

TERMINALIA OF NORTH AMERICAN SPECIES OF GROUP II
MEGASELIA (APHIOCHAETA), AND DESCRIPTIONS OF
FOUR NEW SPECIES (DIPTERA: PHORIDAE)

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Abstract.—In the large genus *Megaselia*, the male epandrium and hypandrium, and the female tergum and sternum 6 provide excellent distinguishing characters. This work presents a diagnosis and figures of the male and female terminalia of the following species of the subgenus *Aphiochaeta*: *Megaselia aequalis* (Wood), *M. amplicornis* Borgmeier, *M. atratula* Borgmeier, *M. basispinata* (Lundbeck), *M. carola*, new species, *M. cirripes* Borgmeier, *M. diplothrix* Borgmeier, *M. ectopia* Borgmeier, *M. fungivora* (Wood), *M. lanata*, new species, *M. meconicera* (Speiser), *M. monticola* (Malloch), *M. perdita* (Malloch), *M. pilicrus* Borgmeier, *M. pleuralis* (Wood), *M. rotunda*, new species, and *M. ungulata*, new species. Four new synonymies are proposed.

Although the North American *Megaselia* species have been revised by Borgmeier (1964, 1966), there is still difficulty in accurately determining some of the species. Borgmeier provided descriptions and keys for about 260 *Megaselia* species, but detailed descriptions and figures of the external terminalia of the male and female were not included. Robinson (1978) provided a brief diagnosis and detailed figures of male (epandrium and hypandrium) and female (tergum and sternum 6) terminalia of *Megaselia* species in Borgmeier's (1964) Group I.

The purpose of this work is to provide a brief diagnosis and the first detailed figures of the male and female terminalia of the *Megaselia* species in Group II of Borgmeier. Four new species are described: *Megaselia* (*Aphiochaeta*) *carola*, *M. (A.) lanata*, *M. (A.) rotunda*, and *M. (A.) ungulata*.

MATERIALS AND METHODS

This work is based on the study of 700 Nearctic specimens of Group II *Megaselia*. Specimens were seen from most states and provinces of the United States and Canada, but not from Greenland and Mexico. I have

examined, or received information on the holotypes of all the Nearctic species of Group II. Specimens of the type-series of Holarctic species were not available for examination at this time. Information on original descriptions and synonymies can be found in Borgmeier (1964).

The methods used for removing and preparing terminalia for study were similar to those used by other workers. Terminalia were permanently stored in 4×11 mm plastic vials, partially filled with glycerine and capped with rubber stoppers, and placed on the same pin as the insect.

EXTERNAL TERMINALIA OF *MEGASELIA*

A brief description and illustration of the male terminalia was presented by Robinson (1978). A description and illustration of the female terminalia is presented here.

The oviscapt of the female (Fig. 1) consists of an elongate ovipositor that telescopes within segment 6. The ovipositor is entirely membranous, never forming a horny, nonretractile stylet. Terga and sterna 7 and 8 are reduced and sometimes absent. The cerci are distinct and bear numerous setae.

GROUP II *MEGASELIA* (*APHIOCHAETA*)

Group II contains 17 described species occurring in the Nearctic Region, including four described as new in this paper. The species in this group can be distinguished by the character combination: Scutellum with 2 bristles; mesanepisternum with 1 or more bristles; and costa 44–55% of wing length.

Females are known for seven Group II species. Biological information is available for a few of the Nearctic species, including *M. aequalis* (Wood), *M. fungivora* (Wood), *M. meconicera* (Speiser), *M. perdita* (Malloch), and *M. pleuralis* (Wood).

I examined the holotype of *M. franconiensis* (Malloch) and noted that the costa is 42% of the wing length. In the male of *M. ventralis* Borgmeier the costa is 41% of the wing length. Both these species are best placed in Group III.

Megaselia (*Aphiochaeta*) *aequalis* (Wood)

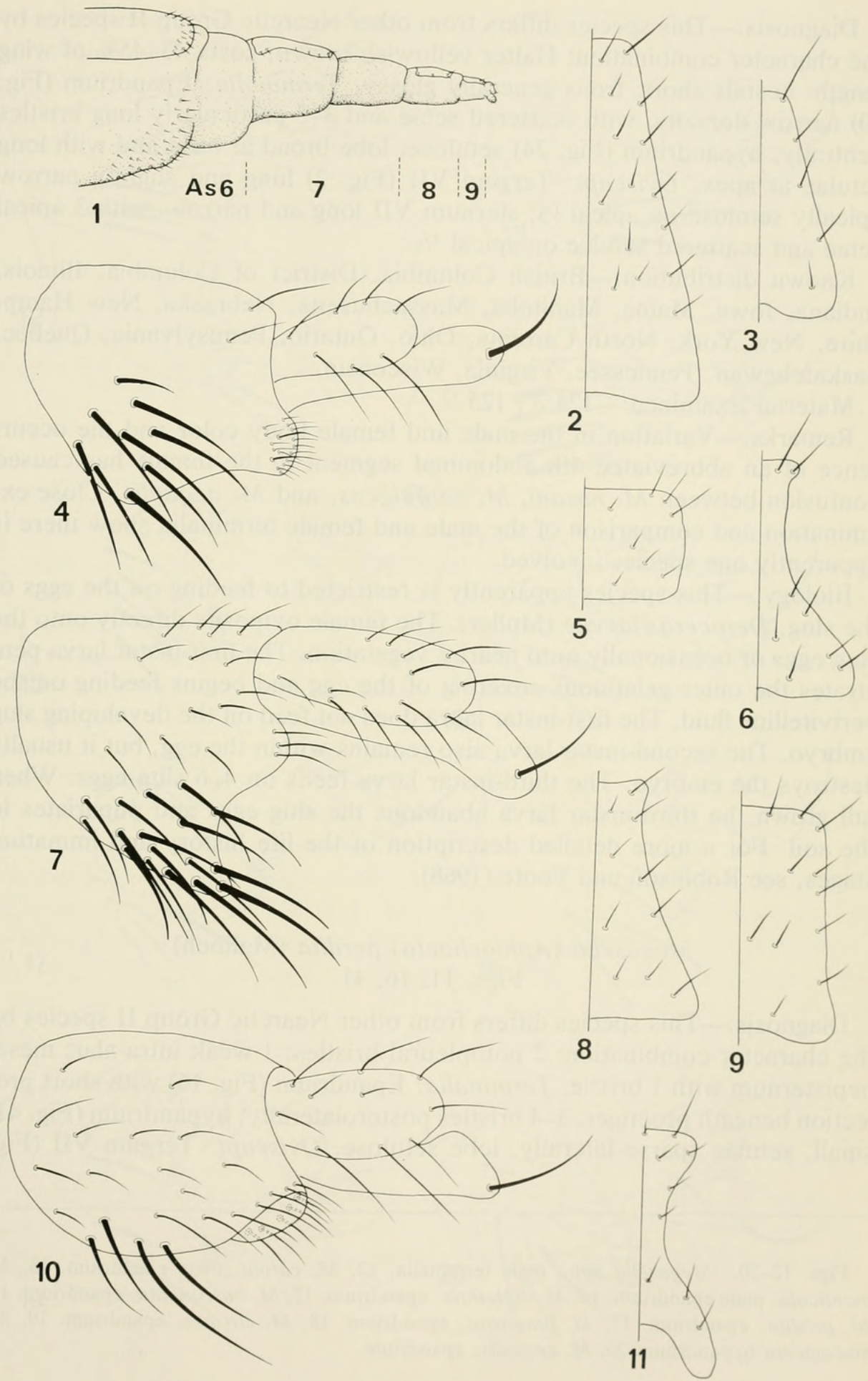
Figs. 2, 20, 24

Aphiochaeta nasoni Malloch, 1914: 58. NEW SYNONYMY.

Megaselia (*Aphiochaeta*) *confulgens* Borgmeier, 1964: 203–204. NEW SYNONYMY.

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Figs. 1–11. *Megaselia* spp., terminalia. 1, *Megaselia* sp., female terminalia. 2, *M. aequalis*, female tergum 7. 3, *M. meconicera*. 4, *M. unguolata*, male epandrium. 5, *M. unguolata*, female tergum 7. 6, *M. fungivora*, female tergum 7. 7, *M. atratula*, male epandrium. 8, *M. pleuralis*, female tergum 7. 9, *M. pilicrus*, female tergum 7. 10, *M. amplicornis*, male epandrium. 11, *M. perdita*, female tergum 7. As 6 = abdominal segment 6; 7 = abdominal segment 7; 8 = abdominal segment 8; 9 = abdominal segment 9.



Diagnosis.—This species differs from other Nearctic Group II species by the character combination: Halter yellowish brown; costa 43–45% of wing length; costals short; frons generally glossy. *Terminalia*: Epandrium (Fig. 20) narrow dorsally, with scattered setae and 3–5 particularly long bristles ventrally; hypandrium (Fig. 24) setulose, lobe broad at base and with long setulae at apex. *Oviscapt*: Tergum VII (Fig. 2) long and slightly narrow apically setulose on apical $\frac{1}{3}$; sternum VII long and narrow, with 3 apical setae and scattered setulae on apical $\frac{1}{5}$.

Known distribution.—British Columbia, District of Columbia, Illinois, Indiana, Iowa, Maine, Manitoba, Massachusetts, Nebraska, New Hampshire, New York, North Carolina, Ohio, Ontario, Pennsylvania, Quebec, Saskatchewan, Tennessee, Virginia, Wisconsin.

Material Examined.—124 ♂, 125 ♀.

Remarks.—Variation in the male and female body color and the occurrence of an abbreviated 4th abdominal segment in the female has caused confusion between *M. nasoni*, *M. confulgens*, and *M. aequalis*. Close examination and comparison of the male and female terminalia show there is apparently one species involved.

Biology.—This species apparently is restricted to feeding on the eggs of the slug, *Deroceras laevae* (Muller). The female oviposits directly onto the slug eggs or occasionally onto nearby vegetation. The first-instar larva penetrates the outer gelatinous covering of the egg and begins feeding on the perivitelline fluid. The first-instar larva does not feed on the developing slug embryo. The second-instar larva also remains within the egg, but it usually destroys the embryo. The third-instar larva feeds on 4–6 slug eggs. When full grown the third-instar larva abandons the slug eggs and pupariates in the soil. For a more detailed description of the life history and immature stages, see Robinson and Foote (1968).

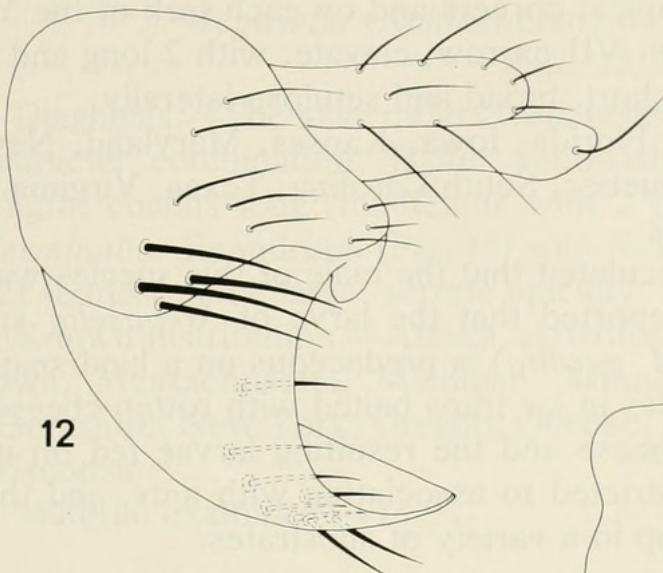
Megaselia (Aphiochaeta) perdita (Malloch)

Figs. 11, 16, 41

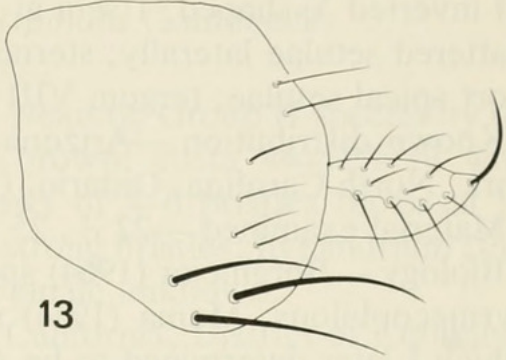
Diagnosis.—This species differs from other Nearctic Group II species by the character combination: 2 notopleural bristles; 1 weak intra-alar; mesanepisternum with 1 bristle. *Terminalia*: Epandrium (Fig. 16) with short projection beneath proctiger, 3–4 bristles posterolaterally; hypandrium (Fig. 41) small, setulae sparse laterally, lobe setulose. *Oviscapt*: Tergum VII (Fig.

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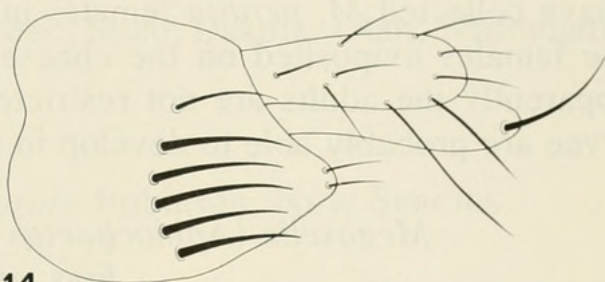
Figs. 12–20. *Megaselia* spp., male terminalia. 12, *M. carola*, male epandrium. 13, *M. monticola*, male epandrium. 14, *M. diplothrix*, epandrium. 15, *M. basispinata*, epandrium. 16, *M. perdita*, epandrium. 17, *M. fungivora*, epandrium. 18, *M. cirripes*, epandrium. 19, *M. meconicera* hypandrium. 20, *M. aequalis*, epandrium.



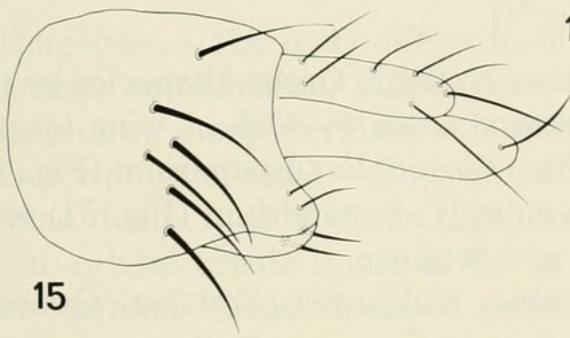
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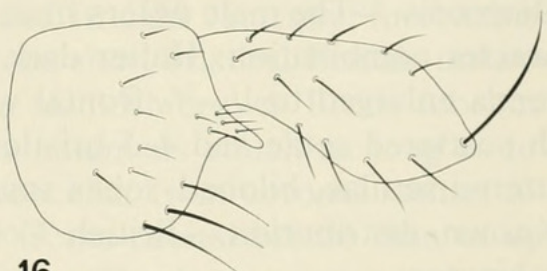
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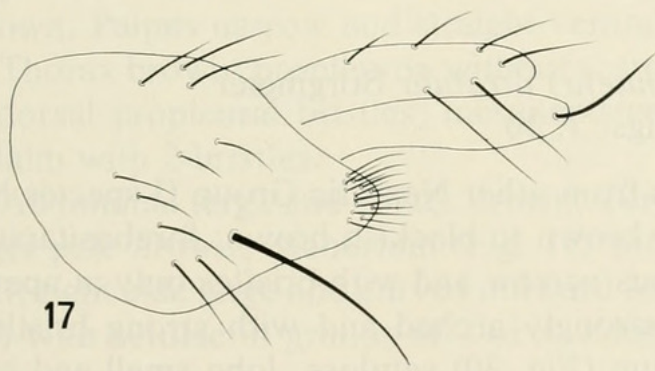
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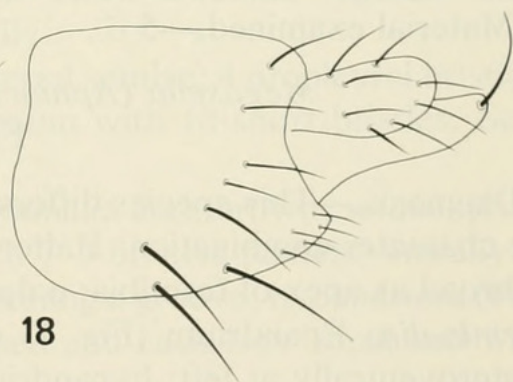
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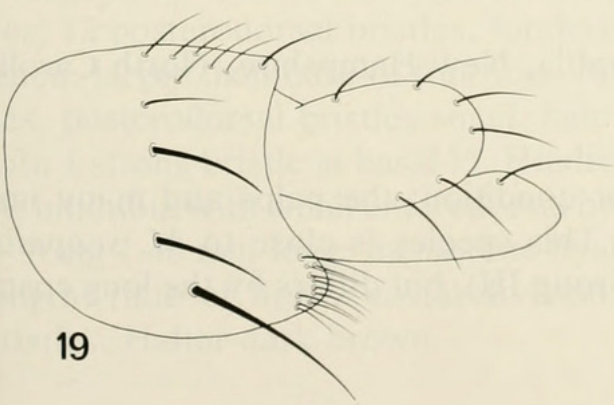
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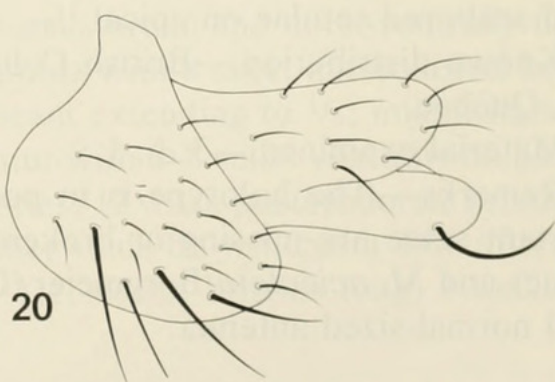
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19



20

11) inverted Y-shaped, 1 seta at apical corners and on each fork of the Y, scattered setulae laterally; sternum VII narrow, clavate, with 2 long and 2 short spical setulae; tergum VIII short, broad and setulose laterally.

Known distribution.—Arizona, Florida, Iowa, Kansas, Maryland, New York, North Carolina, Ontario, Quebec, South Carolina, Texas, Virginia.

Material examined.—22 ♂, 25 ♀.

Biology.—Borgmeier (1964) speculated that the male of this species was myrmecophilous. Muma (1954) reported that the larva of *Megaselia* sp. (which I later determined to be *M. perdit*a) is predaceous on a land snail. I have collected *M. perdit*a females in jar traps baited with rotten cheese. The females oviposited on the cheese and the resulting larvae fed on it. Apparently the adults are not restricted to associating with ants, and the larvae are probably able to develop in a variety of substrates.

Megaselia (Aphiochaeta) amplicornis Borgmeier

Figs. 10, 31

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Halter dark brown; costa 46–47% of wing length; antenna enlarged to $\frac{1}{5}$ – $\frac{1}{6}$ frontal width. *Terminalia*: Epandrium (Fig. 10) with scattered setae and 4–5 bristles ventrally; hypandrium (Fig. 31) with scattered setulae, bilobed, lobes small and setulose.

Known distribution.—British Columbia, California, Ontario, Quebec, Washington.

Material examined.—5 ♂.

Megaselia (Aphiochaeta) atratula Borgmeier

Figs. 7, 30

Diagnosis.—This species differs from other Nearctic Group II species by the character combination: Halter brown to blackish brown; forebasitarsus as broad as apex of foretibia; palpus narrow and with bristles only at apex. *Terminalia*: Epandrium (Fig. 7) strongly arched and with strong bristles posteroventrally at left; hypandrium (Fig. 30) setulose, lobe small and setulose. *Oviscapt*: Tergum VII broad, slightly arched basally, 6 apical setulae and scattered setulae on apical $\frac{1}{6}$.

Known distribution.—British Columbia, New Hampshire, North Carolina, Quebec.

Material examined.—3 ♂, 1 ♀.

Remarks.—The holotype is in poor condition; the palps and many important setae are missing or broken. This species is close to *M. scopalis* Brues and *M. aciculata* Borgmeier (Group III), but differs by the long costa and normal-sized antenna.

Megaselia (Aphiochaeta) basispinata (Lundbeck)

Figs. 15, 32

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Halter yellowish brown; costa 44–52% of wing length; costals long; hindfemur with 2 rows of 4–6 bristles on basal $\frac{1}{3}$. *Terminalia*: Epandrium (Fig. 15) with 6–8 strong bristles; hypandrium (Fig. 32) setulose, lobe large, serrate apically. Female unknown.

Known distribution.—Alaska, Arizona, California, District of Columbia, Iowa, Massachusetts, Michigan, Minnesota, Missouri, Montana, New Hampshire, New York, Oregon, Quebec, South Dakota, Utah, Washington, Wisconsin.

Material examined.—32 ♂.

Megaselia (Aphiochaeta) carola Robinson, NEW SPECIES

Figs. 12, 29

Diagnosis.—The male differs from other Neartic Group II species by the character combination: Palpus narrow and straight ventrally; forebasitarsus enlarged; mesanepisternum with numerous short bristles. Female unknown.

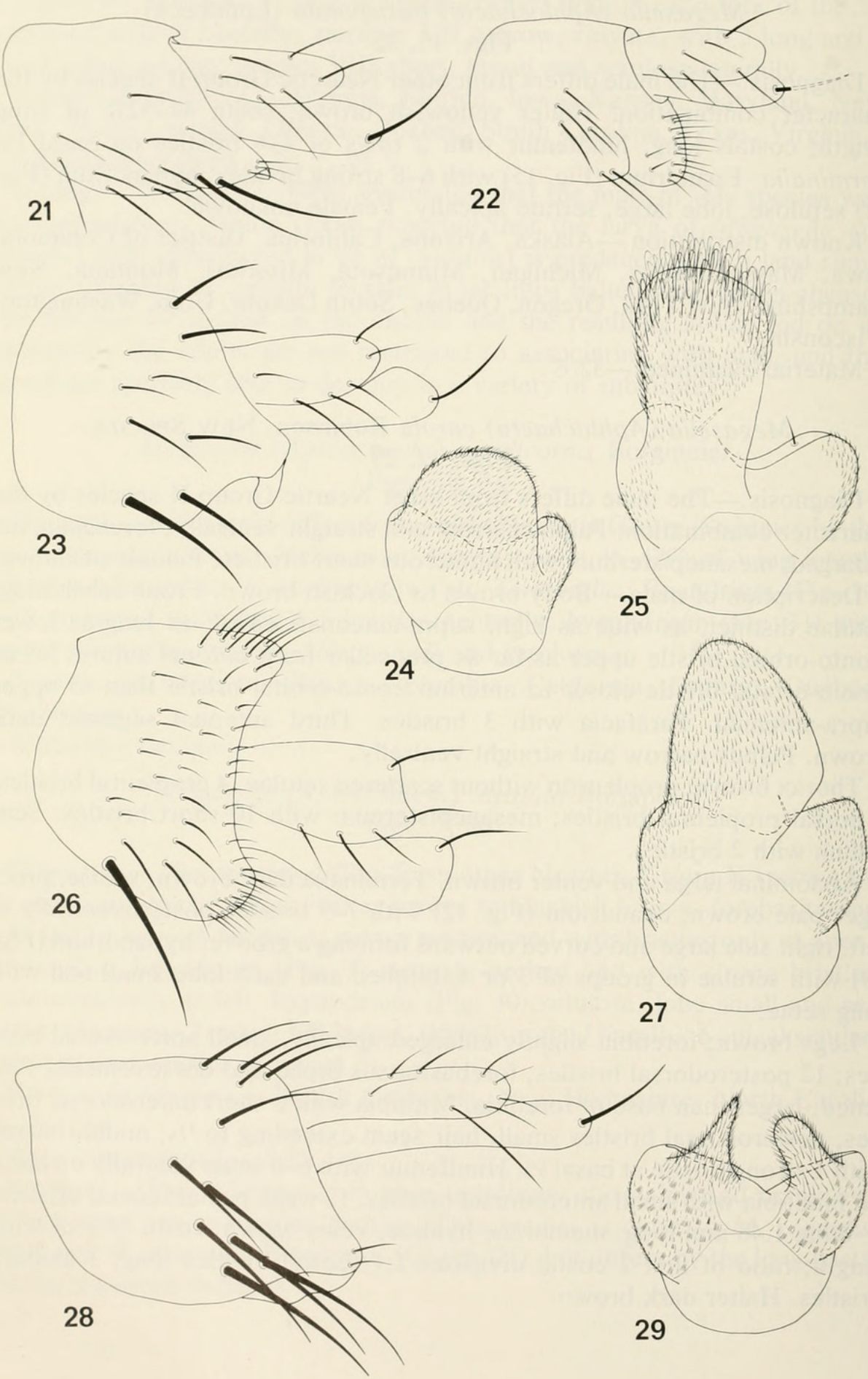
Description of male.—Body brown to blackish brown. Frons subshining, setulae distinct, as wide as high; supra-antennals equal, as long as lower fronto-orbital bristle upper as far as preocellar from coronal suture; lower fronto-orbital bristle closer to anterior fronto-orbital bristle than to upper supra-antennal. Parafacia with 3 bristles. Third antennal segment dark brown. Palpus narrow and straight ventrally.

Thorax brown; propleuron without scattered setulae; 4 propleural bristles, 2 dorsal propleural bristles; mesanepisternum with 10 short bristles. Scutellum with 2 bristles.

Abdominal terga and venter brown. *Terminalia* dark brown, setose, proc-tiger pale brown; epandrium (Fig. 12) with 7–9 bristles posteroventrally at left, right side large and curved outward forming a groove; hypandrium (Fig. 29) with setulae in groups of 3 or 4, bilobed and each lobe small and with long setae.

Legs brown; foretibia slightly enlarged apically, small anterodorsal bristles; 12 posterodorsal bristles; forebasitarsus broad and dorsoventrally flattened, larger than base of foretibia. Midtibia with 8 short anterodorsal bristles, posterodorsal bristles small, hair seam extending to $\frac{1}{6}$; midbasitarsus with 1 strong bristle at basal $\frac{1}{3}$. Hindfemur with 6–8 setae ventrally on basal $\frac{1}{4}$; hindtibia with small anterodorsal bristles, 12 weak posterodorsal bristles.

Wing 1.48 mm long; membrane hyaline, veins brown; costa 44% of wing length; ratio of first 2 costal divisions 1:1; costal bristles long; 3 axillary bristles. Halter dark brown.



Material examined.—Holotype.

Holotype.—♂, Mound Valley, State Experiment Station, Labette Co., Kansas, V-15-1965, Malaise trap, G. J. Williams. Deposited in the U.S. National Museum of Natural History, type no. 76565.

Megaselia (Aphiochaeta) cirripes Borgmeier

Figs. 18, 33

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Halter yellowish brown; costa 47–49% of wing length; costals long; hindfemur with 10–12 curved bristles ventrally on basal ½. *Terminalia*: Epandrium (Fig. 18) with a few short bristles posteriorly and 4–6 longer and stronger bristles posteroventrally; hypandrium (Fig. 33) setulose. Female unknown.

Known distribution.—Idaho, Iowa, Ontario, Washington.

Material examined.—9 ♂.

Remarks.—This species seems very close to the Palearctic species *M. stichata* (Lundbeck); both possess curved bristles with bent apices on the hindfemur.

Megaselia (Aphiochaeta) diplothrix Borgmeier

Figs. 14, 34

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Halter yellowish-brown; 2–3 mesanepisternal bristles; 2 strongly curved bristles at base of hindfemur. *Terminalia*: Epandrium (Fig. 14) with row of 6 bristles laterally and 2 short bristles beneath proctiger; hypandrium (Fig. 34) setulose laterally at right, lobe large and cleft, with scattered setulae apically. Female unknown.

Known distribution.—Maryland, Quebec, Tennessee, Virginia

Material examined.—8 ♂.

Remarks.—The type is in poor condition; one antenna, both palpi and the proctiger are missing. I do not consider the two females from Falls Church, Virginia, mentioned by Borgmeier (1964) as paratypes, to be *M. diplothrix*. These specimens seem to be a *Megaselia* species in Group IV.

Megaselia (Aphiochaeta) ectopia Borgmeier

Figs. 22, 36

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Halter brown; forebasitarsus as broad as apex of

← Figs. 21–29. *Megaselia* spp., male terminalia. 21, *M. pilicrus*, epandrium. 22, *M. ectopia*, epandrium. 23, *M. lanata*, epandrium. 24, *M. aequalis*, hypandrium. 25, *M. rotunda*, hypandrium. 26, *M. rotunda*, epandrium. 27, *M. meconicera*, hypandrium. 28, *M. pleuralis*, epandrium. 29, *M. carola*, hypandrium.

foretibia. *Terminalia*: Epandrium (Fig. 22) cleft posterolaterally, with 5 long bristles anterior to the cleft and numerous setulae posterior to the cleft; hypandrium (Fig. 36) with scattered setulae apically. Female unknown.

Known distribution.—Washington.

Material examined.—Holotype.

Remarks.—The head of the holotype is missing.

Megaselia (Aphiochaeta) fungivora (Wood)

Figs. 6, 17, 35

Aphiochaeta limburgensis Schmitz, 1918: 57–58. NEW SYNONYMY.

Megaselia pullifrons Borgmeier, 1964: 306–307. Preoccupied by *M. pullifrons* Beyer, 1958. NEW SYNONYMY.

Megaselia (Aphiochaeta) morenifrons Borgmeier, 1967: 62. New name for *Megaselia pullifrons* Borgmeier.

Diagnosis.—This species differs from other Nearctic Group II species by the character combination: Costa 50–54% of wing length; lower fronto-orbital close to anterior fron-orbital; supra-antennals unequal. *Terminalia*: Epandrium (Fig. 17) with 10–14 scattered bristles and 1 very long bristle ventrally; hypandrium (Fig. 35) setulose, lobe broad and with long setulae apically. *Oviscapt*: Tergum VII (Fig. 6) broad basally and narrow apically, 4 apical setulae and 4–6 scattered setulae basally; sternum VII absent.

Known distribution.—British Columbia, Georgia, Idaho, Montana, Iowa, New York, North Carolina, Quebec, Tennessee, Washington.

Material examined.—34 ♂, 31 ♀.

Remarks.—Type material of *M. limburgensis* (Schmitz) and *M. fungivora* was not seen. However, descriptions by Schmitz (1957) and Borgmeier (1964) and available specimens indicate that *M. limburgensis* is a synonym of *M. fungivora*. Schmitz (1957) reported two males and two females of *M. imberbis* Schmitz among the type-material of *M. fungivora*.

Borgmeier (1964) described *M. pullifrons*, but incorrectly gave the author as Beyer in litt. Borgmeier (1967) stated that *M. pullifrons* Borgmeier was preoccupied by *M. pullifrons* Beyer (1958), and provided *M. morenifrons* as a new name. I have studied the *M. pullifrons* Borgmeier type and therefore the *M. morenifrons* type.

Biology.—Adults have been reported as associated with fungi and mammal burrows, and the larvae under bark (see Robinson 1971).

Megaselia (Aphiochaeta) lanata Robinson, NEW SPECIES

Figs. 23, 40

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Palpus broad and rounded apically; costa 46% of wing length; costal bristles short (0.08–0.09 mm); halter dark brown. Female unknown.

Description of male.—Body brown to dark brown. Frons subshining, as wide as high; supra-antennals subequal; lower slightly closer than upper to coronal suture, upper closer than preocellar to coronal suture; lower fronto-orbital bristle closer to anterior fronto-orbital bristle than to upper supra-antennal; posterior fronto-orbital level with preocellar. Parafacia with 5–6 bristles. Third antennae segment dark brown. Palpus yellowish brown, rounded apically.

Thorax brown to dark brown; propleuron without scattered setulae; 2–3 propleural bristles and 2 dorsal propleural bristles; mesanepisternum with 7–8 setulae and 1 bristle. Scutellum with 2 bristles.

Abdominal terga dark brown, venter brown. Terminalia dark brown, setose; proctiger pale brown; epandrium (Fig. 23) with 9–10 bristles posteriorly; hypandrium (Fig. 40) setulose laterally, lobe long and broad, with long curved setae apically.

Legs brown; foretibia with small anterodorsal bristles, 11–12 postero-dorsal bristles. Midtibia with small anterodorsal bristles, 6–7 widely spaced posterodorsal bristles; hair seam extending to $\frac{1}{5}$; midbasitarsus with 1 weak bristle at basal $\frac{1}{3}$. Hindfemur with 10–12 short setae on basal $\frac{1}{6}$; hindtibia with small anterodorsals; 10–13 posterodorsal bristles, weak on basal $\frac{1}{3}$ of row.

Wing 1.37–1.42 mm long; membrane hyaline, veins pale brown; costa 46% of wing length; ratio of first 2 costal divisions 1:1; costal bristles short (0.88–0.89 mm); 2 axillary bristles. Halter dark brown.

Material examined.—1 ♂, Downie Creek, Selkirk Mts., British Columbia VIII-14-1905, J. Ch. Bradley. 1 ♂, Milford Woods; Sec. 10, T98N, R37W; Dickinson Co., Iowa, VI-15-1969, on *Ulmus fulva*, Wm H Robinson.

Holotype.—♂, Milford Woods; Sec. 10, T98N, R37W; Dickinson Co., Iowa, VI-15-1969, on *Ulmus fulva*, Wm. H Robinson. Deposited in the U.S. National Museum of Natural History, type no. 76566.

Megaselia (Aphiochaeta) meconicera (Speiser)

Figs. 3, 19, 27

Diagnosis.—This species differs from other Nearctic Group II species by the character combination: Halter yellowish-brown; costals long; costa 42–40% of wing length; foretibia enlarged. *Terminalia*: Epandrium (Fig. 27) with scattered bristles dorsally and posteroventrally beneath proctiger, 4–6 strong bristles laterally; hypandrium (Fig. 19) larger than epandrium, setulose. *Oviscapt*: Tergum VII (Fig. 3) long, with scattered setulae; sternum VII long, narrow and Y-shaped, with 1 long apical seta on each fork of the Y and 3–6 setulae medially.

Known distribution.—Alberta, California, Indiana, Iowa, Kansas, Maryland, Minnesota, Newfoundland, New York, Ontario, Virginia.

Material examined.—24 ♂, 9 ♀.

Biology.—Adults collected in burrow of *Microtus* sp. (Hackman 1963).

Megaselia (Aphiochaeta) monticola (Malloch)

Fig. 13

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Halter dark brown; costa 47% of wing length; supra-antennals unequal. *Terminalia*: Epandrium (Fig. 13) with a few short bristles posteriorly and 3 strong bristles posteroventrally. Female unknown.

Known distribution.—British Columbia

Material examined.—Holotype.

Remarks.—The hypandrium is damaged in the holotype.

Megaselia (Aphiochaeta) pilicrus Borgmeier

Figs. 9, 21, 36

Diagnosis.—This species differs from other Nearctic Group II species by the character combination: Halter brown to dark brown; costa 44–56% of wing length; foretarsus slender. *Terminalia*: Epandrium (Fig. 21) setose posteroventrally; hypandrium (Fig. 36) setulose and bilobed, lobes small and with long curved setulae. *Oviscapt*: Tergum VII (Fig. 9) broad and slightly arched basally, 6 apical setulae and 4–6 lateral setulae; sternum VII indistinct, with 5–6 apical setulae and a few scattered seulae on apical $\frac{1}{3}$.

Known distribution.—Connecticut, Iowa, Kansas, Maryland, New York, North Carolina, Quebec, Virginia.

Material examined.—19 ♂, 4 ♀.

Megaselia (Aphiochaeta) pleuralis (Wood)

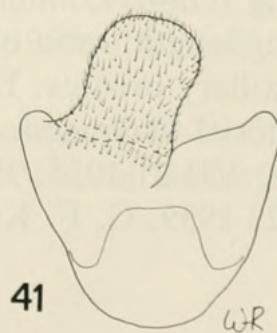
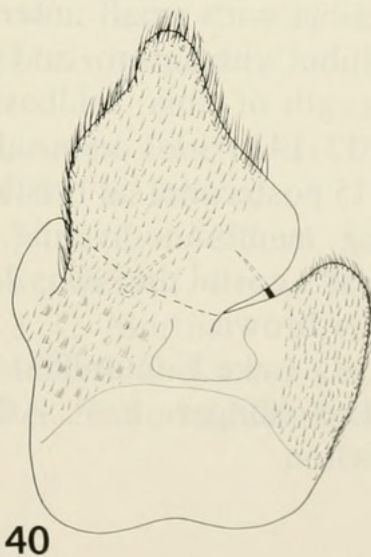
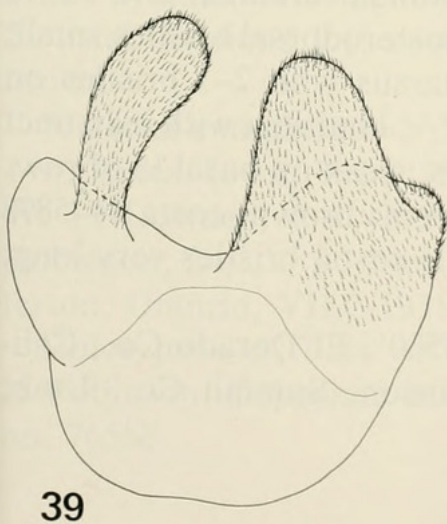
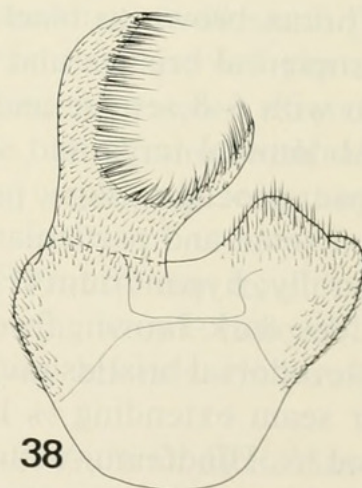
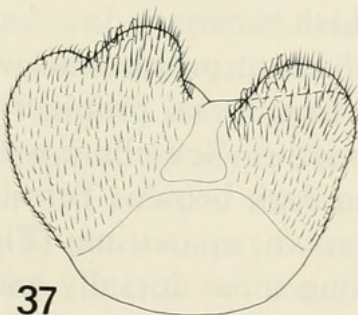
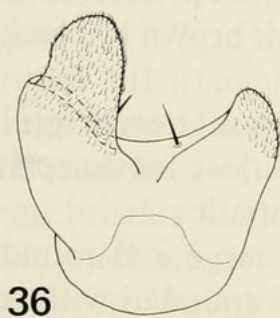
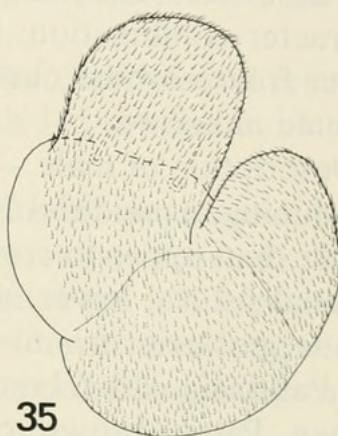
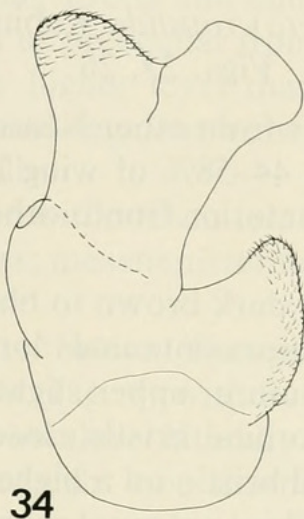
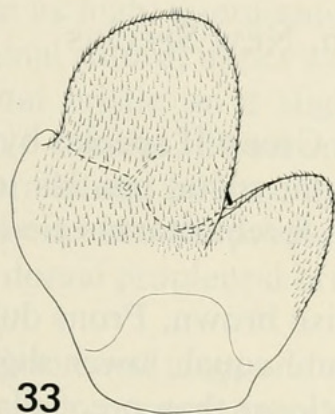
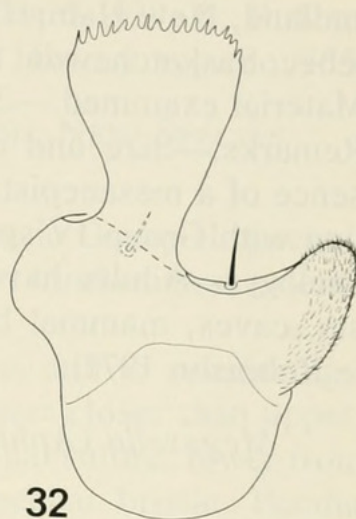
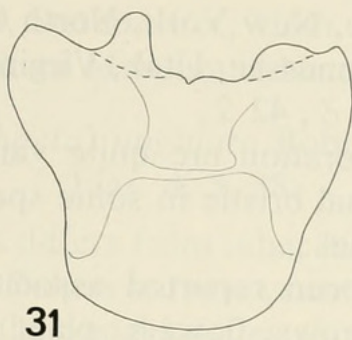
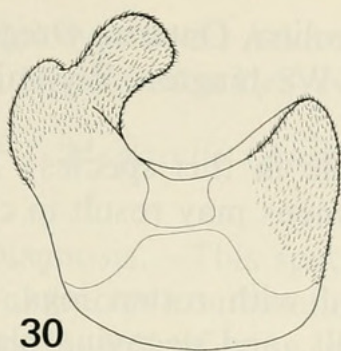
Figs. 8, 28, 39

Diagnosis.—This species differs from other Nearctic Group II species by the character combination: Halter yellowish brown; costa 50–54% of wing length; costal division I as long as divisions I and II; costals long. *Terminalia*: Epandrium (Fig. 28) with 5–6 dorsal bristles and 2–4 short postero-dorsal bristles, with 6 strong bristles laterally; hypandrium (Fig. 39) broad, bilobed, right lobe broad and with short setulae apically, left lobe narrow, slightly club-shaped and with long setulae apically. *Oviscapt*: Tergum VII (Fig. 8) triangular, truncate or pointed apically; sternum VII club-shaped, narrow at base, with 3–5 apical setulae.

Known distribution.—Alaska, Alberta, British Columbia, California, Colorado, Connecticut, District of Columbia, Georgia, Illinois, Iowa, Maine, Manitoba, Maryland, Massachusetts, Michigan, Minnesota, Montana, New-

→

Figs. 30–41. *Megaselia* spp., male hypandria. 30, *M. atratula*. 31, *M. amplicornia*. 32, *M. basispinata*. 33, *M. cirripes*. 34, *M. diplothrix*. 35, *M. fungivora*. 36, *M. ectopia*. 37, *M. pilicrus*. 38, *M. unguolata*. 39, *M. pleuralis*. 40, *M. lanata*. 41, *M. perdita*.



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foundland, New Hampshire, New York, North Carolina, Ontario, Oregon, Quebec, Saskatchewan, Tennessee, Utah, Virginia, Washington, Wyoming.

Material examined.—209 ♂, 42 ♀.

Remarks.—Size and coloration are quite variable in this species. The absence of a mesanepisternal bristle in some specimens may result in confusion with Group IV species.

Biology.—Adults have been reported associated with rotten logs, ant nests, caves, mammal burrows, flowers, plant galls, and decaying plants (see Robinson 1971).

Megaselia (Aphiochaeta) rotunda Robinson, NEW SPECIES

Figs. 25, 26

Diagnosis.—The male differs from other Nearctic Group II species by the character combination: Costa 44–58% of wing length; costal bristles long, lower fronto-orbital close to anterior fronto-orbital; forebasitarsus slender. Female unknown.

Description of male.—Body dark brown to blackish brown. Frons dull to subshining, as wide as high; supra-antennals long and equal, lower slightly closer than upper to coronal suture, upper slightly closer than preocellar to coronal suture; lower fronto-orbital bristle closer to anterior fronto-orbital bristle, posterior fronto-orbital bristle on a higher level than preocellar bristle. Parafacia with 6 bristles. Third antennal segment dark brown to blackish brown. Palpus brown to blackish brown.

Thorax brown to blackish brown; propleuron without scattered setulae; 4 propleural bristles and 3 strong dorsal propleural bristles; mesanepisternum with 6–8 setulae and 4 bristles. Scutellum with 2 bristles.

Abdominal terga and sterna dark brown. Terminalia large and rounded, setose; proctiger large, pale brown; epandrium (Fig. 26) rounded with scattered setae and particularly long setae dorsally and ventrally, 1 strong seta ventrally; hypandrium (Fig. 25) setulose, lobe large and narrow apically.

Legs dark brown; foretibia with small anterodorsal bristles, and 12–13 posterodorsal bristles midtibia with antero- and posterodorsal bristles small; hair seam extending $\frac{1}{8}$ length of tibia; midbasitarsus with 2–3 bristles on basal $\frac{1}{5}$. Hindfemur with 12–14 bristles on basal $\frac{1}{5}$; hindtibia with indistinct anterodorsal bristles; 13–15 posterodorsal bristles, weak on basal $\frac{1}{3}$ of row.

Wing 1.75–2.15 mm long; membrane hyaline, veins brown; costa 44–58% of wing length; ratio of first 2 costal divisions 1:1; costal bristles very long; 3–4 axillary bristles. Halter brown.

Material examined.—1 ♂, Lake Fontanillis, 8500', El Dorado Co., California, VII-21-1955, E. I. Schlinger. 1 ♂, Atkinson, Summit Co., Utah, VIII-23-1939, G. F. Knowlton.

Holotype.—♂, Atkinson, Summit Co., Utah, VIII-23-1939, G. F. Knowton. Deposited in U.S. National Museum of Natural History, type no. 76567.

Megaselia (Aphiochaeta) ungulata Robinson, NEW SPECIES

Figs. 4, 5, 38

Diagnosis.—This species differs from other Nearctic Group II species by the character combination: Palpus narrow ventrally; forebasitarsus slender; costa 45–46% of wing length; costal bristles short.

Description.—Body brown to dark brown. Frons dull to subshining, as wide as high; supra-antennals strong and equal, lower closer than upper to coronal suture, upper as far as preocellar from coronal suture; lower fronto-orbital bristle on a slightly higher level than preocellar bristle. Parafacia with 3 bristles. Third antennal segment brown. Palpus pale brown, narrow ventrally and pointed apically.

Thorax brown; propleuron without scattered setulae; 2 propleural bristles, 1–2 dorsal propleural bristles; mesanepisternum with 3–5 setulae and 1 bristle.

Abdominal terga and venter brown. Terminalia dark brown, setose, procotiger pale brown; epandrium (Fig. 4) with 9–11 bristles posteroventrally at left; hypandrium (Fig. 38) setulose laterally and bilobed; left lobe large, clawlike and with long setae; right lobe short and with scattered long setae; tergum VII (Fig. 5) short and rectangular, with 3 setae on each apical corner, sternum VII triangular and with 6 apical setae.

Legs brown; foretibia with small anterodorsal bristles; 9–10 small posterodorsal bristles. Midtibia with small anterodorsal bristles; 4–7 posterodorsal bristles (widely separated in some specimens); hair seam extending to $\frac{1}{6}$; midbasitarsus with 4–5 bristles on basal $\frac{1}{5}$. Hindfemur with small anterodorsal bristles; 10–12 posterodorsal bristles, weak at base and apex of row; hindbasitarsus with 2 bristles at basal $\frac{1}{5}$.

Wing of male 1.07–1.12 mm long, female wing 1.19–1.27 mm long; membrane hyaline, veins light brown; costa 45–46% of wing length; ratio of first 2 costal divisions 1:1; costal bristles short; 2 axillary bristles. Halter dark brown.

Material examined.—1 ♂, Ames, Iowa, VIII-27-1969, Wm. H Robinson; 1 ♀, Ames, Iowa, V-24-1951, W. L. Downes; 1 ♂, Ames, Iowa, VI-4-1953, W. L. Downes; 4 ♂, 2 ♀, 7 mi. nw. Milford, Iowa, VI-24-1969, Wm. H Robinson; 2 ♂, 1 ♀, 7 mi. nw. Milford, Iowa, VI-29-1969; 1 ♂, 1 ♀, Chatterton, Ontario, VII-2-1951, J. C. Martin.

Holotype.—♂, 7 mi. nw Milford, Dickinson Co., Iowa, VI-24-1969, Wm. H Robinson. Deposited in U.S. National Museum of Natural History, type no. 76568.

DISCUSSION

There is considerable range in the shape of the male epandrium and hypandrium in Group II *Megaselia* species (North America). The species with the most primitive, platypezid-like terminalia include *M. amplicornis*, *M. atratula*, *M. ectopia*, *M. perdita*, *M. pilicrus*, *M. pleuralis*, *M. lanata*, and *M. carola*. The male terminalia of these species are characterized by unsegmented processes on the epandrium and/or a bilobed hypandrium. The species in which these conditions can be seen best are *M. lanata* and *M. pleuralis*. In *M. lanata* the epandrium (Fig. 23) has an unsegmented process on the right side. The hypandrium of *M. pleuralis* is bilobed, and the lobes are of nearly equal size.

The left lobe of the hypandrium is very specialized in several Group II species. The hypandrium of *M. diplothrix*, *M. basispinata*, and *M. unguolata* represents the most derived, specialized condition in Group II (North America).

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