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Descriptions of Four New Species of Tumbling Flower Beetles (Coleoptera: Mordellidae) from Eastern North America

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Abstract

Four **new species** of tumbling flower beetles (Coleoptera: Mordellidae) are described from the Commonwealth of Virginia, USA in eastern North America: *Mordellina wimbledon* Steury and Steiner, **new species**, *Mordellina washingtonensis* Steury and Steiner, **new species**, *Mordellistena virginica* Steury and Steiner, **new species**, and *Pseudotolida syphaxi* Steury and Steiner, **new species**. Images and descriptions are provided for each new species. Comparisons are made with morphologically similar species.

Keywords: biodiversity, national park, Potomac Gorge, taxonomy, Tenebrionoidea

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Introduction

The last systematic review of the family Mordellidae (tumbling flower beetles or pintail beetles) from North America was conducted by Liljeblad (1945). Since that time, a steady trickle of new mordellid species has been added to the fauna of North America (Ermisch 1965; Hatch 1965; Khalaf 1971a, b; Ray 1936, 1944, 1946a, b, c, 1947). The work of Ray (1936, 1944) was not included in Liljeblad (1945). The documented ranges of all these new species are restricted to three or fewer states or other political jurisdictions (Bright 1986). Jackman (1991), Jackman and Lu (2001), and Lisberg (2003) have reassigned North American species and erected new genera. A review of Mordellidae research from 1864 through 2013 was provided by Liu *et al.* (2018).

Material and Methods

Among the thousands of mordellid specimens captured in Malaise traps between 1998 and 2019 during biodiversity surveys in George Washington Memorial Parkway (GWMP), a National Park in Fairfax County, Virginia, just outside Washington, DC, were found four mordellid series that could not be attributed to any known taxon. Based on a review of the literature, the Mordellidae collection maintained at the Smithsonian Institution, National Museum of Natural History (USNM), which provided an additional specimen for one series, and the borrowed type specimens cited in the Acknowledgments, the following four species are described as new to science.

Body lengths were measured from the center of the frons with the head appressed to the body in a straight line to the tip of the elytra and the tip of the pygidium. Measurements were made with a rule viewed under a dissecting microscope or with imaging software (Archimed™). By convention (*e.g.*, Liljeblad 1945), the subapical ridge is not included in the ridge count.

Males were dissected by softening beetles in warm dilute ethanol and removing the abdomen, which was cleared in a potassium hydroxide (KOH) solution; the aedeagus was teased out and extracted using hook-tipped insect pins, rinsed and placed in glycerin for study, imaging and storage in a microvial on the specimen pin. The abdomens were glued to the top of the point next to the beetle. In some specimens with genitalia already exserted and easily teased off, it was not necessary to remove the abdomen.

Depositories. United States National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (USNM); George Washington

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Memorial Parkway, Turkey Run Park Headquarters, McLean, Virginia, USA (GWMP).

Taxonomy

Mordellina wimbledon Steury and Steiner, new species

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(Figs. 1A–B, 2B, 3B)

Type Material. Holotype. Dissected male (USNM), labeled "Virginia, Fairfax Co., GWMP, Little Hunting Creek, Malaise trap, 2–20 June 2017, B. Steury, C. Davis, C. Acosta." **Paratypes** ($n = 3$). One paratype, male (USNM), labeled "USA: VA, Virginia Beach, Cty Camp Pendleton Annex Regulus Rd., 0.1 rd. mi. N of North Gate, N36.80480 W75.96709, Malaise trap 21 May/10 Jun 2008, A. Evans, pine/red maple woods"; two paratypes, male (GWMP), labeled "Virginia, Fairfax Co., Turkey Run Park, grassland with flowering herbs under powerline, Malaise trap, 1–17 June 2019, B. Steury."

Description. Holotype, male. Body length 3.0 mm to tip of elytra, 3.8 mm to tip of pygidium. **Dorsal habitus** narrow, yellowish, except for darker band along basal edge of pronotum and black sutural, lateral, and apical margins of the elytra, the dark lateral margin not reaching the humerus. **Ventral habitus** yellowish, except ventrites 1–3 black with narrow yellowish posterior edge, 4–5 yellowish, slightly infuscate anteriorly. **Pygidium** slender, black, 3.1× length of hypopygidium. **Pubescence** dorsally and ventrally recumbent, pale, shorter on head and pronotum than on elytra. **Eyes** slightly (by one or two rows of facets) emarginate behind the antennae, with many short, erect hairs, temple absent. **Antennae** (Fig. 2B) slender, filiform, with appressed setae, about 1.2 mm long, antennomeres 1 and 2 subequal, about 2 times the length of 3 and broader, especially at base, antennomeres 3 and 4 the shortest and subequal, 5–10 subequal, 2.3 times as long as 4, broadest at apex, slightly elongating apically, 11 the longest. **Terminal maxillary palpomeres** scalene, the lateral margin the longest. **Pronotum** broadest just before arcuate base, the midbasal lobe truncate, lateral margin sinuate with apex one-third from base. **Scutellar shield** small, pale, and triangular. **Elytra** together 2.4 times as long as broad at widest point, narrower at base than pronotum, sides subparallel on basal two-thirds, broadly rounded at apex. **Legs:** Protibia of male expanded (Fig. 3B), widest at apical two-thirds, with dense patch of black setae on apical third and erect, black setae on dorsal margin; protarsomere 1 bowed and expanded apically, with erect black setae on apical dorsal margin; metatibia

Fig. 1. *Mordellina wimbledon*, **new species**, holotype, male. A) Dorsal, B) Lateral. Virginia, Fairfax County, Little Hunting Creek, Malaise trap, 2–20 June 2017, B. Steury, C. Davis, C. Acosta. Length 3.0 mm to tip of elytra, 3.8 mm to tip of pygidium.

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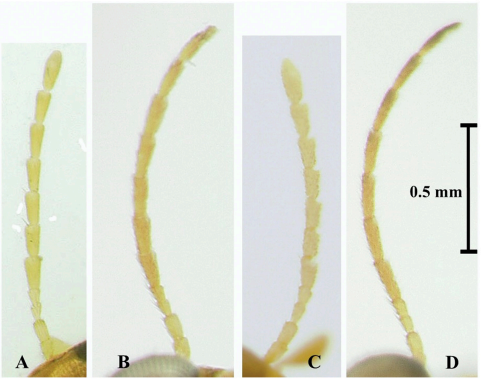

Fig. 2. Antennae of *Mordellina* species. A) *M. ancilla*, B) *M. wimbledon*, **new species**, C) *M. testacea*, D) *M. washingtonensis*, **new species**.

with two ridges, the second (proximal) ridge much longer, extending nearly across the tibia, two metatibial spines, the outer one-half the length of the inner one, metatarsomere 1 with three short ridges, metatarsomere 2 with two short ridges; pro- and mesotarsomeres 4 truncate at apex.

Female. Unknown.

Diagnosis. Placement of this species and the next in *Mordellina* Schilsky, 1908 follows Franciscolo (1967) and Jackman and Lu (2001). *Mordellina wimbledon* has a dorsal habitus nearly identical to darker forms of *Mordellina ancilla* (LeConte, 1862) (*sensu* Lisberg 2003) (Figs. 4A–B), a variable species in terms of the amount of darkening along the sutural, lateral, and apical margins of the elytra. It differs from *M. ancilla* primarily by its spatulate protibia with a patch of black setae on the apical third and its protarsomere 1 which is bowed and expanded apically, with erect black setae on the apical dorsal margin. The protibia of *M. ancilla* is straight, lacks the black setal patch, and protarsomere 1 is not bowed and lacks black setae apically. Additionally, *M. wimbledon* has longer antennae than *M. ancilla* with each antennomere 5–11 being proportionally longer (Figs. 2A–B). This is probably the same species discussed by Khalaf (1971b) from Louisiana under his entry for *M. ancilla*.

Variation. Length 2.9–3.0 mm to tip of elytra, 3.7–3.8 mm to tip of pygidium; pronotum sometimes all yellow; pygidium sometimes pale at base.

Etymology. Intrigued by the beetle's front legs that resemble tennis rackets, we name this species in honor of the only grass court Grand Slam tennis tournament and its many champions. Wimbledon is an English place name, used here as a noun in apposition.

Biology. *Mordellina wimbledon* is currently known from four male specimens collected from the Coastal Plain and Piedmont physiographic provinces of Virginia. These specimens were collected in Malaise traps set during 21 May–20 June. It was found in pine/red maple woods, grasslands with flowering herbs under a power line, and mature forest dominated by broadleaved hardwoods, especially oaks (*Quercus* L.; Fagaceae), hickory (*Carya* Nutt.; Juglandaceae), and American beech (*Fagus grandifolia* Ehrh.; Fagaceae), with some

Fig. 3. *Mordellina* species, right front legs of males. A) *M. ancilla*, B) *M. wimbledon*, **new species**, C) *M. testacea*, D) *M. washingtonensis*, **new species**.

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Fig. 4. *Mordellina ancilla* (*sensu* Lisberg 2003), male. A) Dorsal, B) Lateral. Virginia, Fairfax County, Great Falls Park, Ridge Trail near quarry, beaten from low branch of *Juniperus virginiana* L. (Cupressaceae), 10 May 2017, W. E. Steiner and D. DeRoche. Length 2.6 mm to tip of elytra, 3.4 mm to tip of pygidium.

Virginia pine (*Pinus virginiana* Mill.; Pinaceae) and a strongly ericaceous understory dominated by blueberry and deerberry (*Vaccinium* L. spp.; Ericaceae) and huckleberry (*Gaylussacia* Kunth; Ericaceae) located approximately 20 m from a narrow band of shrubby marsh along the bank of a large creek.

Mordellina washingtonensis Steury and Steiner, new species

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2320C6AA-F786-43BF-947A-19DCB2570556
(Figs. 2D, 3D, 5A–B)

Type Material. Holotype. Male (USNM), labeled "Virginia, Fairfax Co., GWMP, Dyke Marsh Wildlife Preserve, Malaise trap, 15–30 May 1998, E. Barrows." **Paratypes** (n = 23). One paratype, male (USNM), labeled "Virginia, Fairfax Co., GWMP, Great Falls Park, Mine Run, Malaise trap, 16–30 July 2009, D. Smith." Additional paratypes, all male (GWMP), all labeled "Virginia, Fairfax Co., GWMP" and "Turkey Run Park, floodplain forest, Malaise trap, 23 May–5 June 2008, D. Smith" (n = 2); "Turkey Run Park, gulch, Malaise trap, 7–21 June 2006, D. Smith" (n = 2); same data but 1–15 July 2009 (n = 1); "Great Falls Park, Mine Run, Malaise trap, 16–30 July 2009, D. Smith" (n = 1); "Great Falls Park, swamp, Malaise trap, 15–29 June 2006, D. Smith" (n = 1); "Little Hunting Creek, Malaise trap, 2–20 June 2017, B. Steury, C. Acosta, C. Davis" (n = 2); "Dyke Marsh Wildlife Preserve, Malaise trap, 6–20 June 1999, E. Barrows" (n = 5); same data but "20 June–2 July 1999" (n = 1); "24 June–7 July 1998" (n = 2); "7–19 July 1998" (n = 3); "19–30 July 1998" (n = 1).

Description. Holotype, male. Body length 3.3 mm to tip of elytra, 3.9 mm to tip of pygidium. **Dorsal habitus** narrow, unicolorous pale brown. **Ventral habitus** color as above but ventrites 1–3 black, 4 black apically, pale brown below. **Pygidium** slender, concolorous with dorsum, 2.7× length of hypopygidium. **Pubescence** dorsally and ventrally recumbent, pale, slightly shorter on head and pronotum than on elytra. **Eyes** emarginate behind the antennae, with many short, erect hairs, temple absent. **Antennae** (Fig. 2D) yellowish, slender, filiform, setaceous, antennomeres 3 and 4 the shortest and subequal, 1 and 2 subequal, each longer than 3 or 4, 5 longer than 3 and 4 combined, 5–11 becoming slightly, progressively longer, 11 the longest. **Terminal maxillary palpomeres** scalene, the lateral margin the longest. **Pronotum** broadest just before arcuate base, the midbasal lobe truncate or slightly indented at middle, lateral margin shallowly sinuate with apex near base. **Scutellar shield** small and triangular. **Elytra** together 2.5 times as long as broad at widest point, narrower at base than pronotum, sides subparallel on basal two-thirds, rounded at apex. **Legs:** Protibia of male expanded (Fig. 3D), widest at apical and basal third, with dense patch of black setae at apical third and sparse row of thin,

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Fig. 5. *Mordellina washingtonensis*, **new species**, holotype, male. A) Dorsal, B) Lateral. Virginia, Fairfax County, GWMP, Dyke Marsh Wildlife Preserve, Malaise trap, 15–30 May 1998, E. Barrows. Length 3.3 mm to tip of elytra, 3.9 mm to tip of pygidium.

erect, black setae on lateral margin; protarsomere 1 bowed and expanded apically with a few erect black setae on apical dorsal margin; metatibia with one subapical and two lateral ridges, the proximal lateral ridge much longer, extending nearly across the tibia, two metatibial spines, the outer one-third the length of the inner one; metatarsomere 1 with three short ridges, metatarsomere 2 with two short ridges; pro- and mesotarsomeres 4 truncate at apex.

Probable Females. Differing from males in having the ventrites all pale, shorter antennomeres 5–11, and unexpanded protibia. Specimens (n = 9, GWMP): All labeled "Virginia, Fairfax Co., GWMP" and "Turkey Run Park, gulch, Malaise trap, 22 June–6 July 2006, D. Smith" (n = 3); same data except, "river trail, 31 July–17 August 2009" (n = 3); "floodplain forest, 7–21 June 2006" (n = 1); same data except "21 July–4 August" (n = 1); "Dyke Marsh Wildlife Preserve, forest, Malaise trap, 1–15 August 1998, E. Barrows" (n = 1).

Diagnosis. *Mordellina washingtonensis* has a dorsal habitus similar to *Mordellina testacea* (Blatchley, 1910) (Figs. 6A–B) but it has a darker brownish cuticle when compared to the yellowish color of fresh *M. testacea*. Additionally, it differs from *M. testacea* by the expanded male protibia which has a dense patch of black setae at the apical third with a sparse row of thin, erect, black setae on the lateral margin, and protarsomere 1 that is bowed and expanded apically, with a few erect black setae apically (Fig. 3D). The protibia of *M. testacea* is half the width of *M. washingtonensis*, lacks the black setal patch, is widest at the middle, narrowing to the base and apex, and protarsomere 1 is not bowed and is of uniform width (Fig. 3C). Additionally, antennomeres 5–11 are more than twice as long in *M. washingtonensis* as in *M. testacea* (Figs. 2C–D). *Mordellina washingtonensis* is also similar to the western species *Mordellina wickhami* Liljeblad, 1945, but this species has the protibia and protarsomere 1 nearly identical to *M. testacea*. It differs from *M. testacea* in having a darker epidermis (slightly darker than *M. washingtonensis* in the aged holotype), has apically dark ventrites 1–4 (as in *M. washingtonensis*), and has darker antennae than either species.

Variation. Length 2.8–3.4 mm to tip of elytra, 3.2–4.0 mm to tip of pygidium.

Etymology. *Mordellina washingtonensis* is named in honor of the National Park where the type specimens were collected, the George Washington Memorial Parkway, and thus indirectly for George Washington, first president under the Constitution, for whom the parkway is named.

Biology. *Mordellina washingtonensis* is currently known from 23 male specimens and nine probable female specimens collected from a National Park, George Washington Memorial Parkway, in Fairfax County, Virginia. It occurs on the Coastal Plain (16

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Fig. 6. *Mordellina testacea*, male. A) Dorsal, B) Lateral. Virginia, Fairfax County, Great Falls Park, swamp, Malaise trap, 1–19 July 2009, D. Smith and B. Steury. Length 3.2 mm to tip of elytra, 3.8 mm to tip of pygidium.

specimens) and the Piedmont (Potomac Gorge) physiographic provinces in deciduous, riverine forest. Specimens were collected in Malaise traps set during 15 May–30 July (males) and 7 June–17 August (probable females).

Comments. The two species described above are morphologically distinctive in North America in having the male protibiae expanded, paddle-like, with patches of stiff setae on the dorsal side. These are presumably secondary sexual features, similar to those seen in other beetle groups and often in all legs (modified with curves, teeth, hair brushes, etc.) yet unmodified in the females. Two other New World species, currently placed in *Mordellistena* Costa, 1854, are known to have similarly widened front tibiae: *Mordellistena distorta* Champion, 1891 from Nicaragua and *M. curvimana* Champion, 1891 from Guatemala. Both are illustrated in Champion (1890–1893: table XV, figs. 16–17).

Mordellistena virginica Steury and Steiner, new species

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(Figs. 7A–C)

Type Material. Holotype. Male (USNM), labeled "Virginia, Fairfax Co., GWMP, Great Falls Park, swamp, Malaise trap, 1–15 July 2009, D. Smith & B. Steury." **Paratypes** (*n* = 20). One paratype, female (USNM), same data but "21 July–17 August". Additional paratypes, male (GWMP), all labeled "Virginia, Fairfax Co., GWMP" and "Turkey Run Park, River Trail, Malaise trap, 31 July–17 August 2009, D. Smith & B. Steury" (*n* = 3); same data but "22 June–6 July 2006" (*n* = 1); "1–15 July 2009" (*n* = 1); "18 August–4 September 2009" (*n* = 1); "Great Falls Park, swamp, Malaise trap, 19–30 June 2009, D. Smith & B. Steury" (*n* = 2), same data but "1–15 June 2009" (*n* = 1). Additional paratypes, female (GWMP), all labeled "Virginia, Fairfax Co., GWMP" and "Turkey Run Park, ravine, 22 June–6 July 2006" (*n* = 1); same data but "22 June–6 July 2006" (*n* = 1); "1–15 July 2009" (*n* = 1); "31 July–17 August 2009" (*n* = 1); "Turkey Run Park, powerline, Malaise trap, 1–17 June 2019, B. Steury" (*n* = 1); "Great Falls Park, swamp, Malaise trap, 1–15 July 2009, D. Smith & B. Steury" (*n* = 3); same data but "19–30 June 2009" (*n* = 1); "Dyke Marsh Wildlife Preserve, Malaise trap, forest, 24 June–7 July 1998, E. Barrows" (*n* = 1).

Description. Holotype, male. Body length 3.9 mm to tip of elytra, 4.5 mm to tip of pygidium.

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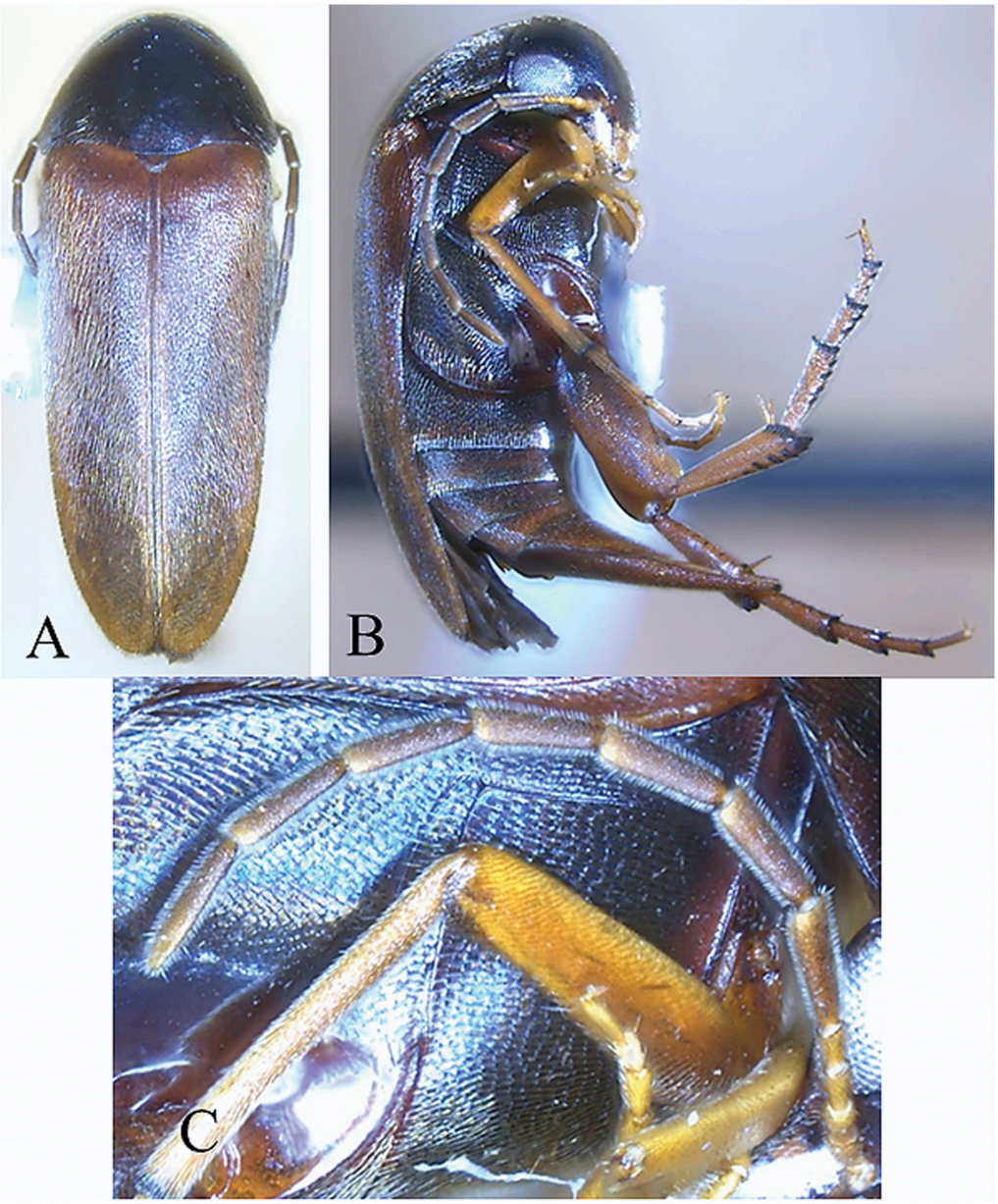

Fig. 7. *Mordellistena virginica*, **new species**, holotype, male. A) Dorsal, B) Lateral, C) Antenna. Virginia, Fairfax County, Great Falls Park, swamp, Malaise trap, 1–15 July 2009, D. Smith and B. Steury. Length 3.9 mm to tip of elytra, 4.5 mm to tip of pygidium.

Dorsal habitus robust, head black, labrum yellowish, pronotum black with rufous edging on base of midbasal lobe and basal corners, elytra rufous. **Ventral habitus** black with rufous edge basally on all abdominal ventrites and metaventrite. Front and middle legs yellowish, hind legs pale brown. **Pygidium** stout, concolorous with elytra, tipped with stout black setae, 2.4× length of hypopygidium. **Pubescence** dorsally and ventrally recumbent, pale, slightly shorter on head and pronotum than on elytra. **Eyes** truncated (slightly emarginated) behind antennal sockets, with many short, erect hairs, temple present, very narrow, in dorsal half only. **Antennae** (Fig. 7C) reaching to

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near middle of elytra, antennomeres 1–4 pale, yellowish, with appressed setae, 5–11 dark brown, velvety pubescent, with a few longer setae at apex of each antennomere, antennomeres 3 and 4 the shortest and subequal, 1 and 2 subequal, 5 longer than 2–4 combined, 5–11 subequal in length. **Terminal maxillary palpomeres** yellow, scalene, the lateral margin the longest. **Pronotum** broadest just before the base, midbasal lobe convex, lateral margin straight. **Scutellar shield** small and triangular, apex somewhat rounded. **Elytra** together 2.2 times as long as broad, broadest at base, gradually narrowing apically, narrower at base than pronotum. **Legs:** Metatibia with two tibial spines, the outer one-half the length of the inner one; 3 metatibial ridges with a few black spinules anterior to the last ridge, 4 ridges on metatarsomere 1, two on metatarsomere 2, and one on metatarsomere 3 with three black spinules anterior to the ridge, pro- and mesotarsomeres 4 narrow and slightly emarginate at apex.

Females. Externally identical to males except antennomeres 5–11 approximately half length of those in male.

Diagnosis. *Mordellistena virginica* has a dorsal habitus similar to *Mordellistena vera* Liljeblad, 1917, especially in the structure of the antennae. It differs from *M. vera* in having rufous rather than blackish elytra and rufous edging along the base of the pronotum, which is entirely dark in *M. vera.* Additionally, the shape (width, length, and angle) of the parameres and median lobes are distinctly different in *M. vera* and *M. virginica* (Figs. 8A–D).

Variation. Body length 3.2–4.2 mm to tip of elytra, 4.1–5.2 mm to tip of pygidium; pygidium sometimes dark at base, pale reddish in apical half; elytra sometimes with darker central area; amount of rufous edging along basal edge of pronotum variable; hind leg ridge count sometimes difficult to interpret due to the one or two additional short rows of dark bristles on the tibia and tarsomeres.

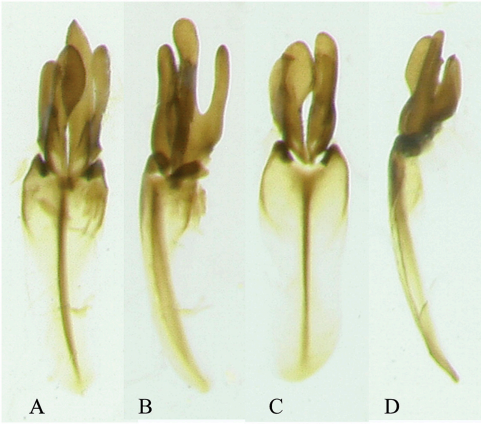

Fig. 8. Parameres. *Mordellistena vera*: A) Dorsal, B) Lateral. *Mordellistena virginica*, **new species**: C) Dorsal, D) Lateral.

Etymology. *Mordellistena virginica* is named in honor of the Commonwealth of Virginia, the only political entity from which this species is currently known.

Biology. *Mordellistena virginica* is currently known from 21 specimens (10 male and 11 female) collected from the Piedmont (n = 20) and Coastal Plain physiographic province of Virginia in swamp and floodplain forest of Turkey Run and Great Falls parks within the Potomac Gorge and at Dyke Marsh Wildlife Preserve. It was collected in Malaise traps set during 1 June–4 September.

Pseudotolida syphaxi Steury and Steiner, new species

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1177B262-2A90-4C5C-927F-BCF8179B8585
(Figs. 9A–D)

Type Material. Holotype. Male (USNM), labeled "Virginia, Fairfax Co., GWMP, Turkey Run Park, gulch, Malaise trap, 19–30 June 2009, D. Smith & B. Steury." **Paratypes** (n = 12). One paratype, male (USNM), "Virginia, Fairfax Co., GWMP, Little Hunting Creek, Malaise trap, 30 July–17 August 2018, B. Steury." Additional paratypes, males (GWMP), same data as USNM paratype (n = 2); same data but "28 June–16 July 2018" (n = 3); "16–30 July 2018" (n = 2); "30 July–17 August 2018" (n = 1); "28 July–11 August 2017, B. Steury, C. Davis, C. Acosta" (n = 2); "Turkey Run Park, river trail, Malaise trap, 31 July–17 August 2009, D. Smith" (n = 1).

Description. Holotype, male. Body length 3.3 mm to tip of elytra, 4.2 mm to tip of pygidium. **Dorsal habitus** robust; head black; labrum yellowish; pronotum black with rufous edging on base of midbasal lobe, basal corners and lateral edges; elytra pale rufous, with paler humeral angle. **Ventral habitus** black with rufous edging basally on all ventrites. Front and middle legs yellowish, hind legs pale brown. **Pygidium** black, somewhat stout, 2.2× length of hypopygidium. **Pubescence** dorsally and ventrally recumbent, pale, slightly shorter on head than on elytra and pronotum. **Eyes** small, oval, entire, with many short, erect hairs, temple absent. **Antennae** (Fig. 9C) with antennomeres all yellowish, setose with recumbent, anteriorly directed setae and a few erect setae near the apex of each antennomere, reaching to base of pronotum, antennomeres 3 and 4 the shortest and subequal, 1 and 2 the widest, 5 one-third longer than 4 and

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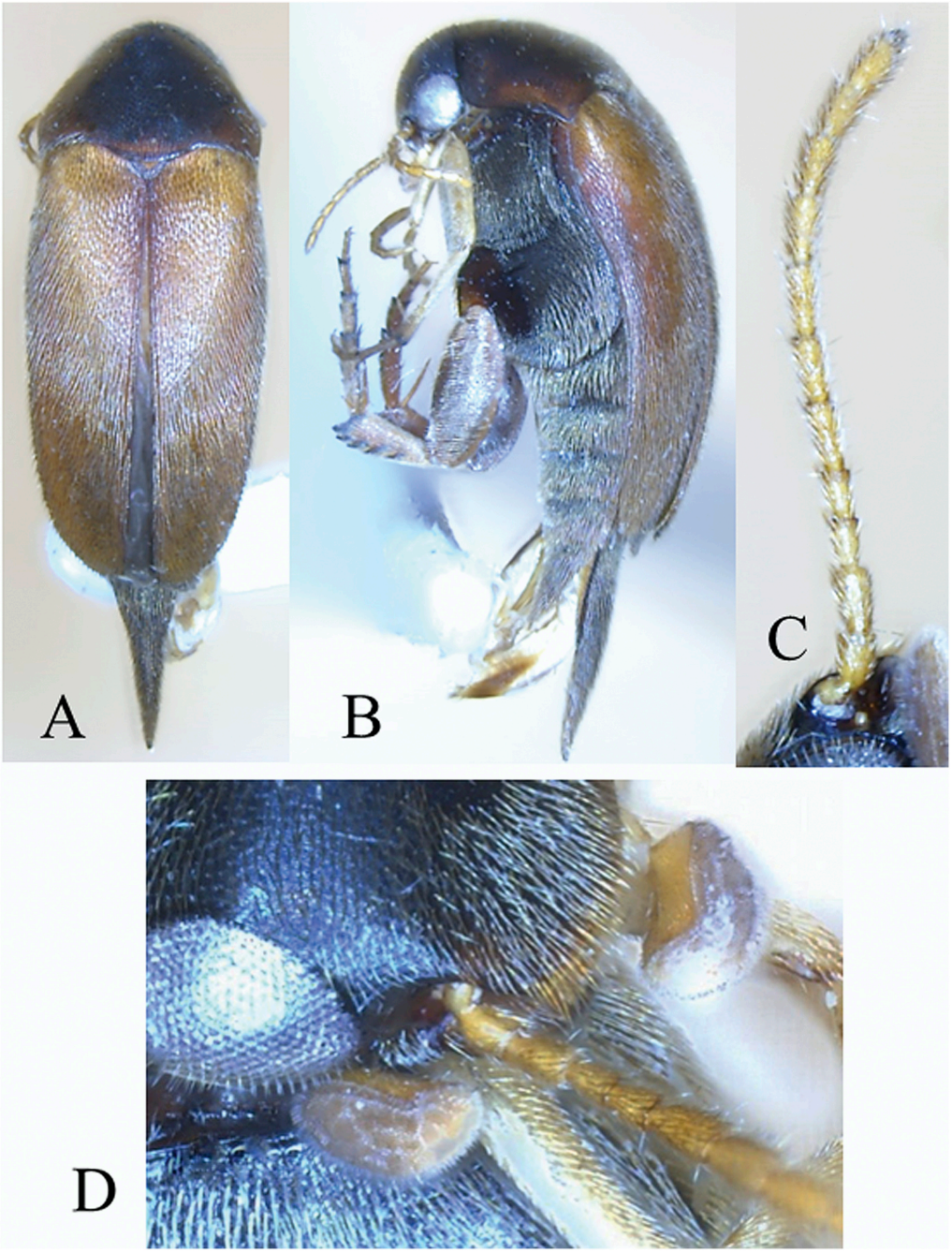

Fig. 9. *Pseudotolida syphaxi*, **new species**, holotype, male. A) Dorsal, B) Lateral, C) Antenna, D) Terminal maxillary palpomeres. Virginia, Fairfax County, Turkey Run Park, gulch, Malaise trap, 19–30 June 2009, D. Smith and B. Steury. Length 3.5 mm to tip of elytra, 4.2 mm to tip of pygidium.

subequal to 2, 5–11 slightly lengthening toward apex, 11 the longest. **Terminal maxillary palpomeres** pale brown, globular, malleiform with slightly concave apex (Fig. 9D). **Pronotum** broadest just before the base, the midbasal lobe convex, lateral margins slightly concave near base. **Scutellar shield** black with rufous anterior central area, small and triangular, the apex rounded. **Elytra**

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together 1.9 times as long as broad, broadest at basal third, gradually narrowing apically, narrower at base than pronotum. **Legs:** Metatibia with two spines, the inner one longest, half the length of metatarsomere 1, the outer spine half the length of the inner one; one subapical and three lateral subequal ridges, the second slightly more oblique than, and thus converging at the hind margin with, the first; metatarsomere 1 with three slightly oblique ridges and three black spinules anterior to the proximal ridge, metatarsomere 2 with one ridge; pro- and mesotarsomeres 4 short and deeply emarginate.

Probable Females. Differing from males in having scalene triangular terminal maxillary palpomeres, slightly shorter antennomeres 5–11, and a less prominent or absent pale humeral angle, the elytra thus more uniformly rufous colored. Specimens ($n = 9$, GWMP): All labeled "Virginia, Fairfax Co., GWMP" and "Little Hunting Creek, Malaise trap, 17–28 July 2017, B. Steury, C. Davis, C. Acosta" ($n = 1$); same data except "28 July–11 August" ($n = 2$); same data except "28 June–16 July 2018, B. Steury" ($n = 2$), same data except "16–30 July" ($n = 1$); "30 July–17 August" ($n = 3$).

Diagnosis. *Pseudotolida syphaxi* has elytral and ventral coloration similar to *Pseudotolida knausi* (Liljeblad, 1945) (a species only reported from Cedar City, Utah, at an elevation of 1,950 m), but differs from that species in the paler head and pronotum, having an additional metatibial ridge, one less ridge on metatarsomere 3, and the shape of the male terminal maxillary palpomeres. A key to *Pseudotolida* Ermisch, 1950 of the world was provided by Franciscolo (1982). Females were associated by their presence in the same Malaise traps at Little Hunting Creek that captured males.

Variation. Pronotum sometimes all black or the rufous edging more extensive; elytra with the mid-lateral and apical sutural margins and apical half of the elytra darkened to various extents (making the pale humeral angle more obvious); scutellar shield sometimes all black; anterior metatibial ridge sometimes weaker than the two below, metatarsomere 1 with or without a fourth obvious but weaker anterior ridge, the angle of convergence of the first and second ridges variable, sometimes more parallel.

Etymology. *Pseudotolida syphaxi* is named in honor of Stephen Syphax, former Chief of Resources for National Capital Parks East, for his devotion to the protection of the natural and cultural resources of the National Capital Region.

Biology. *Pseudotolida syphaxi* is currently known from 13 male and nine female specimens collected in the Piedmont and Coastal Plain physiographic provinces of Virginia. In the Piedmont it was found in mature upland forest dominated by broadleaved hardwoods, especially tulip poplar (*Liriodendron tulipifera* L.; Magnoliaceae), sugar maple (*Acer saccharum* Marshall; Sapindaceae), oaks (*Quercus* sp.), and hickory (*Carya* sp.). The site overlooks the Potomac Gorge and has a diverse spring ephemeral flora. On the Coastal Plain it was found in mature forest dominated by broadleaved hardwoods, especially oaks (*Quercus* sp.), hickory (*Carya* sp.), and American beech (*Fagus grandifolia*), with some Virginia pine (*Pinus virginiana* Mill.) and a strongly ericaceous understory dominated by blueberry and deerberry (*Vaccinium* spp.) and huckleberry (*Gaylussacia* sp.) located approximately 20 m from a narrow band of shrubby marsh along the bank of a large creek. It was collected in Malaise traps set during 19 June–17 August.

Comments. Two genera of North American Mordellidae possess malleiform terminal maxillary palpomeres in males, *Mordellochroa* Emery, 1876 and *Pseudotolida*. *Pseudotolida syphaxi* has the body size, narrowly emarginate pro- and mesotarsomeres 4, and long, oblique, somewhat converging metatibial ridges as in *Pseudotolida*; however, its eyes are small, oval, and entire (unemarginated), which is more similar to the eyes of *Mordellochroa*. Further study is needed to better understand the relationship of the one North American species of *Mordellochroa* to the four species of *Pseudotolida*.

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References Cited

Bright, D. E. 1986. A Catalog of the Coleoptera of America North of Mexico. Family: Mordellidae. Fascicle 529-125. USDA-ARS, Washington, DC, viii + 22 pp.

Champion, G. C. 1890–1893. Fam. Mordellidae [pp. 250–350, 462, pls. 11–15]. *In: Biologia Centrali-Americana. Insecta. Coleoptera.* Vol. IV, Part 2. Taylor and Francis, London, x + 494 pp. + 21 pls.

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[pp. 250–256 (1890), pp. 257–350 + pls. 11–15 (1891), p. 462 (1893)].

Ermisch, K. 1965. Synonymische und nomenklatorische Feststellungen in der Familie Mordellidae (Coleoptera). Reichenbachia 5: 197–201.

Franciscolo, M. 1967. A monograph of the South African genera and species of Mordellidae. Part 3. Tribe Mordellistenini. South African Animal Life 13: 67–203.

Franciscolo, M. 1982. Mordellidae (Coleoptera: Heteromera) from Rennell and Bellona Islands (Solomons). The Natural History of Rennell Island, British Solomon Islands 8: 49–72.

Hatch, M. H. 1965. The beetles of the Pacific Northwest. Part IV. Macrodactyles, Palpicornes, and Heteromera. University of Washington Publications in Biology 16: 1–268.

Jackman, J. A. 1991. Notes on the nomenclature of Mordellidae of America north of Mexico. The Coleopterists Bulletin 45: 323–330.

Jackman, J. A., and W. Lu. 2001. Nomenclatural changes for selected Mordellidae (Coleoptera) in North America. Insecta Mundi 15: 31–34.

Khalaf, K. T. 1971a. Five new species of Mordellidae from Louisiana and Mississippi. The Pan-Pacific Entomologist 47: 140–145.

Khalaf, K. T. 1971b. Mordellidae from Louisiana and Mississippi. Journal of the Kansas Entomological Society 44: 441–445.

Liljeblad, E. 1945. Monograph of the family Mordellidae (Coleoptera) of North America, north of Mexico. Miscellaneous Publications, Museum of Zoology, University of Michigan 62: 1–229.

Lisberg, A. E. 2003. Taxonomic changes for fifteen species of North American Mordellidae (Coleoptera). Insecta Mundi 17: 191–194.

Liu, Y., T. L. Erwin, and X. Yang. 2018. Mordellidae (Coleoptera) research: A review based on the zoological record from 1864 through 2013. Insects 9, 113. DOI: 10.3390/insects9030113.

Ray, E. 1936. Studies on North American Mordellidae, I (Coleoptera). The Canadian Entomologist 68: 124–129.

Ray. E. 1944. New mordellid beetles from the Western Hemisphere. Field Museum of Natural History, Zoological Series 29(7): 117–133.

Ray, E. 1946a. Studies on North American Mordellidae, II (Coleoptera). The Pan-Pacific Entomologist 22(2): 41–50.

Ray, E. 1946b. Studies on North American Mordellidae, III (Coleoptera). The Pan-Pacific Entomologist 22(3): 90–99.

Ray, E. 1946c. Studies on North American Mordellidae, IV (Coleoptera). The Pan-Pacific Entomologist 22(4): 121–132.

Ray, E. 1947. Studies on North American Mordellidae, V (Coleoptera). The Pan-Pacific Entomologist 23(3): 121–131.

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