) reported *S. clematidis* from all the New England states except Rhode Island and Maine. Dibble *et al.* (2017) records it from three counties in Maine.

Records: **Middlesex Co.:** Auburndale, 18 Sept (no year, no sex), CWJ.

Sphecodes fattigi* Mitchell, 1956 [= *Sphecodes prostygius* Mitchell, 1960]*New state record**

In the Northeast, Mitchell (1960) listed this uncommonly collected species only from New Hampshire (as *S. prostygius*). However, in addition to those from Massachusetts, current north-eastern records include Connecticut (UCMS), New York (AMNH), and Vermont (Hardy *et al.*, 2021)

Material examined: **Barnstable Co.:** Mashpee, Santuit Pond Preserve, bowl trap/net, 14 Jun 2014, 2 ♀; 12 Jun 2018, 1 ♀, MFV. **Hampden Co.:** Springfield, urban lawn, bowl trap, 5 Jun 2013, 1 ♀, SBL (det. MFV). **Middlesex Co.:** Townsend, sandpit, *Aronia*, 18 May 2013, 1 ♀, MFV. **Worcester Co.:** Ashburnham, small field, *Rubus*, 5 Jul 2009, 1 ♀, MFV; Hardwick, sand barren, bowls, 25 May 2016, 1 ♀, 30 Jun 2016 1 ♀, 13 Oct 2016, 1 ♂, JM. (dets. by MFV).

Sphecodes galerus* Lovell and Cockerell, 1907*Taxonomic uncertainty**

This species is poorly understood due to the lack of recent revisionary studies and therefore remains difficult to separate from *S. coronus*, *S. johnsonii*, and other congeners. Mitchell (1960) reported it from all the New England states except Maine and Rhode Island.

Material examined: **Franklin Co.:** roadside, 42.6603/-72.9558, 13 Sept 2018, 1 ♀, MFV. **Middlesex Co.:** Groton, powerline ROW, 2 Sept 2008, 2 ♀, MFV; Shirley, Oxbow NWR, 19 Aug 2010, 1 ♀, MFV; Pepperell, old sandpit, 5 Sept 2010, 2 ♀, 5 Sept 2015, 1 ♂, MFV. **Plymouth Co.:** Hingham, Worlds End Reservation, bowl trap, 28 Aug 2010, 1 ♀, B. Boothby, det. MFV, (MCZ).

Additional records: **Plymouth Co.:** Hingham, Worlds End Reservation, bowl trap, 25 May 2008, 2 ♀, SK, det. SD, (MCZ).

Sphecodes proshorus* Lovell and Cockerell, 1907*Historical, identification difficulty**

All known Massachusetts records of this species are historical. The two listed below are from Lovell (1909). Females are easily confused with the similar *Sphecodes clematidis*.

Material examined: **Hampshire Co.:** Amherst, Notch South, 28 Jul 1905, 2 ♀, det. JSA, (UMEC).

Additional records: **Middlesex Co.:** Auburndale, Mass., 12 Sept (no year), (no sex), CWJ, (Lovell, 1909). **Norfolk Co.:** Brookline, Mass., 6 Sept (no year), (no sex), CWJ, (Lovell, 1909).

Dufourea monardae* (Viereck, 1924)*New state record, range extension**

This uncommonly collected species is a specialist on *Monarda*. Despite widespread efforts to document this bee, it has only been collected recently in one county in western Massachusetts where wild populations of the native beebalm (*M. fistulosa* L.) are common. Mitchell (1960) did not report it from any New England state, but it is currently known from Connecticut as well (CAES).

Material examined: **Berkshire Co.:** Egremont, Jug End State Reservation, *Monarda fistula*, 22 Aug 2019, 3 ♀, MFV; Williamstown, field, *Monarda fistula*, 19 Aug 2019, 3 ♀/2 ♂, MFV/JM/FM.

Megachilidae

Dianthidium (Dianthidium) simile (Cresson, 1864)

New state record from historical literature

Mitchell (1962) reported Maine and New Jersey as the only northeastern states in which this bee occurs. However, Cresson (1864) described it based upon at least one specimen from Massachusetts, and Schwartz (1926) also noted it from the state. In Michigan, O'Brian (2007) found this species nesting in sand at the base of grass clumps often along lake shores. The only modern New England record we are aware of is from Maine in 2020 (<https://www.inaturalist.org/observations/54080078>), from a photograph.

Records: Massachusetts, 1 ♀, (no other label data), (USNM, lectotype); Massachusetts, 1 ♀, (no other label data), (ANSP).

Paranthidium (Paranthidium) jugatorium (Say, 1824)

First New England record

Mitchell (1962) did not report this *Helianthus* specialist from any New England state, but in addition to Massachusetts this species was recently collected in Vermont (Hardy *et al.*, 2021)

Material examined: **Berkshire Co.**: Williamstown, Green River access area, field, *Helianthus*, 29 Aug 2014, 3 ♀; 19 Aug 2019, 2 ♀, MFV/JM.

Pseudoanthidium (Pseudoanthidium) nanum (Mocsáry, 1879)

New state record, range extension

A native of Europe, this species was discovered in Maryland in 2010, subsequently collected in Newark, New Jersey and New York, New York (Droege and Shapiro, 2011), and most recently found in Illinois and Minnesota (Portman *et al.*, 2019), Oregon, https://www.inaturalist.org/observations?place_id=10&taxon_id=499394, and Pennsylvania (Kilpatrick *et al.*, 2020). As far as we are aware, the Massachusetts records represent its northernmost expansion in the East.

Material examined: **Barnstable Co.**: Sandwich, Camp Edwards Military Reservation, Centauria, 31 Jul 2013, 1 ♀; 25 Aug 2017, 2 ♂, MFV. **Middlesex Co.**: Somerville, photograph, 10 Jul 2020, 1 ♀, ND <https://www.inaturalist.org/observations/52596862>; Watertown, Mt. Auburn Cemetery, photograph 26 Jun 2019, 1 ♀, ameltzerma, <https://www.inaturalist.org/observations/53049378>., **Suffolk Co.**: Chelsea, Hawthorn St., photograph, 30 Jun 2021, <https://www.inaturalist.org/observations/85115060>.

Stelis (Stelis) coarctatus Crawford, 1916

New state record

This infrequently collected cleptoparasite was not reported by Mitchell (1962) from any eastern U.S. state. Gibbs *et al.* (2017) record a recent synonymy by F. Parker and T. Griswold with *Stelis vernalis* Mitchell, 1962. It is a cleptoparasite of *Heriades carinata* (Sheffield *et al.* 2008; Matthews 1965).

Material examined: **Franklin Co.**: Shelburne, Wilcox Hollow, bowls, 19 Jun 2012, 1 ♀, MFV; **Hampden Co.**: Wilbraham, powerline ROW, bowl trap, 5 Jul 2017, 1 ♀, MFV. **Hampshire Co.**: Belchertown, powerline ROW, 13 Jun 2017, 1 ♀, MFV. **Middlesex Co.**: Townsend, abandoned sandpit, bowl trap, 5 Jul 2009, 1 ♀, MFV.

Stelis (Stelis) foederalis* Smith, 1854*New state record based upon unpublished historical record**

The only eastern state from which Mitchell (1962) reported this uncommonly collected species was Georgia. Specimens have since been collected in Connecticut (UCMS) and New Hampshire (MFV) and Vermont (Hardy *et al.*, 2021). Hosts include *Osmia atriventris* (Hurd, 1979) and *Hoplitis spoliata* (Fye, 1965; Medler, 1967). Gibbs *et al.* (2017) record a recent synonymy with *Stelis michiganensis* by F. Parker and T. Griswold.

Record: **Worcester Co.:** Winchendon, 7 Jul 1892, 1 ♂, AM, (BBSL).

Stelis (Stelis) labiata* (Provancher, 1888)*New state record**

A cleptoparasite of *Hoplitis* species (Hurd, 1979; Medler 1961, 1967), the only northeastern records of this species reported by Mitchell (1962) were from Connecticut.

Material examined: **Franklin Co.:** Montague, pine barren, bowl trap, 14-15 Jun 2019, 1 ♀, JM. **Middlesex Co.:** Groton, abandoned sandpit, *Ceanothus*, 3 Jul 2009, 1 ♀, MFV; **Plymouth Co.:** Plymouth, field, *Melilotus*, Jun 21, 2007, 2 ♂, MFV. **Worcester Co.:** Ashburnham, field, bowl trap, 15 Jul 2010, 1 ♀, MFV; Winchendon, Birch Hill WMA, pine barren, bowl trap, 18 Jul 2018, 1 ♂, JM.

Coelioxys (Allocoelioxys) coturnix* Pérez, 1884*New state record, range extension**

This exotic species and probable cleptoparasite of *Megachile rotundata* (the only species of subgenus *Eutricharaea* confirmed to occur in Massachusetts) is native to southwestern Europe and North Africa. It was first discovered by JSA in Maryland but subsequently has been reported from several other locations in Maryland and in northern Virginia, Washington, D.C. (Droege and Shapiro, 2011), and Pennsylvania (Kilpatrick *et al.*, 2020). In addition to Massachusetts records, the species has also been found recently in New England in West Hartford, Connecticut as documented in photographs at iNaturalist (<https://www.inaturalist.org/observations/57564258>).

Material examined: **Hampshire Co.:** Amherst, garden, *Rudbeckia*, 21 Jul-3 Aug 2014, 1 ♀/2 ♂ JM/FRM; Florence, garden, *Verbena hastata*, 3 Aug 2016, 1 ♂, FRM; Northampton, College Lane, *V. hastata*, 14-25 Jul 2014, 5 ♂, FRM; Tyler Court, *Coreopsis*, 8 Aug 2014, 1 ♂, 16 Aug 2014, 1 ♀, FRM

Coelioxys (Boreocoelioxys) banksi* Crawford, 1914*First New England record, range extension**

Baker (1975) observed that this species appears to be rare across its range and did not report records from any of the Atlantic states north of Maryland, although it has subsequently been found in New Jersey and Pennsylvania. Mitchell (1962) mistakenly referred to this species in synonymy with *C. moestus*. Medler and Koerber (1958) reared *C. banksi* from nests of *Megachile relativa*.

Material examined: **Berkshire Co.:** Great Barrington, Housatonic Flats Preserve, *Helianthus*, 18 Aug 2020, 1 ♀, MFV. **Hampshire Co.:** Florence, Meadow Street, garden, net, 20 Aug 2016, 1 ♀, FRM; Northampton, Ryan Rd., gravel pit, *Verbena hastata*, 8 Sept 2016, 1 ♀, 29 Jul 2017, 1 ♀, FRM

Coelioxys (Coelioxys) sodalis* Cresson, 1878*New state record**

This species is a cleptoparasite of *Megachile* including *M. frigida* (Baker, 1975; Pengelly, 1955), *M. melanophaea* (Graenicher, 1927, 1935; Pengelly, 1955), *M. mucida* (Gibbs, 2017), *M. rotundata* (Baker, 1975; Hobbs, 1968) and *M. texana* (Baker, 1975; Pengelly, 1955). It has a northerly distribution and Massachusetts is near its southern edge of its eastern range (Baker, 1975).

Material examined: **Barnstable Co.:** Bourne, Camp Edwards Military Reservation, bowl trap, 9 Jun 2014, 1 ♀, SP; Brewster, powerline ROW, Sektucket Rd., 11 Jun 2018, 1 ♀, MFV. Mashpee, Santuit Pond Reserve, 14 Jun 2014, 1 ♀; 12 Jun 2018, 1 ♀, MFV. **Franklin Co.:** Goshen, Goshen Recreation area, *Rubus*, 20 Jun 2012, 1 ♀, MFV. **Middlesex Co.:** Townsend, old sandpit, 42.681/-71.746, *Rhus*, 14 Jun 2015, 1 ♂, MFV.

Coelioxys (Paracoelioxys) funerarius* Smith, 1854*Historical**

This species is known to parasitize the nests of several species of *Megachile*, including *M. frigida* (Baker, 1975; Mitchell, 1962), *M. inermis* (Baker, 1975; Medler, 1958; Sheffield *et al.*, 2008), *M. latimanus* (Baker, 1975), *M. relativa* (Fye, 1965; Sheffield *et al.*, 2008), and *M. rotundata* (Baker, 1975). Despite persistence of these host bees in the region it has disappeared from much of its former range in the northeastern United States, although *C. funerarius* persists in western North America and in Canada. Due to relatively high sequence divergence within this species as shown by DNA barcoding (Sheffield *et al.*, 2009) the taxonomic status of this species should be reassessed and the possibility of cryptic taxa considered when its conservation status is evaluated.

Material examined: **Middlesex Co.:** Cambridge, (no date), 1 ♂, (no collector), det. Mitch., (MCZ) as *C. lucrosa*. **Worcester Co.:** Petersham, (no date), 1 ♂, det. jrb '72, (MCZ).

Coelioxys (Synocoelioxys) hunteri* Crawford, 1914*First New England record, range extension**

The nearest state indicated which Mitchell (1962) reported this species is North Carolina. However, Baker (1972) only reports it from New York in the Northeast. In New England, this species has recently been found in Connecticut (CAES) as well as Massachusetts.

Material examined: **Hampshire Co.:** Florence, Meadow St., garden, 29 Jul-24 Aug 2016, 5 ♀/3 ♂; 18 Jul 2018, 1 ♂, FRM/JM. **Middlesex Co.:** Groton, Field, 42.8851/-71.554, *Origanum*, 17 Jul 2018, 2 ♂, MFV.

Megachile (Leptorachis) petulans* Cresson, 1878*Range limit**

Mitchell (1962) did not report this species from any New England state. It is commonly collected in the South but is apparently rare in the Northeast, known only from two offshore islands in Massachusetts, Martha's Vineyard and Cuttyhunk Island.

Material examined: **Dukes Co.:** Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury, West Tisbury, several locations, bowl traps, 13 Jul - 9 Sept 2010/11, 10 ♀/6 ♂, PZG/LR. (AMNH); Cuttyhunk Island, *Cirsium vulgare*, 15 Aug 1974, 1 ♂, GS (AMNH).

Megachile (Sayapis) frugalis* Cresson, 1872*New state record**

The nearest state from which Mitchell (1960) reports this species is New York. However, it also occurs in Connecticut (PMNH). Records in Massachusetts are primarily from coastal counties. There are numerous modern records, only a subset of which appear below.

Material examined: **Barnstable Co.:** Falmouth, headwaters of the Coonamessett River, 31 Jul 2013, 1 ♀, MFV; Sandwich, Wakeby Bog, bowl trap, 2 Jul 2012, 1 ♂, AVC. **Essex Co.:** North Andover, Weir Hill Preserve, 15 Jul 2013, 3 ♀, MFV; Newbury, Martin Burns WMA, *Apocynum*, 14 Jul 2011, 1 ♀, MFV. **Middlesex Co.:** Dunstable, abandoned gravel pit, *Lotus*, 28 Jul 2008, 1 ♀, MFV; Groton, powerline ROW, 42.5859/-71.5406, 5 Jul 2018, 1 ♀/1 ♂, MFV; Pepperell, old sand-pit, 10 Jul 2012, 1 ♀, MFV. **Plymouth Co.:** Plymouth, Myles Standish State Forest, *Baptisia tinctoria*, 16 Jul 2007, 3 ♀/8 ♂, MFV.

Megachile (Xanthosarus) mucida* Cresson, 1878*New state record**

Mitchell (1962) did not report this species from anywhere north of New Jersey. However, there are now records extending as far north as Maine (Dibble *et al.*, 2017).

Material examined: **Barnstable Co.:** Sandwich, Camp Edwards Military Reservation, 12 Jun 2017, 1 ♂, MFV. **Franklin Co.:** Montague, Montague Plains WMA, gravel pit, bowl trap, 11-12 Jul 2008, 1 ♀, JM. **Hampshire Co.:** Westhampton, 6 Jun 2010, 1 ♀/1 ♂, FRM.

Chelostoma (Gyrodromella) rapunculi* (Lepeletier, 1841)*New state record**

This species, which is native to Europe and much of Asia, was first discovered in New York state in the 1960s (Eickwort, 1981). It has now been documented as far north as southern Ontario (Buck *et al.*, 2005). In New England there are also records of this species from Connecticut (UCMS) and Vermont (Hardy *et al.*, 2021).

Material examined: **Berkshire Co.:** Great Barrington, field, *Lotus*, 25 Jun 2008, 1 ♂, MFV. **Hampshire Co.:** Northampton, College Lane, *Campanula*, 25 Jul 2007-1 Jun 2018, 11 ♀/10 ♂, FRM/JM; Tyler Court, *Veronica*, 5 Jul 2013, 9 ♀, 8 Jul 2013, 2 ♀, FRM.

Chelostoma (Prochelostoma) philadelphi* (Robertson, 1891)*New state record**

This native species ranges from the Great Lakes east into the Mid-Atlantic states and north to Connecticut (UCMS), New York (AMNH), and Vermont (<https://www.inaturalist.org/observations/84643237>). The only Massachusetts records are of individuals photographed visiting Mock-orange (Hydrangeaceae), the host plant of this specialist bee. This species has likely extended its range in the Northeastern United States following widespread planting of its host plant in gardens.

Material examined: **Middlesex Co.:** Somerville, Somerville Growing Center, *Philadelphus*, 2 and 9 Jun 2020, 2 ♂, photographs by Claire O'Neill, <https://www.inaturalist.org/observations/48240248>; <https://www.inaturalist.org/observations/49082466>.

Heriades (Neotrypetes) leavitti* Crawford, 1913*New state record**

This species is widely distributed in the East but infrequently collected. In New England, it was reported only from Maine by Mitchell (1962) and has recently been recorded in Vermont (Hardy *et al.*, 2021).

Records: **Essex Co.:** Parker River NWR, bowl trap, 21 Aug 2008, 1 ♀, DB (det. SD).

Osmia (Diceratostmia) conjuncta* Cresson, 1864*New state record from historical museum specimens, range limit**

Mitchell (1962) did not report this species, which is known to nest in abandoned snail shells (Rau, 1937), from any New England state. However, there is at least one record from Connecticut (UCMS). Massachusetts is at its known northern limit in the eastern U.S.

Material examined: **Hampshire Co.:** Amherst, Hatch Experimental Station, 15 May 1897 (orig. det. as *O. subfasciata*) 1 ♀, (no collector); “Amherst, Mass,” 6 May 1927, 1 ♂, SB, (UMEC), redet. MFV.

***Osmia (Helicosmia) caerulescens* (Linnaeus, 1758)**

This species is presumed to have been introduced to the United States in the 1800s. Its primary U.S. distribution is in the northeastern and north-central U.S. and southern Canada (Sandhouse 1939). It may be declining in the southeast. Mitchell (1962) reported this species from all the New England states except Vermont and Rhode Island.

Material examined: **Middlesex Co.:** Bedford, Hanscom Airforce Base, 15 May 2020, 1 ♂, photograph, H. Mazzaccaro, <https://www.inaturalist.org/observations/46031305>; Holliston, 7 Jul (no year), 1 ♂, N. Banks, det. R.W. Rust, (MCZ); Lexington, 9 Jun (no year), 1 ♀, (no collector) det. Sandhouse, (MCZ). **Suffolk Co.:** Forest Hills, (no date), 1 ♀, (no collector), det. R.W. Rust, (MCZ).

Osmia (Melanosmia) felti* Cockerell, 1911*Historical - literature only**

Sandhouse (1939) and Mitchell (1962) both reported the northeastern range of this species as including Massachusetts, New Hampshire, New York, and Pennsylvania. Sandhouse gives no details of the Massachusetts record. No other references to Massachusetts records exist in the literature and no Massachusetts specimens could be located. However, there are confirmed records of this species from New Jersey (AMNH) and New York (NYSM), including the Albany Pine Bush west of Massachusetts, and therefore we regard the range cited by Sandhouse as plausible.

Records: Literature only, no details recorded.

Osmia (Melanosmia) inermis* (Zetterstedt, 1838)*Historical, range limit**

There are only two known records of this Holarctic species in Massachusetts. The Middlesex Co. record (as *O. globosa*) is from Lovell (1909), who included C. A. Frost's description of finding a nest and rearing an adult. The cell was found on 24 April and the adult emerged on 2 May. The species is primarily northern in distribution with Massachusetts near the southern limit of its range in the eastern U.S.

Records: **Suffolk Co.:** Forest Hills, 16 May 1914, (no other label data available), (BBSL). **Middlesex Co.:** Framingham, 24 Apr/2 May (no year), (no sex), C.A. Frost (Lovell, 1909).

Osmia (Melanosmia) tersula* Cockerell, 1912*New state record**

This is a rarely-recorded northern species that has recently been found to be locally abundant in eastern Canada (Sheffield *et al.*, 2008). Mitchell (1962) only reported it from Wisconsin and Michigan. In addition to Massachusetts, modern records in New England exist from Maine (Dibble *et al.*, 2017) and Connecticut (UCMS).

Material examined: **Middlesex Co.:** Townsend, old sandpit, bowl trap, 31 May 2009, 1 ♀, MFV. **Worcester Co.:** Ashburnham, fen, 25 May 2009, 1 ♀, MFV; Winchendon, Birch Hill WMA, forest opening, 42.6582, -72.1080, *Fragaria/Vaccinium*, 25 May 2018, 2 ♀, JM.

Osmia (Osmia) taurus* (Smith, 1873)*New state record**

This native of eastern Asia was first discovered in the U.S. in the early 2000s, and has expanded its range from the mid-Atlantic to as far west as Illinois (Decker *et al.*, 2020). It was recently reported for the first time in Michigan (Gibbs *et al.*, 2017), New Hampshire (Tucker and Rehan, 2017) and Vermont (Hardy *et al.*, 2021).

Material examined: **Franklin Co.:** Montague, Montague Plains WMA, bowl trap, Apr 30-May 2009, 1 ♀, 3-23 May 2018, 2 ♀/1 ♂, 8 May 2019, 1 ♀, 6 Jun 2019, 1 ♂, JM. **Middlesex Co.:** Pepperell, field, bowl trap, 23 Apr 2017, 2 ♂, MFV. **Norfolk Co.:** Milton, photograph, 6 May 2017, 1 ♂, bugguide.net 1371581. **Plymouth Co.:** Brockton, Beaver Brook bowl trap, 14-15 Apr 2016, 1 ♀, D. Schoener/J. Salas, (MCC). **Worcester Co.:** Hartwick, Muddy Brook WMA, blue vane trap, 3-23 May 2018, 2 ♀/2 ♂, JM.

Melittidae***Macropis (Macropis) patellata* Patton, 1880****Historical**

This rarely collected specialist of *Lysimachia* (Myrsinaceae) appears to have been historically more abundant in the Northeast. We could find no modern records from Massachusetts. Mitchell (1960) included it from both Massachusetts and Vermont, but it is currently also known from Connecticut (UCMS).

Material examined: **Middlesex Co.:** Reading, 23 May 1933, 1 ♂, Richard Dow, (MCZ).

Additional records: **Barnstable Co.:** (no town), 11 Jul 1894, 1 ♀, (collector not legible), (BBSL).

Melitta (Cilissa) eickworti* Snelling and Stage, 1995*New state record**

This species, described in 1995, (Snelling and Stage, 1995) is closely related to *M. americana*, with which it has likely been confused in the past. Older specimens of *M. americana* should be verified. Its documented host plant is *Vaccinium stamineum* (Cane *et al.*, 1985; Michez and Eardley, 2007; Snelling and Stage, 1995). A 2021 record from Barnstable County is noteworthy since most records of this species have been from inland sites.

Material examined: **Barnstable Co.:** Yarmouth, Miller Pond Trails, 16 Jun 2021, 1 ♀, *Vaccinium stamineum*, MFV. **Franklin Co.:** Montague, Montague Plains WMA, 14 Jun 2019, 1 ♂, *V. stamineum*, AF; 17 Jun 2019, 3 ♀, *V. stamineum*, JM; 12-14 Jun 2020, 3 ♀/2 ♂, *V. stamineum*, MFV/JM/K. King; Sunderland, Robert Frost Trail, 13 Jun 2021, 1 ♀, *V. stamineum*, D. King. **Hampshire Co.:** Amherst, forested slope, 31 May 2019, 1 ♂, *V. stamineum*, AF; 12 Jun 2019, 3 ♀/1 ♂, *Vaccinium stamineum*, MFV.

Initials of Collectors and Determiners: AA - Anne Averill; AF - Aliza Fassler; AM - A. Morse; AW - Andrew Webber; AVC - Andrea V. Couto; CS - Caroline Scully; CWJ - C.W. Johnson; KB - Keith Boyle; DB - Dan Breen; FRM - Fred R. Morrison; GS - Georgia Shelton; GIS - Gerry I. Stage; HEE - Howard E. Evans; JK - J.M. Karberg; JJR - Jessica J. Rykken; JM - Joan Milam; JR - Justin Roch; JRD - Jeremy R. Day; LH - Lynn Harper; LR - Laurisa Rich; MA - Mike Arduser; MFV - Michael Veit; MMN - Molly M. Notestine; ND - Nick Dorian; NH - N. Harkness; PZG - Paul Z. Goldstein; SB - S. Budick; SBL - Susannah B. Lerman; SD - Sam Droege; SK - Sean Kent; SP - Stephanie Paventy; TM - Tom Murray; WL - Wallace LaBerge.

Institutional Abbreviations: AMNH - American Museum of Natural History, New York, NY, USA; ANSP - Academy of Natural Science, Philadelphia, PA, USA; BBSL - Bee Biology and Systematics Lab, Logan, UT, USA; CAES - Connecticut Agricultural Experiment Station, New Haven, CT, USA; CUIC - Cornell University Insect Collection, Ithaca, NY, USA; EMEC - Essig Museum of Entomology, University of California, Berkeley, CA, USA; INHS - Illinois Natural History Service, Champaign, IL, USA; MCC - Massasoit Community College, Brockton, MA, USA; MCZ - Harvard Museum of Natural History [former Museum of Comparative Zoology], Cambridge, MA, USA; NYSM - New York State Museum, Albany, NY, USA; PCYU - Laurence Packer collection at York University, Toronto, Ontario, Canada; PMNH - Peabody Museum of Natural History, Yale University, New Haven, CT, USA; RMNH - Naturalis Biodiversity Center [formerly Rijksmuseum van Natuurlijke Historie], Leiden, Netherlands; SEMC - Snow Entomological Museum, University of Kansas, Lawrence, KS, USA; UCMC - University of Colorado Museum of Natural History, Boulder, CO, USA; UCRC - University of California, Riverside, CA, USA; UCMS - University of Connecticut, Storrs, CT, USA; UMEC - University of Massachusetts, Amherst, MA, USA; UNH - University of New Hampshire, Durham, NH, USA; USNM - National Museum of Natural History [formerly U.S. National Museum], Washington, D.C., USA.

Appendix C. Expected species

Species not yet recorded in Massachusetts but expected to occur the state. These species are known from adjoining states and are likely to be found in Massachusetts.

Andrenidae

Andrena (Melandrena) confederata Viereck, 1917

This species is widespread in the southern U.S. but uncommon in the Northeast. It has been recorded close by in both Connecticut (UCMS) and New York (AMNH).

Andrena (Micrandrena) nigrae Robertson, 1905

This *Salix* specialist is widespread throughout much of the U.S. and has been found in several nearby states including New York (AMNH), Connecticut (Ribble 1967), Maine (USGS, Sam Droege), and Vermont (Hardy *et al.*, 2021).

Andrena (Parandrena) nida Mitchell, 1960

This species ranges from the Midwest to the Mid-Atlantic states and north into New England where it is documented from Connecticut (UCMS) and most recently Vermont (Hardy *et al.*, 2021.). It appears to prefer *Salix* (Salicaceae) pollen as does its closely related Massachusetts native *A. wellesleyana*.

Apidae

Anthophora (Melea) bombooides Kirby, 1838

This species is likely to occur in Massachusetts as it is widespread throughout the U.S. and has been collected in several adjacent states including New York (AMNH), New Hampshire (UNH, MFV), Vermont (MFV), and Maine (Dibble *et al.*, 2017).

Ptilothrix bombiformis (Cresson, 1878)

A mainly southern specialist on *Hibiscus* spp. (Malvaceae), this species was recently documented from Connecticut (Zarillo, *et al.*, 2016) and Ontario (Sharky *et al.*, 2020). It should be looked for on our native Swamp rose-mallow (*H. moscheutos*) as well as garden varieties and introduced species of *Hibiscus*.

Eucera (Synhalonia) hamata (Bradley, 1942)

This species ranges from the Great Plains the east coast where it is more common in the south and Mid-Atlantic, but may be expanding northward (Zarillo *et al.*, 2016) In addition to Connecticut, in New England it has been collected in New Hampshire (MFV).

Triepeolus eliseae Rightmyer, 2017 (Gibbs *et al.*, 2017)

This is a recently described species known from the Midwest and Mid-Atlantic and north into Ontario. It is most easily confused with *T. obliteratus* Graenicher, 1911, (see Gibbs *et al.* 2017). MFV collected this species in the White Mountains of New Hampshire.

***Nomada florilega* Lovell and Cockerell, 1905**

This uncommonly collected species is documented by Mitchell (1962) from Maine and Connecticut.

***Nomada obliterata* Cresson, 1863**

This species is distinguished as one of only two species of *Nomada* in the Northeast which usually have only two submarginal cells in the forewing. It is known as a cleptoparasite of *Andrena erythrogaster* (Miliczky, 1988) which is relatively common species in Massachusetts and a specialist on *Salix*. *Nomada obliterata* has been found in Connecticut (UCMS), New York (AMNH), and Vermont (Spencer Hardy, pers. comm.)

Megachilidae***Stelis (Stelis) nitida***

This uncommonly collected species ranges in the north from western Ontario to Nova Scotia, and in the eastern U.S. south into West Virginia. In the Northeast it has been collected in New York (AMNH) and Connecticut (UCMS).

***Coelioxys (Glyptocoelioxys) germanus* Cresson, 1878**

Mitchell (1962) did not report this species from New York or New England, but it was found on Gardiners Island, New York by Ascher *et al.* (2014) in association with its host *Megachile petulans*, a species known in in Massachusetts only from Martha's Vineyard and Cuttyhunk Island.

***Megachile (Chelostomoides) rugifrons* (Smith, 1854)**

This uncommonly collected species ranges from the Great Plains to the East Coast. In the Northeast it has been documented from New York (CUIC) and Vermont (<https://www.inaturalist.org/observations/62505854>).