

A distributional checklist of the leaf-cutting bees (Hymenoptera: Megachilidae) of Florida

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Introduction

The leaf-cutting bees are a diverse group which is commonly encountered all across the country. With over 600 North American species, most of which are in the genera *Anthidium*, *Dianthidium*, *Stelis*, *Heriades*, *Hoplitis*, *Osmia*, *Megachile* and *Coelioxys*, there are numerous "non-*Apis*" pollinators. Being an important taxon, there is a definite need for an awareness of their distribution across the United States and, perhaps in time, everywhere. This may allow us to follow the establishment of exotic species such as *Megachile* [*Callomegachile*] *torrida* Smith, *M.* [*Pseudomegachile*] *lanata* Fabricius, and an unidentified exotic which is listed below in the subgenus *Callomegachile*.

The purpose of this paper is to provide a county-based distribution of each species and, when applicable, each respective subspecies in the state of Florida. This information may prove useful in the investigation of potentially precinctive (endemic) species and habitat preference and/or habitat isolation across Florida's landscape.

All information is based on specimens in the Florida State Collection of Arthropods, at the Florida Department of Agriculture and Consumer Services: Division of Plant Industry, specimens collected by the authors and J. B. Pascarella, as well as distributional notes from the literature (Mitchell 1962, Krombein et al. 1979). This is the first of a series of planned publications reviewing Florida's megachilid fauna.

County names are all abbreviated with three or four capital letters. As Florida is a geographically long peninsular state, the counties are presented into four major groups: panhandle, northern peninsular, central peninsular, and southern peninsular.

Abbreviations used are: **Panhandle counties:** Bay, BAY; Calhoun, CAL; Escambia, ESC; Franklin, FRA; Gadsden, GAD; Gulf, GUL; Holmes, HOL; Jackson, JAC; Jefferson, JEF; Leon, LEO; Liberty,

LIB; Okaloosa, OKA; Santa Rosa, SRO; Wakulla, WAK; Walton, WAL; Washington, WAS.

Northern Peninsular counties: Alachua, ALA; Baker, BAK; Bradford, BRA; Clay, CLA; Columbia, COLU; Dixie, DIX; Duval, DUV; Flagler, FLA; Gilchrist, GIL; Hamilton, HAM; Lafayette, LAF; Levy, LEV; Madison, MAD; Marion, MARI; Nassau, NAS; Putnam, PUT; St. Johns, SJO; Suwanee, SUW; Taylor, TAY; Union, UNI.

Central Peninsular counties: Brevard, BRE; Charlotte, CHA; Citrus, CIT; De Soto, DES; Glades, GLA; Hardee, HAR; Hernando, HER; Highlands, HIG; Hillsborough, HIL; Indian River, IND; Lake, LAK; Manatee, MAN; Martin, MART; Okeechobee, OKE; Orange, ORA; Osceola, OSC; Pasco, PAS; Pinellas, PIN; Polk, POL; Sarasota, SAR; Seminole, SEM; St. Lucie, SLU; Sumter, SUM; Volusia, VOL.

Southern Peninsular counties: Broward, BRO; Collier, COLL; Dade, DAD; Hendry, HEN; Lee, LEE; Monroe, MON; Palm Beach, PAL.

Family Megachilidae

[79 species + 7 subspecies = 86 taxa]

Subfamily Megachilinae

[79 species + 7 subspecies = 86 taxa]

Tribe Lithurgini

[2 species]

Lithurgus [*Lithurgopsis*] Berthold

L. gibbosus (Smith), ALA, CLA, DAD, HIG, MART, PUT, SUW, VOL, BRE

L. littoralis (Cockerell) = *bruesi* Mitchell, all FSCA specimens were collected in Texas.

Tribe Osmiini

[14 species + 1 subspecies]

Ashmeadiella [*Ashmeadiella*] Cockerell

A. floridana (Robertson), LEV

Heriades [Neotrypetes] Robertson

H. carinata Cresson, ALA, BAK, COLU, LIB, JEF, LEO

H. leavitti Crawford, ALA, BAK, CLA, COLU, DAD, HIG, IND, JEF, LAK, LEO, LEV, MAN, MARI, ORA, SAR, SUW

H. v. variolosa (Cresson), LEO, no FSCA specimens collected from Florida.

Hoplitis [Alcidamea] Cresson

H. pilosifrons (Cresson), ALA, BAK, COLU, SUM

H. t. truncata (Cresson), ALA, BAK, BRA, COLU, HIG, LIB, MARI, SUW, VOL

Hoplitis [Robertsonella] Titus

H. micheneri Mitchell, SUW, due to the large number of specimens collected at this locality, and no other locality in Florida, the species may be restricted to this region.

Osmia [Diceratosmia] Robertson

O. subfasciata miamiensis Mitchell, CIT, DAD, no FSCA specimens.

O. s. subfasciata Cresson, HIG, LEO, LEV, PAS, all FSCA specimens were collected in Texas.

Osmia [Helicosmia] Thomson, includes some Osmia [Chalcosmia]

O. chalybea Smith, ALA, BRE, COLL, COLU, HER, HIL, SEM

O. georgica Cresson, BAK, COLU, GUL, JAC, LIB

O. texana Cresson, HER, no FSCA specimens were collected in Florida.

Osmia [Melanosmia] Schmiedeknecht

O. atriventris Cresson, JAC, WAK, no FSCA specimens were collected in Florida.

O. pumila Cresson, no FSCA specimens were collected in Florida.

O. sandhouseae Mitchell, BAK, COLU, JAC, LEO, LEV

Tribe Anthidiini

[14 species + 2 subspecies]

Anthidiellum [Anthidiellum] Pasteels

A. n. notatum (Latrielle), ALA, BRA, CAL, CLA, ESC, LEO, LEV, LIB, MARI, MAD, PUT, WAK

A. notatum rufimaculatum Schwarz, DAD, HIG, LIB, MAN, MON, OSC, POL, PUT, SLU

A. perplexum (Smith), ALA, BAK, CIT, CLA, COLL, COLU, DAD, DUV, ESC, GUL, HIG, IND, LEO, LEV, LIB, MARI, MART, MON, NAS, OKA, ORA, PAS, PUT, SLU, SRO, SUW, UNI, WAK

Anthidium [Anthidium] Fabricius

A. maculifrons Smith, ALA, BRA, DAD, GUL, HIG, HIL, POL, PUT, SUW

Dianthidium [Dianthidium] Cockerell

D. c. curvatum = *D. c. floridiense* = *D. floridiense* Schwarz, COLL, DAD, HIG, MART, MON, SAR

D. sp. ?, CLA, ESC, GUL, TAY, WAK, there are six specimens of this insect, one of which keys out as *D. curvatum* in Mitchell (1962). However, they do not appear to be *D. curvatum*.

Paranthidium [Paranthidium] Cockerell

P. jugatorium (Cresson), LEO, no FSCA specimens from Florida.

Stelis [Dolichostelis] Parker and Bohart

S. louisae Cockerell = *Stelis floridana* Graenicher, maybe = *Stelis [Protostelis] c. costalis* according to Parker and Bohart (1979), ALA, CLA, DES, HAR, HIG, HIL, LEV, MAN, MARI, OKA, ORA, PAS, POL, SRO, UNI, VOL

Stelis [Protostelis] Friese = [*Heterostelis*] Timberlake 1941

S. a. australis Cresson, ALA, LEV, PUT, VOL

S. australis floridensis (Mitchell), ALA, CIT, CLA, LEV

S. grossa = *Stelis [Protostelis] grossa* according to Mitchell (1962), ALA, no FSCA specimens.

Stelis [Stelis] Panzer, includes *Stelis [Pavostelis]* Sladen and *Stelis [Microstelis]* Robertson.

S. ater Mitchell, COLL, SAR

S. lateralis Cresson, ALA, BAK, COLU, SUW

Trachusa [Heteranthidium] Cockerell

T. crassipes (Cresson), ALA, LEV, OKA

T. fontemvitae (Schwarz), CLA, HIG, HIL, MARI, PUT

Trachusa [Legnanthidium] Griswold and Michener

T. ridingsii (Cresson), ALA, DAD, LEO, LEV, SRO

Tribe Megachilini

[49 species + 4 subspecies]

Coelioxys [Acrocoelioxys] Mitchell

C. dolichos Fox, ALA, CIT, CLA, COLL, DAD, GUL, HER, HIG, JAC, LEE, LEO, LEV, MARI, MON, NAS, PAL, PUT, SLU, UNI, VOL, WAK

Coelioxys [Boreocoelioxys] Mitchell

C. octodentata Say = *C. atlantica* Mitchell, ALA, DAD, FLA, HIG, LEV

C. rufitarsis Smith, DUV, JEF, no FSCA specimens were collected in Florida.

C. sayi Robertson, ALA, BAK, BAY, CIT, COLL, COLU, CLA, DAD, DES, DIX, ESC, FRA, GUL, HIG, IND, JAC, LAK, LEE, LEO, MAN, MARI, MON, NAS, OKA, PUT, SAR, SLU, SRO, UNI, WAK

Coelioxys [Coelioxys] Latreille

C. immaculata Cockerell, ALA, SUW

C. mitchelli Baker, LEO, no FSCA specimens available.

Coelioxys [Cyrtocoelioxys] Mitchell

C. floridana ? Cresson, no FSCA specimens available.

C. modesta Smith, ALA, HIG, JAC, SUW

C. obtusiventris Crawford, no FSCA specimens available.

Coelioxys [Glyptocoelioxys] Mitchell = [Dasycoelioxys] Mitchell

C. germana Cresson, ALA, DAD, HIG, LEE, LEO, ORA

Coelioxys [Haplocoelioxys] Mitchell

C. mexicana Cresson = *asteris*, ALA, CIT, CLA, DAD, DIX, GUL, HIG, HIL, LEV, MARI, MART, ORA, PUT, SAR, SJO, UNI

Coelioxys [Neocoelioxys] Mitchell

C. s. slossoni Viereck, DAD, LEE, LEV, MON, PIN

Coelioxys [Synocoelioxys] Mitchell

C. hunteri Crawford, DAD, MON

C. t. texana Cresson, DAD, LEE

Coelioxys [Xerocoelioxys] Mitchell

C. boharti Mitchell, ALA, HEN, HIG, VOL

C. edita Cresson, LEO, no FSCA specimens were collected in Florida.

C. galactiae Mitchell, ALA, BAY, CLA, HIG, LEV

C. piercei Crawford, no FSCA specimens available.

Megachile [Acentron] Mitchell

M. albitarsis Cresson, ALA, BAY, CLA, COLL, DAD, DIX, DUV, ESC, GUL, HIG, HIL, LAK, LEE, LEV, MAN, MARI, MART, OKA, OKE, ORA, PAL, PIN, PUT, SAR, SJO, SRO, TAY, VOL, WAK, WAL

Megachile [Argyropile] Mitchell

M. parallela Smith, DAD, LEO, LEV, NAS, no FSCA specimens were collected in Florida.

M. townsendiana Cockerell, DAD, BRO, NAS, SJO

Megachile [Callomegachile] Michener

M. sculpteralis Smith, JEF

M. torrida Smith, no FSCA specimens were collected in Florida.

M. sp., a presumed exotic species

Megachile [Chelostomoides] Robertson

M. c. campanulae (Robertson), ALA, DAD

M. campanulae wilingtoni (Mitchell), ALA, DAD, DUV, ESC, HIG, LAK, MON

M. e. exilis Cresson, ALA, BRO, DAD, HIG, LAK, LEO, LIB, MAD, MAN, PIN, POL, SAR

M. exilis parexilis Mitchell, ALA, BRO, DAD, DIX, ESC, LEO, LEV, MAD, PIN, SAR

M. georgica Cresson, ALA, BAK, BRO, CLA, COLU, DAD, ESC, HIG, JAC, LEV, LIB, MARI, MON, OKA, ORA, POL, PUT, SRO, SUW, VOL, WAK

M. rugifrons (Smith), ALA, BAK, COLU, WAK

Megachile [Eutricharea] Thomson

M. concinna Smith, BRO, DAD, MON

Megachile [Leptorachis] Mitchell

M. petulans Cresson, ALA, BAY, CAL, CIT, CLA, COLL, COLU, DAD, DUV, ESC, FRA, HIG, IND, JAC, JEF, LEE, LEO, LEV, LIB, MAN, MARI, MON, OKA, ORA, SEM, SJO, SRO, UNI, VOL, WAL

Megachile [Litomegachile] Mitchell

M. b. brevis Say, ALA, BAK, COLU, DAD, ESC, GUL, HIG, LEV, MARI, MON, NAS, OKA, POL, PUT, SJO, SRO, WAL

M. brevis pseudobrevis Mitchell, ALA, BRE, COLL, DAD, ESC, HIG, LEV, LIB, MARI, MON, ORA, PAL, PUT, SAR, SJO, SLU, SRO, SUW, TAY, VOL

M. m. mendica Cresson, ALA, BAK, CIT, CLA, COLL, COLU, DAD, DUV, ESC, FRA, GAD, GUL, HAR, HER, HIG, JAC, JEF, LEE, LEO, LEV, LIB, MARI, MART, MON, NAS, OKA, ORA, PAL, PAS, PUT, SAR, SJO, SRO, SUW, TAY, VOL, WAL

M. texana Cresson, ALA, BAY, BRA, BRO, CLA, DAD, DES, DUV, ESC, GUL, HIG, LEV, LEO, LIB, MAD, MAN, MARI, MARL, MON, NAS, ORA, PUT, SRO, VOL, WAK

***Megachile* [*Megachiloides*] Mitchell**

M. brimleyi Mitchell, BAY, HIG, LEV

M. deflexa Cresson, ALA, CLA, DAD, DUV, LEV, MARI, PUT

M. integra Cresson, ALA, CIT, CLA, ESC, GIL, HIG, LEV, ORA

M. integrella Mitchell, ALA, CLA, PUT, NAS

M. rubi Mitchell, ALA, HIG, LIB, SUW

***Megachile* [*Melanosarus*] Mitchell**

M. bahamensis Mitchell, CIT, COLL, DAD, MON, PAL

M. xylocopoides Smith, AL, BAK, BAY, BRO, CIT, CLA, COLL, COLU, DAD, DUV, ESC, FRA, GLA, GUL, HEN, HIG, HIL, IND, JAC, JEF, LAK, LEE, LEO, LEV, LIB, MARI, MON, NAS, OKA, OKE, ORA, PAL, PAS, PIN, PUT, SAR, SJO, SLU, TAY, UNI, VOL, WAK

***Megachile* [*Pseudocentron*] Mitchell**

M. p. pruina Smith, BAY, COLL, DAD, HIG, LEV, LIB, MON

***Megachile* [*Pseudomegachile*] Friese**

M. lanata Fabricius, DAD, SLU

***Megachile* [*Sayapsis*] Titus**

M. f. frugalis Cresson, ALA, CLA, DAD, HIG, MARI, MON, SUW

M. i. inimica Cresson, DAD, HIG, MON

M. i. sayi Cresson, DAD, ESC

M. polycaris Say, ALA, BRE, CLA, DAD, DUV, HIG, IND, MARI, MON, ORA

***Megachile* [*Xanthosarus*] Robertson**

M. addenda Cresson, ALA, DAD, HIG, LIB, SUW

M. g. gemula Cresson, ALA, BAK, COLU, MARI

M. ingenua Cresson, ALA, SRO, WAL

M. m. melanophaea Smith, ALA, BAK, DAD, DUV, ESC

M. mucida Cresson, SUW

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Literature cited

- Krombein, K. V., P. D. Hurd Jr., D. R. Smith, and B. D. Burks.** 1979. Catalog of the Hymenoptera of America North of Mexico. Washington, D. C. Smithsonian Institution Press: xvi + 1011 pp.
- Michener, C. D.** 2000. The Bees of the World. Baltimore, MD, Johns Hopkins University Press: xiv + 913 pp.
- Mitchell, P. B.** 1962. Bees of the Eastern United States. North Carolina Agricultural Experiment Station Technical Bulletin 2 (152): 557 pp.
- Parker, F.D., and G.E. Bohart.** 1979. *Dolichostelis*, a new genus of parasitic bees (Hymenoptera: Megachilidae). Journal of the Kansas Entomological Society 52: 138-153.