ABSTRACT. Of the two melittine genera present in North America, Melitta occurs also in the Palearctic and Subsaharan regions; Macropis is Holarctic and especially speciose in the Palearctic Region. We treat the monobasic Nearctic Dolichochile as a subgenus of Melitta; all four Nearctic species of Melitta are separated by a key. One new species, *M. eickworti* is described from the eastern United States; the type locality is in New York State.

Macropis is likewise represented by four Nearctic species. These are separated in a key; brief notes on their biologies, especially host plant data, and their distributions are presented. A neotype for *M. longilingua* Provancher is designated and the name placed in synonymy with *M. ciliata* Patton; *M. clypeata* Swenk is a synonym of *M. nuda* (Provancher).

Taxonomically significant morphological features of the species in both genera are illustrated.

INTRODUCTION

This is the first of two papers that will revise the species-level taxonomy of the melittid bees of the Nearctic Region, the only portion of the Western Hemisphere where these bees are known to be present. Michener (1981) revised the worldwide higher classification of the Melittidae. Three subfamilies were recognized: Meganomiinae (four genera, restricted to eastern and southern Africa), Melittinae (five genera, Holarctic and African), and Dasypodinae (eight genera in three tribes, Holarctic and African). The genera Ctenoplectra and Ctenoplectrina, formerly associated with the Melittidae, were removed to the new family Ctenoplectridae by Michener and Greenberg (1980).

SYSTEMATICS

There are two subfamilies of Melittidae represented within the Nearctic Region. They have been separated by Michener (1981) as follows:

**Melittinae**: "Paraglossa densely hairy; forewing with two or three submarginal cells, second (if only two cells) or second plus third as long as first, first transverse cubital (— base of second submarginal cell) slanting, usually well separated from first recurrent vein. Larvae spin cocoons."

**Dasypodinae**: "Paraglossa largely bare, usually markedly shorter than suspensorium, hairs largely limited to apex, or paraglossa absent; forewing with two submarginal cells, second usually shorter than first, first transverse cubital (=base of second submarginal cell) usually close to first recurrent vein. Known larvae do not spin cocoons."

Dasypodinae: "Paraglossa largely bare, usually markedly shorter than suspensorium, hairs largely limited to apex, or paraglossa absent; forewing with two submarginal cells, second usually shorter than first, first transverse cubital (=base of second submarginal cell) usually close to first recurrent vein. Known larvae do not spin cocoons."

Of the five genera of Melittinae recognized by Michener, three occur in North America (although we here treat one of these as a subgenus) and may be separated by the following key, modified from that of Michener.

**KEY TO NORTH AMERICAN GENERA OF MELITTAINE**

a. Forewing with three submarginal cells; male with neither pygidial plate nor yellow face marks; male gonostylus broadly fused with gonocoxite (Figs. 13–19); male sternum 8 ending in beveled area simulating a pygidial plate . . . . . . *Melitta*
b. Forewing with two submarginal cells; male with pygidial plate and yellow face marks; male gonostylus long, slender at base, and articulated with gonocoxite (Figs. 20–27); male sternum 8 without modified beveled area .......... *Macropis*

Genus *Melitta* Kirby

*Melitta* Kirby, 1802:117. Type-species: *Melitta tricincta* Kirby, 1802; designated by Richards, 1935. *Cilissa* Leach, 1815:155. Type-species: *Andrena haemorrhoidalis* Fabricius, 1775; designated by Westwood, 1840. *Kirbya* Lepeletier, 1841:145. Type-species: *Melitta tricincta* Kirby, 1802; designated by Sandhouse, 1943. Preoccupied. *Pseudocilissa* Radoszkowski, 1891:241. Type-species: (*Cilissa robusta* Radoszkowski, 1876) = *Melitta dimidiata* Morawitz, 1876. Monobasic. *Melitta* subg. *Brachycephalapis* Viereck, 1909:47. Type-species: *Melitta (Brachycephalapis) californica* Viereck, 1909. Monobasic and original designation.
Dolichochile Viereck, 1909:49. Type-species: Dolichochile melittoides Viereck, 1909. Monobasic and original designation.

The following are diagnostic characters for Melitta: Melittine bees with three submarginal cells; mouthparts ordinary for the group, maxillary palpus two-to six-segmented; scopa on female metatibia and metabasitarsus simple, these segments slender; pro-podeal triangle large, dull; seventh metasomal sternum of male with large disc and insignificant apical lobes.

This primarily Holarctic genus is most diverse in the Palearctic Region. A few species occur in southern Africa. Four species are known in North America. Little is known of the biology of any of these Nearctic species. The three species found in the eastern United States are apparently oligoleges on various Ericaceae, while the single western species...
appears to be oligolectic on *Sphaeralcea* (Malvaceae).

Although Michener (1981) treated *Dolichochile* as a genus apart from *Melitta*, we prefer to regard it as a subgenus within *Melitta*. In our view, the very numerous character states shared between the two (all discussed by Michener) outweigh the few apomorphies that characterize *Dolichochile*, all of which are modifications of the female mouthparts that are presumably related to foraging behavior. We believe that the structural distinctiveness of *Dolichochile* is insufficient to warrant separate ge-
neric status. Michener admitted that recognition of Dolichochile as a genus rendered Melitta paraphyletic. Like Michener, we are not bothered by paraphyletic genera when there is a practical reason for their recognition. But Dolichochile, with but a single species, does not, in our view, represent a justifiable case for such recognition. We are in agreement with Michener et al. (1994) in treating Dolichochile as a subgenus of Melitta.

KEY TO SPECIES OF MELITTA

1 Maxillary palpus six-segmented; female mandible shorter than eye length and with subapical tooth; labrum with wedge-shaped, slightly depressed, median impunctate area partially dividing smooth area (subg. Melitta)

2

Figures 16–19. Male genitalia, ventral view of Melitta melittoides (16), M. californica (17), M. eickworti (18), and M. americana (19). Figures 16, 17, and 19 by Ruth Ann DeNicola.
- Maxillary palpus five-segmented; female mandible slightly longer than eye, distal half a long, flattened, pointed blade, with two small teeth on inner margin; labrum uniformly convex and impunctate except near apical margin (subg. Dolichochile) ... melitoides (Viereck)

2(1) Male, antenna 13-segmented and sternum 8 with disk-shaped pygidium-like process visible at apex of metastoma .....
- Female, antenna 12-segmented and sternum 8 not visible, but tergum 6 with triangular pygidial plate ..

3(2) Distal margin of metasomal sternum 6 broadly concave (Figs. 1–3); pygidium-like apex of sternum 8 smooth and shiny; with head in full frontal view, distance from lateral ocellus to upper head margin a little greater than diameter of anterior ocellus ..
- Distal margin of metasomal sternum 6 straight or convex (Fig. 5); pygidium-like apex of sternum 8 dull and conspicuously roughened; with head in full frontal view, distance from lateral ocellus to upper head margin less than diameter of anterior ocellus . californica Viereck

4(3) Apical disc of sternum 8 with longitudinal median impression, disc convex on either side; disc of metasomal terga 2–4 subcontinuously to densely punctate ... americana F. Smith
- Apical disc of sternum 8 flat to concave, without median impressed line; discs of metasomal terga 2–4 sparsely punctate .. eickworti, new species

5(2) Punctures on upper two-thirds of clypeus shallow and indistinct, interspaces dull and tessellate, some exceeding one puncture diameter; inner eye margins and vertex without blackish pilosity; pale hairs of head and mesosoma more or less fulvous ..
- Punctures on upper two-thirds of clypeus deep and distinct, mostly subcontinuously, interspaces smooth; inner eye margins and vertex with conspicuous blackish pilosity; hairs of head and mesosoma definitely whitish . californica Viereck

6(5) Punctation of discs of metasomal terga 2–4 subcontinuously to dense americana F. Smith
- Punctation of discs of metasomal terga 2–4 sparse to scattered ... eickworti, new species

Melitta (Melitta) americana (F. Smith)

Figures 1, 2, 9, 13, 19

Cilissa americana F. Smith, 1853:123; ə.
Melitta americana: Cockerell, 1906:5–6; ə. Mitchell, 1960:522–524; ə ə.
Melitta americaniformis Viereck, 1909:50; ə.

This species of the eastern United States ranges from Massachusetts to Florida and Mississippi and flies from April to July. Mitchell (1960) recorded M. americana as a visitor to flowers of Polycodium and Rubus, and Michener (1947) found it on Gay-lussacia dumosa in southern Mississippi.

In addition to the types of C. americana (BMNH) and M. americaniformis (USNM), we have examined the following specimens of M. americana:

FLORIDA, Alachua Co.: 1 ə, Austin Carey Memorial Forest, 31 Apr. 1975 (G.B. Fairchild; LACM); 1 ə, same locality, 1–2 May 1975 (G.B. Fairchild; LACM), Franklin Co.: 1 ə, McIntyre, 16 Apr. 1982 (L.L. Pechuman; CORN). Jackson Co.: 1 ə, Florida Caverns State Park, 22 Apr. 1972 (H. Greenbaum; SEMC), Malaise trap. Lake Co.: 1 ə, Alexander Spring Camp, Ocala National Forest, 31 Mar. 1974 (G.C. Eickwort; CORN), Suwannee Co.: 4 ə, 3 ə, Suwannee River State Park, 12–25 Apr. 1977 (J.R. Wiley; LACM, USNM), Waukulla Co.: 2 ə, Sophoppy, 2–3 Apr. 1981 (L.L. Pechuman; CORN), GEORGIA, Richmond Co.: 1 ə, Fort Gordon, 13 Apr. 1958 (R.R. Snelling; LACM), on Vaccinium; 2 ə, same locality and collector, 8 May 1958, on Vaccinium; 1 ə, same locality and collector, 30 May 1958, MASSACHUSETTS, Barnstable Co.: 11 ə, Eastham, 27 June 1908 (C.W. Johnson; USNM), MISSIPPI, Forrest Co.: 1 ə, Flattiesburg, 16 Apr. 1944 (C.D. Michener; SEMC), NEW JERSEY, Burlington Co.: 1 ə, Browns Mills, 10 June 1921 (AMNH); 1 ə, Browns Mills, 29 June 1921 (AMNH), Ocean Co.: 1 ə, Lakehurst, 19 May (AMNH), NORTH CAROLINA, Harnett Co.: 1 ə, (no further locality), 10 May 1933 (T.B. Mitchell; BMNH), Onslow Co.: 1 ə, Holly Shelter, 18 May 1950 (T.B. Mitchell; BBSL), Sampson Co.: 1 ə, Ivanhoe, 12 Apr. 1945 (T.B. Mitchell; BBSL).

Melitta (Melitta) californica Viereck

Figures 5, 6, 11, 15, 17

Melitta (Brachycephalapis) californica Viereck, 1909:47; ə.
Melitta wilmatiae Cockerell, 1937:3; ə.
Melitta maritima Cockerell, 1941:344; ə.
Melitta californica: Michener, 1981:120.

Michener (1981), after examining relevant type specimens, established the preceding synonymy. He also cited data for the few known specimens of this species, presently known only from desert regions of southwestern Arizona, southeastern California, and Lower California, México. The several specimens collected by G.E. Bohart at Constitución, Baja California Sur, possess more numerous blackish hairs, especially on the mesoscutum and apical metasomal terga, than do specimens from more northern localities. They are otherwise much like the specimens collected near San Felipe and in southern California. In addition to the records cited by Michener, we can add the following:

New records: MEXICO, BAJA CALIFORNIA, 3 ə, 3 mi S San Quintin, 8–12 Mar. 1960 (D.P. Gregory; UCB), on Lycium parishii; 1 ə, same, except on Encelia californica; 21 ə, 26 ə, San Felipe, 24–28 Mar. 1963 (G.I. and K.N. Stage; GIS, LACM), on Sphaeralcea oscuittii (20 ə, 26 ə) and Dalea megacarpa (1 ə); 1 ə, 3 mi N San Felipe, 25 Mar. 1964 (J.C. Hall; UCR); 1 ə, 22 km N Punta Prieta, 26 Mar. 1979 (E.M. Fisher; LACM), on Viscainoa geniculata, BAJA CALIFORNIA SUR, 1 ə, 3 ə, Constitución, 22 Feb. 1974 (G.E. Bohart; BBSL).
UNITED STATES, ARIZONA, Pinal Co.: 3 <$<, 10 km W Maricopa, 13 Mar. 1989 (R.L. Minckley and W.T. Wcislo; SEMC), on Sphaeralcea; 5 <$<, same, except 20 Mar. 1989; 1 <$<, same, except 21 Mar. 1989. CALIFORNIA, Imperial Co.: 1 <$<, Westmoreland, 6 Apr. 1949 (P.D. Hurd; UCBI); 1 9, 2 <$<, 3 mi NW Glumis, 4 Mar. 1972 (A.R. Hardy; BBS, LACM), on Sphaeralcea. Riverside Co.: 1 <$<, 23 mi W Blythe, 22 Mar. 1974 (F. Parker and R. Bitner; BBS). San Diego Co.: 1 <$<, Coronado, 15 May 1890 (F.E. Blaisdell; CAS); 2 <$<, Torrey Pines State Park, no date (A.R. Moldenke), on Coreopsis maritima.  

**Melitta (Melitta) eickworti**, new species  
Figures 3, 4, 10, 18  

**Melitta americana**; Cane et al., 1985:135-142.  

**DIAGNOSIS**  
This species most closely resembles *M. americana*; both sexes are separable by the much sparser punctation of the mesoscutum, scutellum, and basal metasomal terga, as noted in the key. From the other three North American species, *M. eickworti* is separable by the features noted in the key.  

**DESCRIPTION**  
**FEMALE.** **Measurements (mm).** Head width 2.9-3.3, head length 2.6-2.8, wing length 7.7-8.5, total length 10.5-12.1.  

**Structure and Punctation.** Head. 1.12-1.19 times as broad as long; inner eye margins slightly divergent below, upper interocular distance 0.86-0.93 times lower interocular distance; in frontal view, vertex margin strongly arched above ocelli, distance from ocelli to margin distinctly greater than diameter of anterior ocellus. Interocellar distance slightly greater than diameter of anterior ocellus; ocellocular distance about 2 times diameter of anterior ocellus. First flagellar segment about 2 times diameter of anterior ocellus. First flagellar segment distinctly longer than broad and about one-third longer than second segment, second segment distinctly broader than long.  

Basal two-thirds (approximately) of clypeus densely tessellate and slightly shiny between moderate punctures (about 0.05 mm diameter) that are mostly separated by about one puncture diameter or less, but with narrow, median, nearly impunctate line; apical one-third with broader impunctate area, median portion lightly tessellate and somewhat shiny, grading to smooth and shiny toward sides. Paraocular area shiny between fine (0.03 mm diameter) to moderate punctures that are mostly subcontiguous, but with irregular interspaces exceeding a puncture diameter. Frons densely tessellate and dull, punctures fine and obscure, mostly separated by one puncture diameter or less; side of face shinier and less sharply tessellate between fine close to sparse punctures; vertex with shiny, nearly impunctate area between ocelli and eyes, otherwise tessellate and slightly shiny between fine, mostly subcontiguous punctures; gena slightly shiny, densely tessellate between sparse, obscure, fine punctures.  

Mesosoma. Middle one-half or more of mesoscutum shiny and polished between moderate punctures separated by 1.0-2.5 puncture diameters, punctures becoming subcontiguous only anteriorly and laterally, where interspaces become more or less distinctly tessellate and dull. Scutellum shiny, with scattered fine punctures on anterior two-thirds; posterior one-third, and along midline nearly to base, subcontiguously to contiguously punctate with moderate punctures. Metepisternum dull and sharply tessellate between subcontiguous to contiguous moderate punctures. Metepisternum moderately shiny and less sharply tessellate, virtually impunctate. Side of propodeum anteriorly similar to metepisternum, becoming dull and subcontiguously punctate distad; basal area with irregular, widely spaced rugulae anteriorly, interspaces moderately shiny, remaining area distinctly tessellate and less shiny; disc slightly shiny, reticulate-punctate.  

Wings transparent, slightly brownish, darker beyond cells; stigma and veins light brown.  

Metasoma. Tergum 1, anterior to marginal impecticate band with a narrow zone of sparse, moderate, piligerous punctures, basal of which is smooth and shiny between widely scattered fine punctures; disc of tergum 2 smooth and shiny between sparse to scattered minute to fine punctures; tergum 3 similar to second, but some punctures moderate in size; tergum 4 smooth and shiny between scattered, moderate punctures; tergum 5 slightly shiny and distinctly tessellate between subcontiguous to close, moderate punctures.  

**Pilosity.** Mostly whitish, somewhat yellowish on sides and apical margin of clypeus and on lower gena; yellowish red on mandible; hairs of mesoscutum mostly pale but with sparse blackish hairs; those in center entirely blackish, but no dark hairs between parapsidal line and margin; scutellum largely pale pubescent, but a few blackish hairs in center. Metasomal tergum 1 without definite preapical band of pale hairs; terga 2-4 with narrow apical bands of appressed, white, plumose hairs that are weak or interrupted at middle; discal hairs short, simple, and pale on terga 2-4, long, plumose, and blackish on terga 5 and 6.  

**Color.** Head and body blackish, legs dark brownish; flagellum dark reddish brown beneath; tegula clear yellowish.  

**MALE.** **Measurements (mm).** Head width 2.5-2.9, head length 2.4-2.7, wing length 7.0-8.1.  

**Structure and Punctation.** Head. 1.03-1.11 times as long as broad; inner eye margins slightly convergent below, upper interocular distance 1.03-1.06 times lower interocular distance; in frontal view, vertex margin strongly elevated behind ocelli, distance from ocelli to margin distinctly greater than diameter of anterior ocellus. Interocellar and ocellocular distances about 2 times diameter of anterior ocellus. First flagellar segment about 0.75 times
length of second, second about 0.80 times length of third.

Clypeus finely rugosopunctate but with shiny, narrow, impunctate median line and transverse impunctate preapical band. Supracypeal area subcon- tinuously punctate, grading to slightly larger, dense punctures on frons; punctures of paraocular area mostly subcontiguous, interspaces shiny; preoccipital area similar but interspaces lightly tessellate; vertex, adjacent to lateral ocelli, with large, smooth, shiny, impunctate area.

Mesosoma. Similar to that of female, but mesoscutum almost entirely smooth and shiny, without anterior and lateral zones of subcontiguous punctures.

Wings as described for female.

Metasoma. Similar to that of female. Hidden sterna and genitalia similar to those of M. americana but differing as illustrated (Figs. 3, 4, 10, 18), but apical disc of sternum 8 concave and with distinct longitudinal median impression.

Pilosity. Similar to that of female, but clypeus beneath dense prostrate plumose hairs and face generally with hairs denser and longer; vertex and gena with some long, fuscous hairs among the pale hairs; center of mesoscutum with few or no fuscous hairs; hair bands of metasomal terga 2-4 very weak and interrupted in middle; terga 5-7 largely dark pubescent, without pale hair bands, but with some pale hairs at sides.

Color. Similar to that of female.

**TYPE MATERIAL**

Holotype ♀ from South Hill Preserve, vicinity of Ithaca, Tompkins County, New York, 10 June 1981 (G.C. Eickwort), on Vaccinium stramineum. Paratypes: 8 ♀♀, 4 ♂♂, Ithaca vicinity (South Hill Preserve, South Hill Swamp, Dawes Hill), 9—19 June (G.C. Eickwort), on V. stramineum; 10 ♀♀, 5 ♂♂, Dawes Hill, 2 mi SSW West Danby, Tompkins Co., New York, 11—15 June (G.C. Eickwort), on V. stramineum; 3 ♀♀, 6 ♂♂, Hector Land Use Area, near Reynoldsvalley, Schuyler Co., New York, 12—30 June (G.C. Eickwort), on V. stramineum. Holotype and most paratypes in CORN; 2 ♀♀, 2 ♂♂ paratypes in LACM.

**ADDITIONAL MATERIAL**

In addition to the paratypes listed above, we have seen the following nonparatypic material of M. eickworti.

GEORGIA, County unknown: 1 ♂, Indian Grave Gap, 21 May 1952 (P.W. Fattig; USNM). MARYLAND, Montgomery Co.: 13 ♀♀, 10 ♂♂, Plummers Island, 26 May 1972 (P.D. Hurd, Jr.; USNM), on V. stramineum. NEW JERSEY, Morris Co.: 1 ♀, Southeast, 26 May 1910 (AMNH). NORTH CAROLINA, Buncombe Co.: 1 ♂, Black Mountains, 9 May 1927 (J.C. Crawford; USNM); 1 ♀, same locality and collector, 17 May 1927, on V. stramineum; 1 ♂, Black Mountain, 30 May 1911 (AMNH), on Polyodium; 1 ♂, same, except 4 June 1928; 3 ♂♂, same locality, “1911 Expedition” (AMNH). County unknown: 1 ♀, Mt. Greybeard, 23 May (N. Banks; USNM). TENNESSEE, Morgan Co.: 1 ♂, Burrville, 29 May 1959 (B. Benesh; CORN).

**ETYMOLOGY**

This new species is named for, and dedicated to, the late George C. Eickwort, so tragically killed in an automobile accident in Jamaica on 11 July 1994; George had originally recognized the possible novelty of this species and called it to our attention.

**DISCUSSION**

The available specimens show little variation beyond that noted in the preceding description. Both sexes of the series collected by Hurd at Plummers Island have the mesosomal pubescence yellower than do the types, and the females have more blackish hairs on the disc of the mesoscutum.

There is no doubt that this species has been confused with M. americana in the past. In general, M. americana is a more southern species, uncommonly encountered north of North Carolina. In the northern United States, M. americana is largely replaced by M. eickworti, which ranges south to Mississippi through the southern mountains.

Cane et al. (1985), in their description of the pollination ecology of Vaccinium stramineum, cited this species as M. americana.

Melitta (Dolichochile) melittoides Viereck

Figures 7, 8, 12, 14, 16

Dolichochile melittoides Viereck, 1909:49; ♀, Cock- erell, 1911:672; ♀. Michener, 1981:41—42; ♀ ♀. Melitta (Dolichochile) melittoides: Michener, 1951: 1134. Hurd, 1979:1979.

Melitta melittoides: Mitchell, 1960:524—525; ♀ ♀.

This is another species of the eastern United States, ranging from New Hampshire south to Tennessee and Georgia. Specimens have been recorded (Mitchell, 1960) from flowers of Polycodium, Xolismia, and Zenobia, all Ericaceae. Although most records are from May and June, M. melittoides has been taken as late as September in Virginia according to Mitchell (1960).

Genus Macropis Klug

Megilla Fabricius, 1804:328. Type-species: Megilla labiata Fabricius, 1805; designated by Westwood, 1840. Suppressed by International Commission on Zoological Nomenclature, Opinion 1383, 1986. Also: Apis acervorum Linne, 1758, designated by Richards, 1935. Macropis Klug, 1809:107, no. 16. Type-species: Megilla labiata Fabricius, 1805. Monobasic.

The International Commission on Zoological Nomenclature, Opinion 1383 (1986), designated Apis pilipes Fabricius, 1775, an anthophorine bee, as the
The characters cited in the key to genera of Melittinae will easily separate Macropis from others in this subfamily. This is a Holarctic genus but much more diverse in the Palearctic Region, where there are three subgenera recognized (Michener, 1981). The few North American representatives all belong to the nominate subgenus.

The 11 known species of Macropis are obligogoles on the genus *Lysimachia* (Primulaceae). The female bees gather pollen and the floral oils of *Lysimachia* when provisioning their nest cells. The floral oil of *Lysimachia* is secreted by trichomous elaiophores located basad on the floral petals and stamens. The oil is used not only in nest provisioning but also in lining the cells (Cane et al., 1983).

**KEY TO NEARCTIC SPECIES OF MACROPIS**

1. Male, antenna 13-segmented and face yellow-maculate
   - Female, antenna 12-segmented and face wholly dark
   2(1) Metasomal dorsum dull, punctures coarse and distinct, separated by less than a puncture diameter
   - Metasomal dorsum polished, with scattered minute punctures
   3(2) Outer surface of metabasitarsus polished between sparse piliferous punctures
   "steironematis" Robertson
   - Outer surface of metabasitarsus dull and minutely roughened between punctures
   "opaca" Michener
   4(2) Face mostly yellow below level of antennal sockets (i.e. conspicuous supraclavical and lateral face marks are present); metatibia with one or two distal tooth-like processes on inner surface at base of apical spurs and one or both apical spurs reduced (Figs. 28, 30) 5
   - Supraclavical and lateral face marks reduced or absent; metatibia without distal tooth-like processes on inner surface and both apical spurs normally developed (Fig. 29) "nuda" (Provancher)
   5(4) Metatibia with two tooth-like distal processes and both spurs reduced (Fig. 28); labrum dark "ciliata" Patton
   - Metatibia with one tooth-like distal process and only outer spur reduced (Fig. 30); labrum pale "patellata" Patton
   6(1) Metasomal terga polished between scattered, minute punctures 7
   - Metasomal terga dull, punctures deep and distinct, separated by less than a puncture diameter "steironematis" Robertson
   7(6) Disc of clypeus shiny between distinctly separated punctures, some interspaces as large as, or larger than, one puncture diameter; posterior face of propodeum mostly smooth and shiny, with sparse, obscure, fine punctures; process of labrum high, conspicuous, convex, and strongly carinate 8
   - Disc of clypeus uniformly subcontiguously punctate and only moderately shiny; posterior face of propodeum, especially dorsocephalad, with punctures deep and distinct, mostly separated by one puncture diameter or less; process of labrum low, inconspicuous, and weakly carinate "patellata" Patton

8(7) Hairs on outer face of meso- and metabasitarsus dark brownish; anterior rim of propodeal triangle roughened and with fine, oblique rugules "nuda" (Provancher)
- Hairs on outer face of meso- and metabasitarsus (except apical brush) whitish; anterior rim of propodeal triangle smooth and shiny, at least across middle one-third "ciliata" Patton

**Macropis ciliata** Patton

Figures 20, 24, 28

*Macropis ciliata* Patton, 1880:31; *s. Michener, 1938: 135; 9. Mitchell, 1960:526; 9. Mitchell, 1960:526; 9. Mitchell, 1960:526; 9.

**NEW SYNONYMY.**

Provancher (1888) described *M. longilingua* from a female specimen. This specimen is apparently lost; it has never been identified among the specimens in Provancher's collection. The description is inadequate, and there is no certainty that it is based on a *Macropis*. If it is, in fact, a *Macropis*, then it could be either *M. ciliata* or *M. patellata*. Because both species are present in eastern Canada, there is no way to determine which of the two species Provancher may have had before him or if, in fact, his specimen was correctly assigned to *Macropis*.

To settle the status of Provancher's name, we have chosen a specimen of *M. ciliata* and designated it to be the neotype of *M. longilingua*, thus rendering Provancher's name a synonym of the older Patton name. The neotype female and two neoparatype females of *M. longilingua* are from Flatbush, New York, collected 20 June 1896 by J.L. Zabriskie; the neotype and one neoparatype are deposited in the collections of the AMNH, and one neoparatype is deposited in LACM.

Males of this species are easily recognized by the short metatibial spurs (Fig. 28) and the wholly asestose genitalic structures (Figs. 20, 24). Females are most similar to those of *M. nuda* because in both species the posterior face of the propodeum is mostly smooth and shiny and both have similar labral tubercles. However, females of *M. ciliata* have the hairs on the outer face of the metabasitarsus (except...
the distal brush) whitish rather than dark brown to blackish.

The recorded distribution of this species encompasses an area from Wisconsin to Québec and Maine, south to Georgia. According to Mitchell (1960), it has been taken on flowers of Apocynum, Houstonia, and Hydrangea. In Maryland we found M. ciliata at flowers of Rhus typhina and Lysimachia quadrifolia; females were observed collecting pollen only from the latter plant species. We
have also seen a female from Black Mountain, North Carolina, collected on Ceanothus americanus.

**Macropis nuda** (Provancher)

Figures 21, 25, 29

_Eucera nuda_ Provancher, 1882:174; δ. 

**Macropis ciliata**: Provancher, 1888:320; δ. MISIDENTIFICATION.

**Macropis (Macropis) morsei** Robertson, 1897:338; δ.

**Macropis clypeata** Swenk, 1907:293; δ. NEW SYNONYM.

**Macropis morsei** (sic!): Michener, 1938:135; δ. 

**Macropis nuda**: Mitchell, 1960:527; δ. Rozen and Jacobsen, 1980:1-11. Cane et al., 1983:257-264.

The type of _M. clypeata_ has been examined and found to be inseparable from males of _M. nuda_ as we understand the species.

Females of _M. nuda_ are easily recognized by the dark hairs on the meso- and metabasitarsi and the smooth, sparsely punctate posterior face of the propodeum. Dark-haired basitarsi are characteristic of _M. steironematis_ also, but in that species the propodeal disc is closely and sharply punctate and the metasomal terga are densely and sharply punctate. Males of _M. nuda_ have yellow face marks largely confined to the clypeus. The labrum is dark, and the mandible usually is without a basal yellow spot; a lateral face mark is sometimes present adjacent to the clypeus, but it never fills the area between the eye and the clypeus. An irregular, small supraclypeal spot may be present but is usually lacking. Males of the other species have the face largely yellow below the level of the antennal sockets, with large supraclypeal marks and the side of the face yellow between the clypeus and the inner eye margin. The male gonostylus is distinctive in the presence of numerous short setae on the outer face (Figs. 21, 25).

The nesting biology of _M. nuda_ was described by Rozen and Jacobson (1980), based on observations made in the Edmund Niles Huyck Reserve, Albany County, New York. They observed several nest concentrations along a roadway embankment. “Nest entrances may be hidden by objects on the ground, and the surface of the nesting site tends to be partly covered with moss or other low vegetation. . . . Nests are shallow with main tunnels traveling considerably laterally.” Cells were usually placed in linear series of two, but series of three or four cells were sometimes found.

Females were taking pollen from a strand of _Lysimachia ciliata_, located about 25 m from the nesting area. Rozen and Jacobsen’s observations were mostly made between 13 and 29 July; at the latter time, no nesting activity was seen, although a few _M. nuda_ were still visiting flowers. Larvae and cocoons were described and figured.

Cane et al. (1983) reported their observations on male behavior, foraging, grooming, and nest structure and provisioning by females, at two sites in New York State; one of these sites is that reported previously by Rozen and Jacobsen (1980). The summary of the study by Cane et al. (1983) is taken from their abstract: the first demonstrated use of floral oils in nest linings and nest provisions is reported for _M. nuda_. “The floral oil chemistry is closely analogous to the cell-lining lipids secreted from the Dufour’s glands of many other bee genera [but not by _Macropis_, in which the glands are poorly developed]. Details of oil and pollen collection and transfer behaviors at _Lysimachia ciliata_ are compared with those of other bee taxa. The simultaneous pollen and oil collection behaviors are reminiscent of _Melitta_ ‘buzz pollination’ (sensu Buchmann, 1978).”

The range of _M. nuda_ extends from southern Canada, where it is transcontinental, through the northeastern United States, at least as far south as New Jersey, and west to Montana, Colorado, and Idaho (Moser Camp Ground, Cub River Canyon, Franklin Co., 30 June to 25 July, on _Lysimachia thyrsiflora_; Mapleton, Franklin Co., 15 July 1978; all BBSL). Mitchell (1960) recorded floral visits to species of _Apocynum_, _Geranium_, _Rubus_, and _Vaccinium_. As already noted, Rozen and Jacobsen found _Lysimachia ciliata_ to be the pollen source at their site. To these floral records we can add _Aralia hispida_, _Lactuca pulchella_, and _Ceanothus americanus_.

**Macropis patellata** Patton

Figures 22, 26, 30

**Macropis patellata** Patton, 1880:33; δ. Michener, 1938:135; δ. Mitchell, 1960:528-529; δ.

Males of _M. patellata_ are easily separated from those of other American species because only one metatibial spur is greatly reduced and partially hidden by a broadly tooth-like process of the tibial apex (Fig. 30). The male genitalia (Figs. 22, 26) are also distinctive. Females are less easily characterized, though the subcontiguously punctate clypeal disc will distinguish this species from _M. nuda_ and _M. ciliata_. The clypeal punctuation is similar in _M. steironematis_, but in that species the metasomal terga are sharply and densely punctate, rather than smooth and shiny.

**Macropis patellata** ranges from Vermont to North Carolina, west to Nebraska and Iowa. The only floral records we have seen are from _Lysimachia (≡ Steironema on label) ciliata_ in Maryland.

**Macropis steironematis**

Robertson

Figures 23, 27

**Macropis steironematis** Robertson, 1891:63; δ. Mitchell, 1960:529-530; δ.
This is one of the less frequently collected species, but certainly the most easily recognized. Both sexes may be immediately recognized by the sharply and subcontiguously punctate metasoma; in all other North American species, the metasoma is polished, with only very scattered, obscure, minute punctures. Males are further distinguished by the characteristic profile of the gonostylius and the presence of a number of flattened, blade-like setae on the outer face of the penis valve (Figs. 23, 27).

Mitchell (1960) gave the range as “Iowa and Missouri, east to Virginia, North Carolina and Georgia.” We have seen specimens from southern Illinois, Nebraska, and Kansas. Recorded floral visits include Apocynum cannabinum, Ceanothus americanus, Lysimachia (= Steironema) sp., Melilotus alba, and Seriocarpus lineolius (Mitchell, 1960).

### Macropis steironematis opaca

Michener, 1938:134; 6.

This form was described from a single male collected at “Morgan's Ferry, Yakima River, Washington, July 1, 1882.” The type is in the Museum of Comparative Zoology and is the only known specimen. The status of this form cannot be determined in the absence of additional material, and we have elected to accord it the status originally proposed by Michener; the differences between this form and the nominate form are as those cited by Michener in the original description and noted earlier in the key.

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