

THE SUBFAMILY DONACIINAE IN UTAH
(INSECTA: COLEOPTERA: CHRYSOMELIDAE)

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ABSTRACT.—Information is presented dealing with the western North American species of the subfamily Donaciinae, with emphasis on data from the state of Utah. Dichotomous keys and short diagnoses are provided to enable identification of genera and species. Previously published records from Utah are summarized. For each species, the overall North American distribution is summarized, and detailed records are given for Utah. Reported host plants for each species are also listed.

Key words: *Chrysomelidae*, *Donaciinae*, *Donacia*, *Plateumaris*, *Utah*.

Beyond the original validation of taxonomic names and subsequent systematic revisions, very little has been published about most invertebrate species. From a conservation or biodiversity point of view, this is extremely unfortunate. Overwhelmingly, most animal species are indeed invertebrates. More identification guides, investigations of biology, and regional faunal treatments are sorely needed. Aquatic species, especially insects belonging to the orders Ephemeroptera, Plecoptera, and Trichoptera, have been somewhat better studied due to their extensive use in monitoring stream quality. However, even they are in need of much additional investigation. The present study provides information on a group of insects that is somewhat intermediate between aquatic and terrestrial habits. Although currently inadequately studied, such insects may eventually prove to be valuable tools in monitoring water quality. Also, they deserve consideration when mitigation wetlands are planned. If essential factors such as proper host plants are not present in mitigated habitats, many invertebrate species would be unable to colonize and could conceivably be extirpated from large regions.

Donaciinae is a subfamily of Chrysomelidae, the entire family commonly referred to as leaf beetles. Donaciines are sometimes called long-horned leaf beetles because their antennae are longer and they have comparatively more elongate bodies than those of most other chrysomelids. In these respects they superfi-

cially resemble some of the true long-horned beetles that belong to the family Cerambycidae. Other more important subfamily characters are included in the subfamily diagnosis below. Larval donaciines are truly aquatic, being completely submerged. They occur in both lotic and lentic habitats. The apex of the abdomen is equipped with elongate, tubular extensions to the terminal spiracles, and these are inserted into hollow, air-filled stems of various aquatic plants. The larvae thereby obtain oxygen in snorkel-like fashion. They feed on these same plants. On the other hand, adult donaciines are often categorized as terrestrial insects since they are most frequently encountered out of the water. They are good fliers, and a few species are sometimes collected at light some distance from their normal aquatic habitats. Even so, adults are most frequently found very near water, often on the emergent parts of the larval host plants. Despite being found most often out of water, even adults are well adapted to an aquatic life. This is evidenced by the well-developed plastron, formed of dense, short setae, that covers the venter of some species. In fact, adults of a few species of Donaciinae, such as those in the genus *Neohaemonia*, actually spend almost their entire life, apart from the overwintering period, under water.

In spite of recent taxonomic advances, such as those of Askevold (1987, 1991), species identification of donaciine beetles can be challenging for workers not familiar with the group.

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Series of specimens, including both males and females, should be examined where possible. In conducting new fieldwork, efforts should be made to collect and properly prepare such series.

METHODS

Because some species not yet discovered in Utah may eventually be found in the state, the diagnostic keys include all taxa recorded from western North America. For the purposes of this study, "western" is defined as those areas west of the Great Plains. However, in the case of border areas, such as Colorado, all species reported from the state or province are included in the keys, even though they may occur only in the plains, rather than in mountainous areas. The inclusion of all western species in the keys should facilitate their recognition if they are ever found in Utah. We have greatly modified the keys from Askevold (1990a, 1991) and from Downie and Arnett (1996). We have altered wording, removed couplets dealing with taxa not occurring in western North America, and added additional characters. Detailed descriptions are not included, and, if specimens of questionable identification are encountered, the above-mentioned publications should be consulted. The work of Marx (1957) will also be very helpful.

Following the diagnostic keys, individual treatments are provided for species that have actually been recorded from Utah. The arrangement of genera and species is alphabetical. These treatments include short species diagnoses. Additionally, we present detailed distributional information within the state, with a discussion of previously published records and with a listing of complete label data from all specimens we have examined. This information is also summarized in distribution maps: closed circles indicate localities of material examined, and open circles indicate localities from which there are literature records but not specimens that we have examined. In addition to detailed distributional data for Utah, the overall distribution beyond Utah is summarized for each species. This overall information is taken from Riley et al. (2003). The state, provincial, and territorial abbreviations correspond to standard postal codes. Provincial and territorial records in Canada are given first, followed by state records in the United States.

Host plant information is also included and comes from the work of Clark et al. (2004).

Acronyms used in the "material examined" sections refer to the following collections where specimens are deposited: Brigham Young University, Provo, Utah (BYUC); Colorado State University, Fort Collins (CSUC); Dixie State College, St. George, Utah (DSCC); United States National Museum of Natural History, Washington, DC (USNM); Utah State University, Logan (USUC); University of Utah, Salt Lake City (UUC).

TAXONOMIC ACCOUNTS AND KEYS

Subfamily Donaciinae

SUBFAMILY DIAGNOSIS.—Head prominent, prognathous, slightly narrowed behind eyes; eyes entire, convex, prominent, moderate in size; antennae closely inserted on frons, filiform, extending to middle of elytra. Prothorax subquadrate, narrower than elytra, about as wide as head, without lateral marginal bead; procoxal cavities closed behind. Each elytron with 10 rows of punctures. Abdomen with 1st ventrite as long as the remaining 4 together. Legs long, femora capable of extending well beyond lateral margins of body; procoxae conical, narrowly separated; metafemora often enlarged and often toothed ventrally; protibiae and mesotibiae each with apical articulated spur; tarsi pseudotetramerous, with 5 tarsomeres, but with 4th tarsomere small and inconspicuous; bifid setae present on 3rd tarsomere.

Key to Genera of Western North American Donaciinae

Modified from Askevold (1990a)

(Genera followed by an asterisk are not known to occur in Utah)

1. Prothorax of most specimens with broad, finely pubescent area above procoxa (Fig. 2c); pronotal disk of some specimens conspicuously pubescent also; sutural beads of elytra straight for entire length (Fig. 14f), not dehiscent near apex; eyes of most specimens set off from vertex by distinct sulcus; vertex of many specimens with 2 distinct calli; median lobe of aedeagus subbasally with distinct angulation; tegmen thin, slender, of uniform width 2
- Prothorax without conspicuous, broad pubescent area above procoxa (but see *Plateumaris aurifera*); sutural beads of elytra dehiscent in

apical declivital area, separated from each other by a narrow, usually shiny and impunctate strip of cuticle (Fig. 14b); vertex of head more or less flat in most specimens; median lobe of aedeagus subbasally without angulation; tegmen robust, tapering apically *Plateumaris* Thomson

2(1). Outer apical angle of elytron with distinct spine (Fig. 14a); metafemur slender and untoothed; all legs with apical tarsomere elongate, about as long as preceding tarsomeres combined; legs, thorax, and elytra pale brown; most of underside, tarsi, scutellum, antennae, striae punctures, and head (except vertex of many specimens) black *Neohaemonia* Székessy*

— Outer apical angle of elytron not toothed; metafemur of most specimens distinctly clavate, with 1 or 2 subapical ventral teeth; apical tarsomere much shorter than preceding tarsomeres combined; color not as above, most specimens being dorsally metallic, not entirely pale brown *Donacia* Fabricius

Genus *Donacia* Fabricius

Donacia Fabricius, 1775:195 [genus and subgenus]
Cyphogaster Goecke, 1934:215 [extralimital subgenus (Australian, Oriental, Palearctic)]
Donaciomima Medvedev, 1973:876 [subgenus]
Askevoldia Kippenberg in Lohse and Lucht, 1994:20 [extralimital subgenus (Palearctic)]

GENERIC DIAGNOSIS.—The sutural beads of the elytra, which are not dehiscent in the apical declivital area and therefore are not separated by a narrow strip of usually shiny impunctate cuticle, normally enable easy separation of this genus from *Plateumaris*, the only other donaciine genus known to occur in Utah. However, although normally obvious, the dehiscent elytra of some specimens of *Plateumaris* are observable only upon close inspection. The conspicuous pubescent area on the prothorax above each coxa also characterizes *Donacia* and distinguishes it from *Plateumaris*. Conceivably, the genus *Neohaemonia* Székessy could eventually be found in Utah, but, although this genus is like *Donacia* in the above-mentioned characters, most specimens are immediately recognizable by the spine at the outer apical angle of each elytron (Fig. 14a).

COMMENTS.—All species known to occur in Utah belong to the subgenus *Donaciomima*. The Holarctic subgenus *Donacia* is represented in eastern North America by a number of species that feed mostly on water lilies (Nymphaeaceae). Beyond this, 2 other subgenera are recognized, but they are restricted to the Old World.

Key to Adults of Western North American *Donacia*

Modified from Downie and Arnett (1996)

(Species followed by an asterisk are not known to occur in Utah)

1. Occiput of many specimens with 2 small reddish spots; pronotal disk finely punctate; mesosternal process, especially in females, broad between middle coxae, at least half as broad as diameter of middle coxal cavities; hosts Nymphaeaceae; (subgenus *Donacia* Fabricius) *D. proxima* Kirby*
- Head more or less unicolorous, not reddish except in *D. pubescens*; most species with pronotal disk coarsely punctate, with punctures often confluent laterally to form moderate to coarse wrinkles (Fig. 1e); mesosternal process no broader than half width of middle coxal cavities; hosts various; (subgenus *Donaciomima* Medvedev) 2
- 2(1). Entire thorax, and in some specimens also elytra, densely pubescent (Fig. 1e) 3
- Body glabrous above except for head and scutellum (Fig. 2e) 4
- 3(2). Entire prothorax and elytra pubescent; dorsum brown, in some specimens with greenish tinge; appendages brown; male hind femur with 2 subapical ventral teeth *D. pubescens* LeConte*
- Prothorax pubescent (Fig. 1e); elytra shiny, glabrous; dorsum usually green, purplish blue, or coppery; appendages dark; hind femur with 1 tooth (Fig. 1b) *D. hirticollis* Kirby
- 4(2). Pronotal disk not granulate, without extensive roughening between coarse, close punctures which laterally form coarse, transverse wrinkles in many species (Fig. 4e); legs reddish only at extreme bases and, in some specimens, on part of tibiae; antennae entirely dark in most specimens, but in some specimens with 1st and apical few antennomeres reddish 5
- Without above combination of characteristics 8
- 5(4). Vertex with tubercles rather high, acute (Fig. 4c); apical third of elytron distinctly curved toward suture; pronotum usually with basilateral swelling, distinctly setting off basal transverse impression; middle to hind third of pronotum usually with distinct microsculpture (Fig. 4e) *D. tuberculifrons* Schaeffer
- Vertex with tubercles neither so high nor acute; apical third of elytron tapering toward suture, especially in males; pronotum without distinct basilateral swellings; hind third of pronotum without microsculpture between punctures 6

- 6(5). Female; apical margin of pygidium broadly emarginate; terminal abdominal sternite broadly pointed *D. subtilis* Kunze or *D. confluenta* Say* (females of these species cannot be separated)
- Male; apical margin of pygidium truncate, terminal abdominal sternite truncate, with deep depression 7
- 7(6). Apex of median lobe of aedeagus gradually tapering to sharp point (Fig. 14d); endophallus with median process markedly recurved, its apex directed ventrad *D. subtilis* Kunze
- Apex of median lobe cordate, broadened subapically, abruptly sharpened apically (Fig. 14e); endophallus with median process gradually curving dorsad apically *D. confluenta* Say*
- 8(4). Hind femora extending beyond elytra apex in males, reaching elytral apex in females; legs and antennae entirely dark; male hind femur with subapical ventral tooth and ventromedial tooth (Fig. 2b); female hind femur with 1 tooth; hind tibia denticulate or undulate along ventral, flexor carina (Fig. 14c); elytral disk smooth, shiny, punctate, not wrinkled (Fig. 2e); tubercles of vertex barely evident; color green, purplish, or green with purplish hues; host plant *Potamogeton* *D. magnifica* LeConte
- Hind femur not reaching elytral apex; antennae red or darkly colored; male hind femur with 1 tooth or with none; hind tibia without denticulate or undulate carina beneath; elytral disk often punctulate and/or wrinkled, but if not, then legs largely reddish; tubercles of vertex variable; colors variable, green in some specimens; beetles on various other plants, but not *Potamogeton* 9
- 9(8). Hind femora basally broad, therefore appearing somewhat clavate, their underside with scattered, unusually long setae; medial third of venter of males densely covered with long setae from mesosternum to apical abdominal sternum; femora each usually with subapical dark band *D. porosicollis* Lacordaire*
- Hind femora not as broad at base, their undersides without numerous long setae; venter of both sexes with setae uniformly long, dense; femora entirely dark, or with up to basal half reddish 10
- 10(9). Femora, tibiae, and tarsi entirely dark; elytral disk with distinct impressions anteromedially, postmedially, and sublaterally, with area behind postmedial impression swollen, accentuating sublateral impression 11
- Femora with at least extreme bases reddish; tibiae and tarsi reddish to entirely dark; elytral disk usually with only distinct anteromedial impression, this not as deep, with other impressions absent or indistinct; elytral disk not swollen behind postmedial impression *D. biimpresa* Melsheimer*

- 11(10). Length less than 7.7 mm; color brilliant pale green, red, or greenish bronze; pronotal disk with punctures dense, close, without roughening between punctures; anteromedial elytral impression usually deep *D. cazieri* Marx*
- Length over 8.3 mm; color dark green or brilliant pale green; pronotal disk with punctures not all contiguous; areas between pronotal punctures either roughened or shiny; anteromedial impression deep, but not as deep as in *D. cazieri* *D. distincta* LeConte*

Donacia hirticollis Kirby

Figs. 1, 15d

Donacia hirticollis Kirby, 1837:226

Donacia rudicollis Lacordaire, 1845:108

DIAGNOSIS.—The densely pubescent pronotum immediately separates this from all other donaciine species known to occur in Utah.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NF, NS, NT, ON, QC, SK, YK. **United States:** AK, CA, CO, CT, IA, ID, IL, MA, MD, ME, MI, MN, MT, NH, NJ, NY, OR, SD, UT, WA, WI, WV, WY.

PUBLISHED RECORDS FROM UTAH.—Schaeffer (1925) recorded this species from the Parowan Mts. [Iron Co.]. Tanner (1931) reported it from the Mirror and Granddaddy Lakes area in the western portion of the Uintah [*sic*, should be Uinta] Mountains [Duchesne Co.]. Tanner (1940) reported it from Posy Lake on the Aquarius Plateau [Garfield Co.]. Marx (1957) reported this species from Mirror Lake in the Uinta Mountains, which he correctly stated to be in Duchesne County. Additionally, he reported it from "Aspen Grove" and "Salamander Pond, elevation 7000 ft., Mt. Timpanogos," localities that he correctly stated to be in Utah County. However, he also reported it from "Tryol Lake, Uintah Mountains," a locality that he reported to be in Duchesne County. In actuality, this locality is in Summit County. The modern spellings are Trial Lake and Uinta Mountains. He also reported this species from "Mammoth," "Parowan Mts., Mammoth," and "Top Parowan Mts., 10,000 ft., Mammoth," and he stated that the material was from Juab County. The town of Mammoth is indeed in Juab County. However, the reported specimens are probably instead from Iron County, in the Parowan Mountains, at Mammoth Summit, just north of Cedar Breaks National Monument. Other workers have also listed *D. hirticollis* from Utah, but without indicating specific

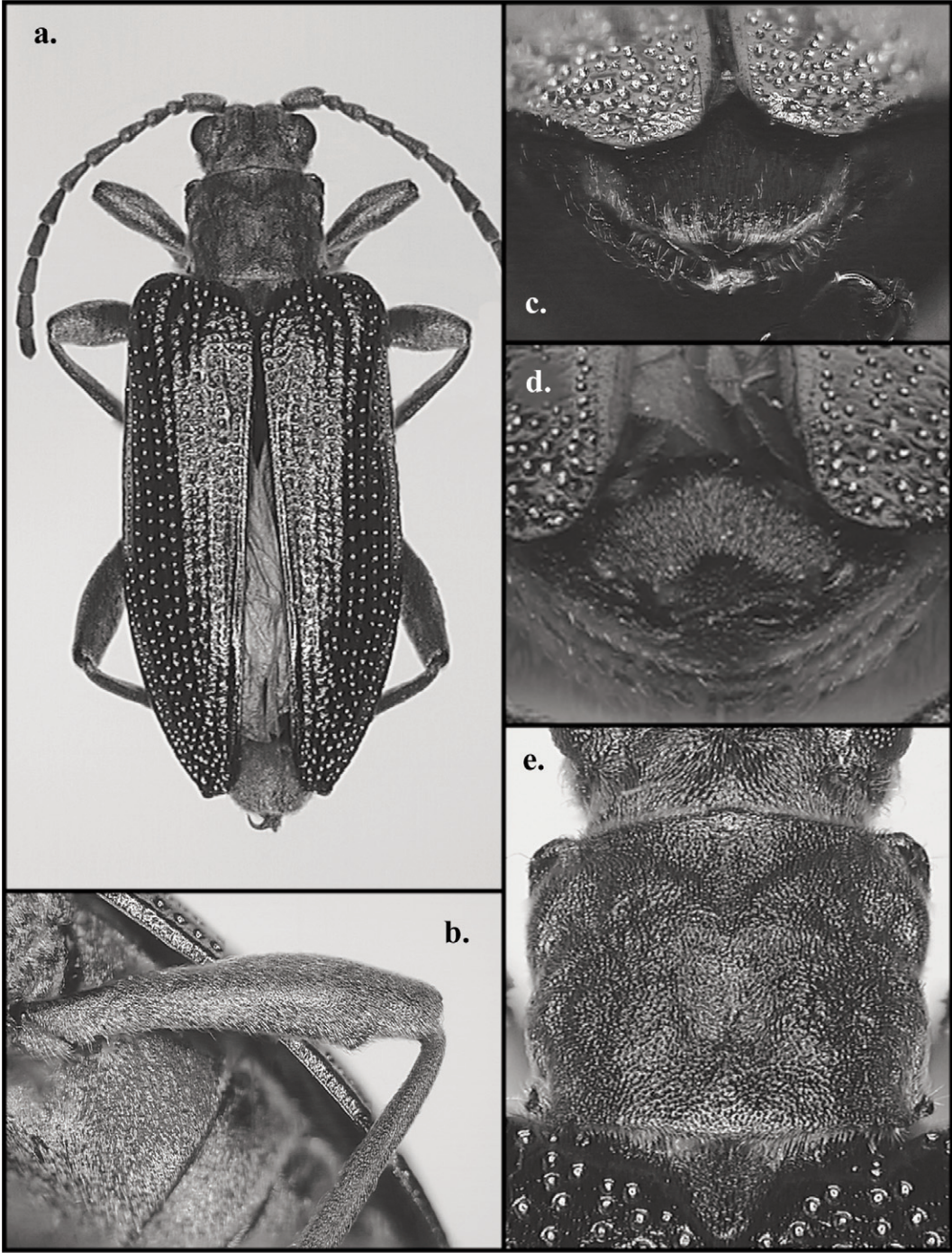


Fig. 1. *Donacia hirticollis*: a, dorsal habitus; b, hind femur; c, female pygidium; d, male pygidium; e, pronotum.

localities within the state (Beller and Hatch 1932, Downie and Arnett 1996, Riley et al. 2003).

UTAH MATERIAL EXAMINED (Fig. 15d).—*Daggett Co.*: lake 7 mi S Sheep Creek, 8000 ft., VI-1926, V.M. Tanner (1♂, BYUC). *Davis Co.*: Farmington Lake, Skyline Drive, E of Farmington, 40°58'N, 111°49'W, 3-VIII-2005, R.W. Baumann (1♂, BYUC). *Duchesne Co.*: Uinta Mountains, 16-VIII-1975 (1♂, 1♀, BYUC); Uinta Mountains, Mirror Lake, V.M. Tanner (3♂, 1♀, BYUC). *Garfield Co.*: Aquarius Plateau, elevation 9000–10,000 ft., VI-1936, D.E. Beck (1♀, BYUC); Aquarius Plateau, elevation 9000–10,000 ft., VI-1938, W.W. Tanner (2♂, BYUC); Steep Creek, Boulder Mountains, elev. 9500 ft., VI-1936 (1♀, BYUC). *Iron Co.*: Bowery Creek, S of Parowan, 24-VIII-1987, S.A. Wells (1♀, BYUC); Mammoth, top of Parowan Mountains, 10,000 ft., 12-22-VII-1921, Knaus (1♀, USNM); Mammoth, top of Parowan Mountains, 10,000 ft., 13-VII-1921, Knaus (3♂, 1♀, USNM). *Sanpete Co.*: near Bougler Lake, 21-VII-1978, R. and J. Baumann (2♂, 1♀, BYUC). *Summit Co.*: Clyde Lake, Uinta Mountains, 25-VII-1930, V.M. Tanner (1♂, BYUC); Lily Lake, Hwy. 150, Lily Lake Campground, 14-VII-1986, Baumann and Sargent (20♂, 16♀, BYUC); Lily Lake, Uinta Mountains, 18-VII-1991, L.J. Liu (1♀, BYUC); Uinta Mountains, Tryol Lake (2♂, 3♀, BYUC); Uinta Mountains, Tryol Lake, J.C. Fechsner (2♂, BYUC); Uinta Mountains, Tryol Lake, V.M. Tanner (1♂, 2♀, BYUC). *Uintah Co.*: Dinosaur National Monument, Harpers Corner, 8-VII-1991, B.C. Kondratieff (1♀, CSUC); Uinta Mountains, Iron Springs Campground, 2-VII-2002, S.M. Clark and R.W. Baumann (3♂, 9♀, BYUC). *Utah Co.*: Aspen Grove environs, Mount Timpanogos, V.M. Tanner (1♂, 1♀, BYUC); Point of the Mountain, Traverse Mountains, 21-IX-2000, R. Lorimer (1♀, BYUC); Provo Canyon pond, off Provo River, 15-VII-1992, J.S. Glenn (1♂, BYUC); Provo Canyon, pond/river, 1-VII-1999, T.M. Martin (1♀, BYUC); Provo River, 25-VI-1980, S.A. Wells (1♂, BYUC); Rock Canyon, 5-X-1997, D. Ozment (1♂, BYUC); Salamander Lake, 9-VII-1971, J.W. Aaron (1♂, BYUC); Salamander Lake, 18-IX-1981, R.W. Baumann and S.M. Clark (1♂, 2♀, BYUC); Salamander Lake, Alpine Loop, 2-VI-1981, S.M. Clark (4♂, 1♀, BYUC); Salamander Lake, Mount Timpanogos, VII-1926, V.M. Tanner (3♂, 1♀, BYUC); Salamander Pond, 23-IX-1987, Baumann and Liu

(2♂, 1♀, BYUC); Salamander Pond, 23-IX-1987, D. Beazer (1♀, BYUC); Salamander Pond, 23-IX-1987, R.C. Quilter (1♀, BYUC); Salamander Pond, 4-X-1989, J.R. Merrill (1♂, BYUC); Salamander Pond, 24-IX-1996, Baumann and Huntsman (3♂, 2♀, BYUC); Salamander Pond, 24-IX-1996, A.L. Huillet (1♀, BYUC). *Wasatch Co.*: Provo Canyon, 6-VII-1982, M.F. Whiting (1♀, BYUC); Provo Canyon, pond, 27-IX-1999, T.J. Maxwell (1♂, BYUC); Provo Canyon, pond/Provo River, 27-IX-1999, K. Basset (1♀, BYUC); Provo Canyon, Hwy. 189, mile marker 15, 17-VII-2001, C.J. Jenkins (1♂, BYUC); Provo Canyon, Hwy. 189, mile marker 15, 18-VII-2001, T.J. Cheney (1♀, BYUC); Provo Canyon, pond, Hwy. 189, mile marker 15, 13-VII-1985, A. Draper, J. Jacobsen, L. Roberts (1♂, BYUC); Provo Canyon, pond, Hwy. 189, mile marker 15, 9-VII-1997, A.C. Schaeffer (1♂, BYUC); Provo Canyon, pond, Hwy. 189, mile marker 15, 17-IX-1998, K. Cedergreen (1♂, BYUC); Provo Canyon, Hwy. 189, mile marker 17, ponds, 22-VII-1998, M.L. Fisher (1♀, BYUC); pond, 4 mi E Sundance, above Cascade Springs, 26-VI-1984, M.F. Whiting (1♀, BYUC). *Washington Co.*: southeast St. George, 23-IX-98, E.A. Deibel (1♂, BYUC). *Wayne Co.*: Thousand Lake Mountain, Snow Lake, 38°25.6'N, 111°27.5'W, 13-IX-2005, R.W. Baumann and S.M. Clark (1♂, 1♀, BYUC).

HOST PLANTS.—This species has been reported from a variety of mostly aquatic and semiaquatic plants, but preferred hosts are probably *Sparganium* and *Potamogeton* (Clark et al. 2004).

COMMENTS.—These distinctive beetles are not likely to be confused with any other North American species.

Donacia magnifica LeConte

Figs. 2, 15c

Donacia magnifica LeConte, 1851:310

DIAGNOSIS.—The pronotal disk of this species lacks pubescence, and its punctures are normally separated by a distance greater than their diameters. The median pronotal sulcus is deeply, abruptly impressed. These characters are usually sufficient to distinguish this from other species of *Donacia* known to occur in Utah, but other important diagnostic characters are included in the foregoing dichotomous key.

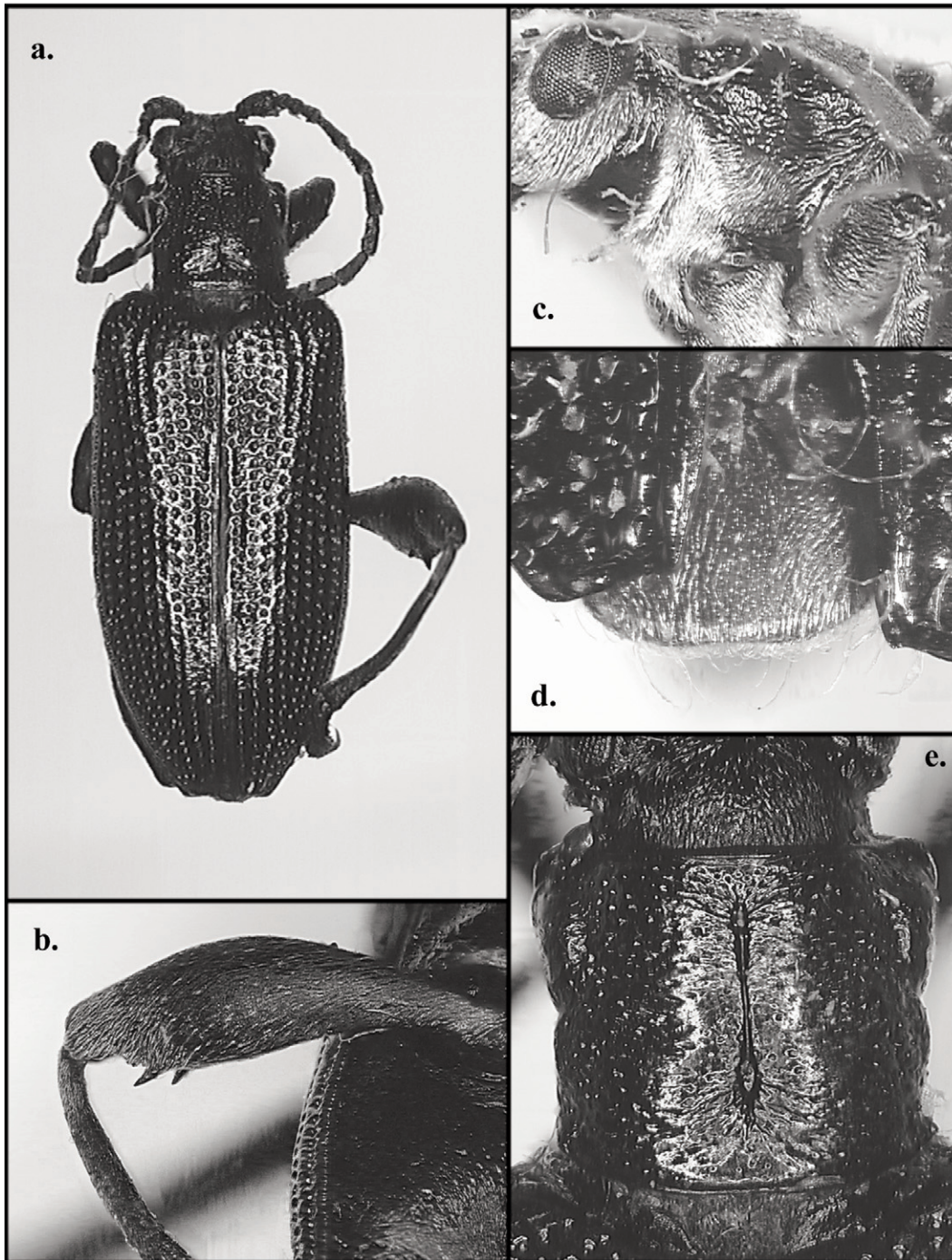


Fig. 2. *Donacia magnifica*: a, dorsal habitus; b, hind femur; c, lateral aspect of prothorax, demonstrating lighter colored pubescent area above base of leg; d, male pygidium; e, pronotum.

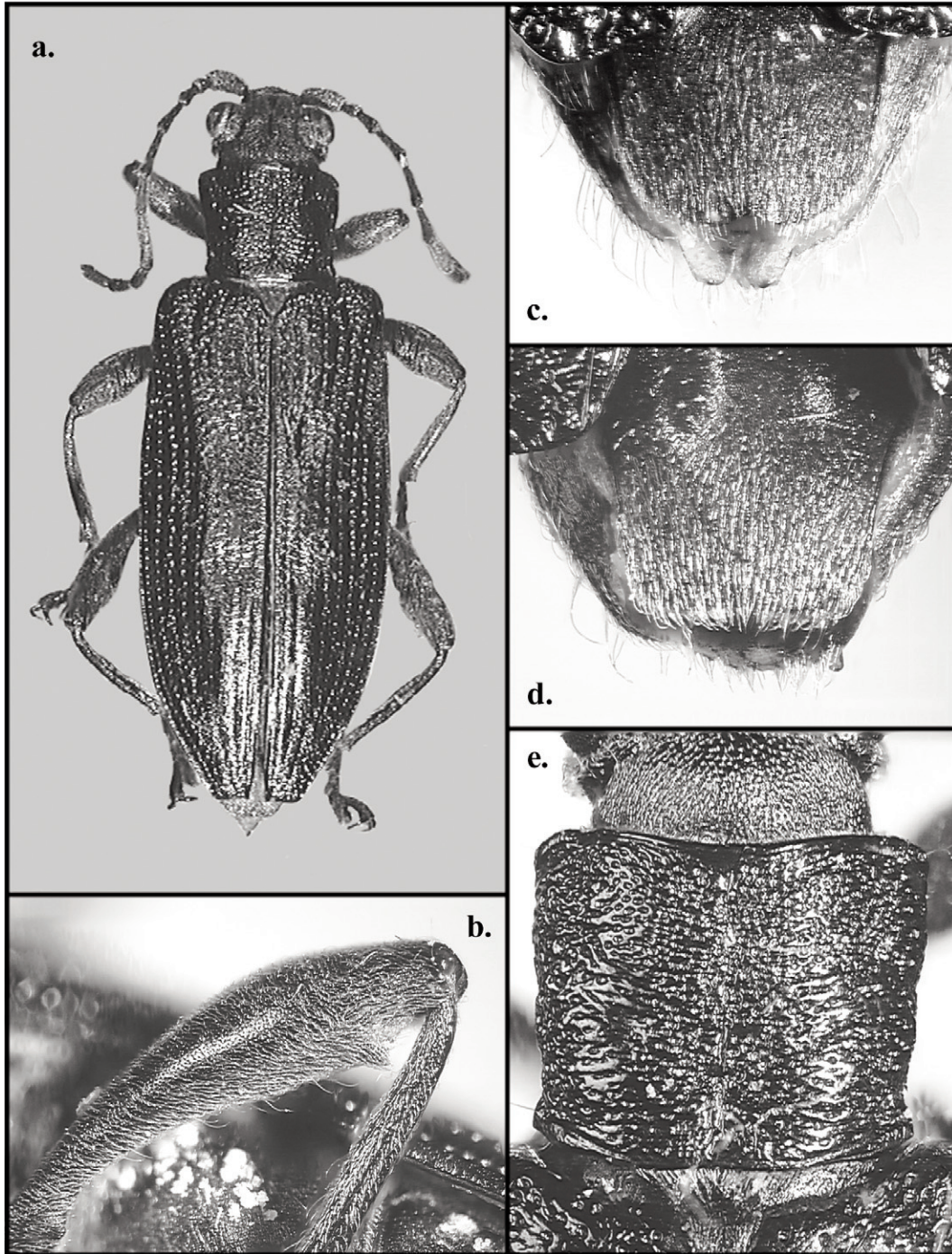


Fig. 3. *Donacia subtilis*: a, dorsal habitus; b, hind femur; c, female pygidium; d, male pygidium; e, pronotum.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, ON, QC, SK. **United States:** CA, CO, ME, MI, UT, MN, ND, WY.

PUBLISHED RECORDS FROM UTAH.—Knowlton (1939) reported this species from Uintah Canyon [Duchesne Co.]. Marx (1957) recorded it from the Cache County localities of Logan and Wellsville. Other workers have also listed it from Utah, but without indicating specific localities within the state (Downie and Arnett 1996, Riley et al. 2003).

UTAH MATERIAL EXAMINED (Fig. 15c).—*Cache Co.:* Dry Lake, 24-VI-1926, G.F. Knowlton (2♂, 3♀, USUC); Sardine Canyon, 8-VIII-1937, G.F. Knowlton and F.C. Harmston (1♀, USUC). *Utah Co.:* Provo environs, H. Cottam (1♂, BYUC).

HOST PLANTS.—This species has been reported from *Potamogeton*, *Sagittaria*, and water lily [likely *Nuphar* or *Nymphaea*] (Clark et al. 2004).

COMMENTS.—Little is known about the biology of this species. Some of the above-listed plant associations may be based on incidental occurrences.

Donacia subtilis Kunze

Figs. 3, 15b

Donacia aenea Ahrens, 1810:21 [not Hoppe, 1795]

Donacia subtilis Kunze, 1818:12 [replacement name for *Donacia aenea* Ahrens]

Donacia quadricollis Say, 1826:282

Donacia aerea Lacordaire, 1845:148 [not Schrank, 1798]

Donacia subtilis magistrigata Mead, 1938:113

DIAGNOSIS.—The pronotal disk of this species lacks pubescence and is normally coarsely punctate, with most punctures being separated by a distance less than their diameters. These characters are shared with *D. tuberculifrons*. These 2 species, together with others not known to occur in Utah, form a group in which the external morphology is extremely similar. Characters for *D. subtilis* presented in the foregoing diagnostic key, including the less prominent, less acute tubercles of the vertex, often enable separation from *D. tuberculifrons*. However, if specimens of questionable identity are encountered, it may be necessary to consult the more detailed treatment presented by Askevold (1987).

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NS, ON, QC, SK. **United States:** AL, AR, CA, CO, CT, DC, GA, IA, ID, IL, IN,

KS, LA, MA, MD, ME, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NY, OH, OR, PA, RI, SC, SD, TX, UT, VA, WA, WI, WV.

PUBLISHED RECORDS FROM UTAH.—Knowlton (1939) recorded this species from Maeser [Uintah Co.]. Riley et al. (2003) also listed it from Utah, but without indicating specific localities within the state.

UTAH MATERIAL EXAMINED (Fig. 15b).—*Utah Co.:* Elberta, 17-VIII-1937, G.F. Knowlton (2♂, USUC); Payson, 22-VIII-1943, G.F. Knowlton and D.R. Maddock (1♂, USUC); Utah Lake, east side, 25-VII-1953, T.B. Moore (1♀, BYUC [this specimen probably belongs to this species, but the actual identity is uncertain due to the female gender]).

HOST PLANTS.—This species has been reported from a variety of mostly aquatic and semiaquatic plants, but normal hosts apparently belong to the genus *Sparganium* (Clark et al. 2004).

COMMENTS.—This species, so common in eastern states, has been collected only infrequently in Utah. It belongs to a species complex in which identification is best accomplished based on the aedeagal characters presented by Askevold (1987). Other species in the complex are *D. tuberculifrons*, which is also known from Utah, and *D. confluenta* and *D. fulgens* LeConte, which are not known from the state.

Donacia tuberculifrons Schaeffer

Figs. 4, 15a

Donacia tuberculifrons Schaeffer, 1920:315

DIAGNOSIS.—The pronotal disk of this species lacks pubescence and is normally coarsely punctate, with most punctures being separated by a distance less than their diameters. These characters are shared with *D. subtilis*. These 2 species, together with others not known to occur in Utah, form a group in which the external morphology is extremely similar. Characters presented in the foregoing diagnostic key, including the higher, more acute tubercles of the vertex, often enable recognition of *D. tuberculifrons*. However, if specimens of questionable identity are encountered, it may be necessary to consult the more detailed treatment presented by Askevold (1987).

OVERALL DISTRIBUTION.—**Canada:** BC, MB, NB, ON, QC. **United States:** CT, DC, IA, IL,

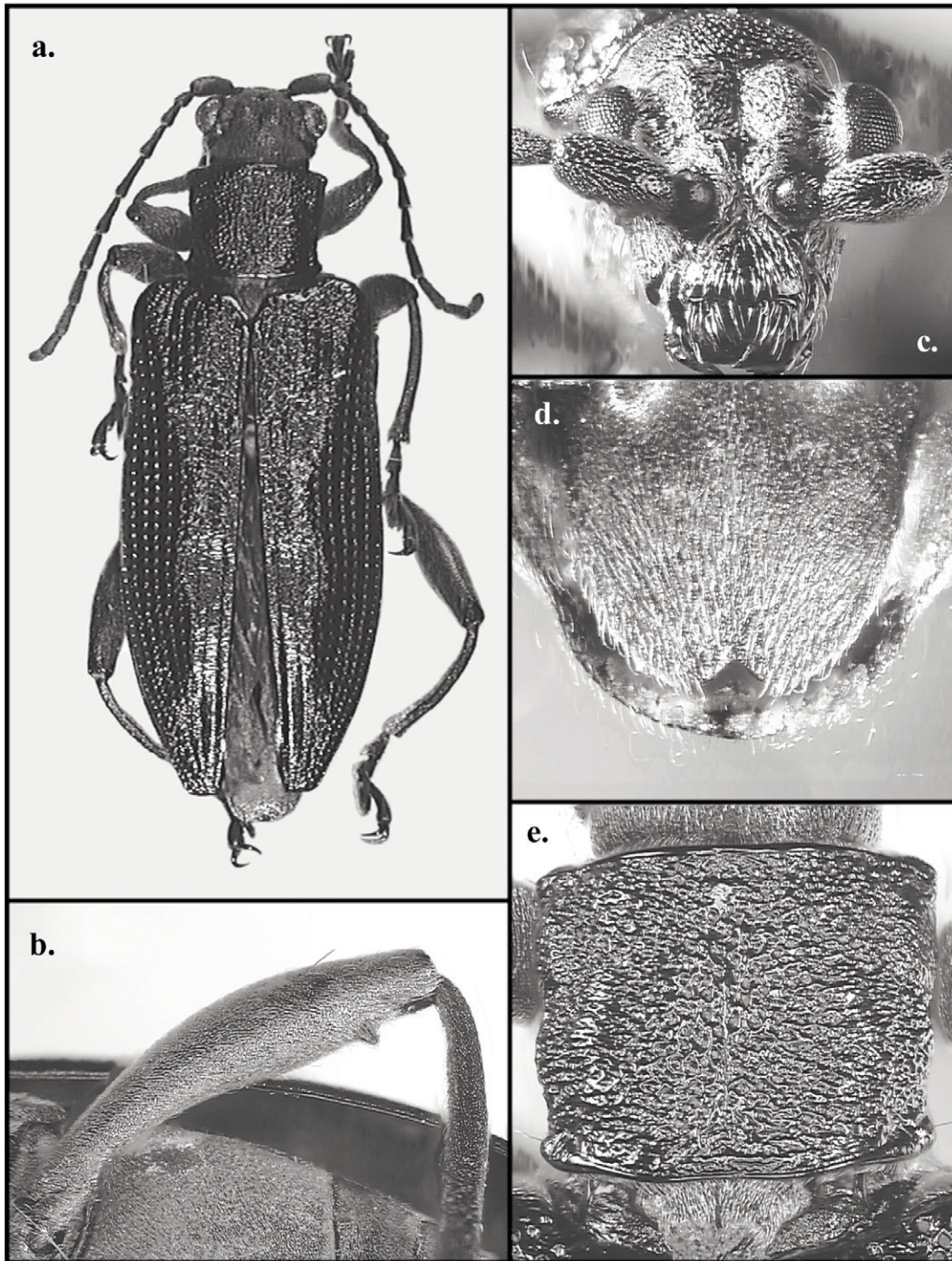


Fig. 4. *Donacia tuberculifrons*: a, dorsal habitus; b, hind femur; c, head, showing paired tubercles between eyes; d, female pygidium; e, pronotum.

IN, MI, MN, ND, NE, NJ, NM, NY, PA, SD, UT, VA, VT, WI, WV.

PUBLISHED RECORDS FROM UTAH.—Schaeffer (1925) and Marx (1957) both reported this species from the mouth of the Bear River in Box Elder County. Other workers have also listed *D. tuberculifrons* from Utah, but without indicating specific localities within the state (Wilcox 1975, Downie and Arnett 1996, Riley et al. 2003).

UTAH MATERIAL EXAMINED (Fig. 15a).—*Box Elder Co.*: mouth Bear River, 6-VI-1915, A. Wetmore (5♂, 2♀, USNM).

HOST PLANTS.—This species has been reported from *Acorus*, *Carex*, *Nuphar*, *Scirpus*, and *Sparganium* (Clark et al. 2004).

COMMENTS.—This species belongs to a complex, together with *D. subtilis* Kunze, which is also known from Utah, and with *D. confluenta* Say and *D. fulgens* LeConte, which are not known from the state. Identification in this complex is best accomplished based on the aedeagal characters presented by Askevold (1987).

Genus *Plateumaris* Thomson

Donacocia Gistel, 1857:524

Plateumaris Thomson, 1859:154

Juliusina Reitter, 1920:41

Juliusiana: Mohr, 1966:108 [incorrect subsequent spelling]

Euplateumaris Iablokoff-Khnzorian, 1966:121

GENERIC DIAGNOSIS.—The sutural beads of the elytra, dehiscent in the apical declivital area and therefore separated by a narrow strip of usually shiny, impunctate cuticle, normally enable easy recognition of this genus in Utah, although this character is seen only upon close inspection in a few specimens. The absence of a conspicuous pubescent area on the prothorax above each coxa also characterizes this genus. *Poecilocera* Schaeffer, occurring in the north-eastern United States, shares these characters but differs in having the apex of each elytron truncate or emarginate and in having antennomere 3 as long as or longer than 4. In *Plateumaris*, the elytral apex is rounded, and antennomere 3 is shorter than 4.

COMMENTS.—The synonym *Donacocia* Gistel was actually proposed before *Plateumaris* Thompson. However, *Donacocia* is an obscure and little-known name. It should be suppressed in order to conserve *Plateumaris*, as was suggested by Askevold (1991).

Key to Adults of Western North American *Plateumaris*

Modified from Askevold (1991)

(Species followed by an asterisk are not known to occur in Utah)

- 1. MALE: apical abdominal sternum with distinct broad depression at apex; basal abdominal sternum with medial oblong depression; pygidium broadly and distinctly truncate to deeply emarginate 13
- FEMALE: apical abdominal sternum broadly convex, without depression; basal abdominal sternum without medial depression; pygidium with apex rounded to deeply emarginate or notched; bladelike acute ovipositor protruding from between pygidium and apical sternum of many specimens 2
- 2(1). Pygidium broadly rounded, with an apical, median, hemispherical notch, this sometimes small and concealed by pubescence, therefore requiring close examination (Fig. 6c) 3
- Pygidium broadly rounded or broadly emarginate, appearing bilobed in some specimens, but without small apical notch (Fig. 5c) 5
- 3(2). Pygidium with large, apical, hemispherical notch; metafemur with large, triangular, sub-apical ventral tooth in most specimens; appendages pale brown or rufous to entirely black or metallic, those of most specimens darkened to some degree *P. fulvipes* (Lacordaire)*
- Pygidium with small apical notch, concealed in some specimens by pubescence (Fig. 6c); metafemur with subapical tooth absent to moderate, not so prominently triangular (Fig. 6b); appendages entirely testaceous, pale brown, or pale reddish in most specimens; some specimens with antennomeres dark apically or with antennae and femora partly infuscate; very few specimens with appendages entirely dark 4
- 4(3). Pronotum almost entirely and uniformly clothed with fine pubescence, with setae about as conspicuous as those of head and scutellum; median pronotal line indistinct or absent; color green, or slightly coppery green in some specimens; elytra with extremely dense rugosity, specimens thus brilliant to the unaided eye; body smaller, with length 6.70–7.70 mm *P. aurifera* (LeConte)*
- Pronotum glabrous, with median line of most specimens distinct though fine, with disk more or less uniformly punctate and punctulate, or with very fine transverse rugulosity, with some areas about midline obscurely alutaceous (Fig. 6e); color green, red, blue, or coppery; elytra with rugosity not so dense, most specimens thus

- not so brilliant; body larger, with length 8.23–9.27 mm *P. flavipes* (Kirby)
- 5(2). Metafemur basally broad, about as broad as at apex (Fig. 8b); pronotum with median line absent, at most appearing suture-like in some specimens, disk more or less entirely alutaceous in most specimens (Fig. 8e); ventral valve of ovipositor coarsely serrate and laterally broadly rounded (Fig. 8c); pygidial apex broadly, deeply emarginate (Fig. 8c) *P. germari* (Mannerheim)
- Metafemur not so broad basally, more distinctly clavate (Fig. 10b); pronotum of most specimens with distinct median groove or line, this in some specimens deeply furrowed (Fig. 10e); pronotal disk of most specimens not alutaceous (except most female specimens of *P. nitida* and some of *P. neomexicana*); ventral valve of ovipositor at most minutely serrulate, laterally broadly rounded or not (Fig. 9c); pygidial apex of various forms, deeply and broadly emarginate to shallowly emarginate, or broadly rounded to obtusely pointed 6
- 6(5). Pygidial apex deeply and broadly emarginate (Fig. 10c); legs of most specimens entirely dark (metallic), with at most extreme base of each femur, tibia, and tarsus rufous; antennae of most specimens entirely dark (metallic), but some specimens with apical antennomeres rufous at least basally (Oregon and Washington specimens of *P. nitida* [see couplet 7] with almost entirely rufous appendages, but then pronotal disk prominently alutaceous and shagreened, with punctures and punctulae distinct, and with median line distinct) 7
- Pygidial apex broadly rounded to obtusely pointed, or in many specimens slightly emarginate (Figs. 11c, 12c); legs and antennae entirely dark (metallic or not) to entirely testaceous or rufous 8
- 7(6). Pronotal disk of most specimens entirely, distinctly alutaceous to shagreened between punctures that are distinct, sparse, and coarse, but in some specimens shagreening or microsculpture evident only narrowly about midline; pronotal disk more or less flat or slightly convex from side to side (Fig. 10e); pygidium shallowly emarginate in most specimens, moderately emarginate in some and thus bilobed in appearance (Fig. 10c); metafemur with subapical tooth relatively small, but acute, not set off from ventrolateral surface of femur (Fig. 10b)
. *P. nitida* (Germar) (part)
- Pronotal disk not alutaceous or shagreened in most specimens; pronotal punctures not very distinct or coarse; pronotal surface, exclusive of midline, more or less transversely rugulose; pronotal midline longitudinally and more coarsely rugose, with medial area of disk longitudinally depressed, disk therefore concave in most specimens (Fig. 7e); pygidium deeply emarginate in most specimens (Fig. 7c); meta-
- femur with tooth broad, bladelike, triangular, and acute, set off from lateral surface by constriction (Fig. 7b) *P. frosti* (Schaeffer)
- 8(6). Pronotum with disk uniformly alutaceous to shagreened between sparse coarse punctures (Fig. 10e); pygidium slightly to moderately emarginate (see also couplet 7)
. *P. nitida* (Germar) (part)
- Without above combination of character states; pronotal disk not uniformly alutaceous (except in some *P. neomexicana*), at most with slight and obscure alutaceousness that does not cover entire disk, sparsely to densely and finely to coarsely punctate, dull to shiny, smooth to rugose (Fig. 12e); pygidium shallowly emarginate to rounded or pointed (Figs. 5c, 12c) 9
- 9(8). Pygidial apex broadly rounded to slightly emarginate (Figs. 11c, 12c); ventral valve of ovipositor subapically broadly rounded, curving to apex; legs varying in color and metafemoral tooth size, entirely dark and metafemur with large distinct tooth, or entirely rufous and metafemur with small but distinct tooth, or with apical half of femur metallic (except some California and Oregon specimens of *P. pusilla*, see couplet 10) 10
- Pygidial apex broadly and obtusely pointed, in outline not uniformly rounded or slightly emarginate (Fig. 5c); ventral valve of ovipositor more slender, not subapically widened and broadly rounded, more uniformly tapering to apex (Fig. 9c); legs entirely rufous to entirely metallic, if femur entirely metallic, then metafemoral tooth small to absent, otherwise metafemoral tooth varying from absent to large 11
- 10(9). All femora entirely rufous in most specimens, at most with small subapical infuscation (Fig. 12b); meso- and metatibiae flared at apex (Fig. 12b); antennomeres 2 and 3 in most specimens equal in length, these each hardly longer than width at apex; dorsal valve of ovipositor with distinct median groove reaching apex
. *P. robusta* (Schaeffer)
- All femora with apical half metallic in most specimens, metallic band sharply defined from about midlength, completely encircling the apex (some specimens from San Francisco area north to southern Oregon with femur entirely rufous or with apex slightly infuscated, most such specimens with pronotal disk finely but perceptibly pubescent); meso- and metatibiae straight to apex, of more or less uniform thickness (Fig. 11b); antennomere 3 slightly longer than 2 in most specimens; dorsal valve of ovipositor with fine median line not nearly reaching apex
. *P. pusilla* (Say)
- 11(9). Metafemoral tooth large, acute (Fig. 13b); legs and antennae entirely rufous; pronotum with median line broad, deep, precisely defined, with basal and callosal sulci well defined, with disk

- shiny, irregularly and sparsely punctate and more densely punctulate in the form of transverse rugae (Fig. 13e); hypomeron with coarse longitudinal rugae that markedly contrast with discal sculpture; host plants *Acorus calamus* (Ranunculaceae) and possibly Cyperaceae, but adventitious records including most aquatic vascular plants *P. shoemakeri* (Schaeffer)
- Metafemoral tooth absent to small and inconspicuous (Fig. 9b); legs and antenna entirely rufous to entirely metallic; pronotum with median line deep and irregularly defined to narrow and shallow to virtually absent, with callosal and basal sulci varying from well defined and prominent to not very deep, with discal sculpture varying from smooth and distinctly punctulate to entirely rugulose or rugose to alutaceous and punctate; hypomeron with or without longitudinal rugae, contrasting with discal sculpture or not; host plants Cyperaceae, not *Acorus* 12
- 12(11). Most specimens with legs and antennae entirely dark or metallic, at most with very base of femora, tibiae, and antennomeres rufous (Fig. 5b); pronotum not much longer than broad across calli (range of length-to-width ratio across calli 0.96–1.09); pronotal disk more or less shiny and coarsely to finely transversely rugose (Fig. 5e); some specimens not distinguishable without accompanying males *P. dubia* (Schaeffer)
- Most specimens with legs rufous, except femur with subapical dark or metallic band (Fig. 9b); antennomeres of most specimens half to entirely rufous (but see below); pronotal shape varying, with most specimens (except those from Arizona and New Mexico) markedly longer than broad across calli (range of length-to-width ratio 0.98–1.23); pronotal sculpture varying, northern specimens (Washington and British Columbia) with disk more or less transversely rugose but shiny, with median line and basal sulcus deep and more or less regular, many California specimens and those from Arizona and New Mexico with disk coarsely punctured, with spaces between finely rugose to shagreened and therefore not shiny, with median line and basal sulcus irregular to obscured, many of these with legs and antennae darker, even entirely dark in many Utah and Idaho specimens, or entirely rufous in California, Arizona, and New Mexico specimens; some specimens inseparable without accompanying males *P. neomexicana* (Schaeffer)
- 13(1). Pronotum almost entirely uniformly pubescent, the setae about as conspicuous as those of head and scutellum; antennal callus finely pubescent; color brilliant green or slightly coppery green; elytral intervals with dense transverse (to oblique) rugae connecting striae punctures; legs and antennae entirely testaceous, except apices of antennomeres in some specimens *P. aurifera* (LeConte)*
- Pronotal disk glabrous (Fig. 8e); antennal callus glabrous or at least not so prominently and densely pubescent; colors duller green or otherwise; elytra with intervals on disk punctulate and smooth, or rugose and punctulate; legs and antennae entirely testaceous or rufous to entirely infusate or metallic 14
- 14(13). Metafemur broad at base, about as broad as apex, with lateral surface rather flat in most specimens (Fig. 8b); pronotum with median line obscured to absent (Fig. 8e); legs and antennae testaceous or rufous to black, in some specimens with obscure metallic sheen; meso- and metatibial tubercles prominent, easily visible despite surrounding pubescence *P. germari* (Mannerheim)
- Metafemur more slender at base, with shape more clavate, with lateral surface more or less uniformly convex (Fig. 5b); pronotum with median line obscured to fine, or coarse and conspicuous; appendages testaceous to rufous, or dark, but then in most specimens distinctly metallic; meso- and metatibial tubercles small and obscured by pubescence in most specimens, or mesotibial tubercle absent, or both tubercles absent 15
- 15(14). Pygidium with apex subtruncate to clearly truncate with small median sinuation (Fig. 5d); metafemoral tooth small to absent (Fig. 5b); mesotibia without tubercle, that of metatibia small; lateral digit of endophallus with tooth at base 16
- Pygidium with apex deeply to shallowly emarginate (Fig. 10d), subtruncate or truncate, but if truncate then metafemur with large tooth; metafemur of most specimens distinctly toothed (Fig. 7b); meso- and metatibiae of most specimens each with tubercle (but see some specimens of *P. shoemakeri*), though small in some taxa (i.e. *P. robusta*, *P. pusilla*); lateral digit of endophallus without tooth at base 17
- 16(15). Legs and antennomeres of most specimens entirely dark, with slight reddish areas basally on each article in most specimens (Fig. 5b); pronotum relatively quadrate, with range of length-to-width ratio across calli 0.96–1.09 (Fig. 5e); discal pronotal sculpture consisting of irregular transverse rugae, punctation therefore indistinct (Fig. 5e); endophallus with dorsal sclerite and basal supporting block more or less horizontal, with dorsal sclerite broadly oval and deeply notched, with basal part of basal supporting block prominent; distribution generally more inland and centered more in Pacific Northwest *P. dubia* (Schaeffer)
- Legs and antennomeres entirely dark in specimens from Utah and Idaho, but from other areas entirely reddish or reddish with subapical femoral band; pronotum relatively long in most specimens, with range of length-to-width ratio across calli 0.98–1.23 (Fig. 9e); pronotal disk of various sculpture, specimens from British Columbia having coarse, irregularly transverse

- rugae and indistinct punctation, specimens grading geographically southward to those being distinctly punctate with fine, dense rugulae, to many in California being distinctly and very coarsely punctured with the surface between alutaceous, to specimens from Arizona and New Mexico being very coarsely shagreened; endophallus with dorsal sclerite and basal supporting block oblique (lateral view), dorsal sclerite more or less triangular, and basal supporting block of only 1 part; distribution wider in the southwestern United States, but restricted rather coastally from California to British Columbia *P. neomexicana* (Schaeffer)
- 17(15). Legs and antennomeres entirely dark or metallic or, in some specimens, with tarsus, antennal apex, and extreme bases of tibia and femur rufous (Fig. 10b) 18
- Legs and antennomeres varying from entirely rufous or testaceous to metallic on apical half to third of femur (Fig. 11b), or appendages with various amounts of infuscation 19
- 18(17). Metafemoral tooth broad and triangular, constricted along base and therefore very slender in cross section (Fig. 7b); pronotum broadly furrowed along midline, each side of disk therefore more or less swollen (Fig. 7e); areas near pronotal midline without alutaceous microsculpture (Fig. 7e); endophallus with dorsal sclerite extended as far as membranous lobes, with lateral digits shorter and robust *P. frosti* (Schaeffer)
- Metafemur with tooth moderate but not prominently set off from femur, not so slender in cross section (Fig. 10b); pronotum medially not broadly furrowed, most specimens with disk more or less evenly flat, many specimens with area immediately near midline with slight alutaceousness and scattered coarse punctation resembling female specimens (Fig. 10e); endophallus with dorsal sclerite shorter in relation to membranous lobes, with lateral digits narrow and elongate (see also couplet 21) *P. nitida* (Germar) (in part)
- 19(17). Meso- and metatibiae distinctly flared at apex (Fig. 12b); legs entirely rufous, femur and tarsus at most with small areas of infuscation in only a few specimens (Fig. 12b); antennomeres 2 and 3 short and equal in length in most specimens, or 3 slightly longer; each antennomere rufous in basal half *P. robusta* (Schaeffer)
- Meso- and metatibiae of more or less uniform width to apex; legs entirely rufous to entirely infuscated, or with only apical half of femur metallic; antennomere 3 slightly to much longer than 2; antennal color entirely rufous to entirely infuscate or metallic, or each antennomere with basal half rufous 20
- 20(19). Pygidium apically truncate (Fig. 13d); pronotum with disk more or less shiny, sparsely punctate and punctulate, with more or less transverse, coarse rugae, with median line deep, wide, and regular (Fig. 13e); hypomeron with coarse longitudinal rugae; elytra shiny and sparsely punctulate, with few transverse rugae *P. shoemakeri* (Schaeffer)
- Pygidium subtruncate (very shallowly emarginate) to deeply emarginate (Figs. 10d, 11d); pronotum with disk more or less uniformly densely punctate and punctulate to extremely finely rugose or alutaceous, not shiny, with median line irregular and indistinct, not broad or deep; hypomeron finely rugose to densely punctate; elytral disk of most specimens not so shiny, with surface more densely punctulate and most of surface coarsely rugose, especially laterally and apically 21
- 21(20). Pronotal disk distinctly alutaceous, nearly shagreened in some specimens, with sparsely scattered, distinct punctures and punctulae, with median line distinct and deep, with alutaceousness longitudinal near median line in many specimens (Fig. 10e); pygidium deeply emarginate (Fig. 10d); specimens from Oregon and Washington *P. nitida* (Germar) (in part)
- Pronotal disk at most indistinctly alutaceous, with punctation more or less contiguous, without much intervening space, and with median line not deep and distinct, though present (Fig. 11e); pygidium deeply to shallowly emarginate (nearly truncate; Fig. 11d); specimens from other areas, as well as Oregon and Washington 22
- 22(21). All femora, especially metafemur, basally rufous, with apical half to third metallic, the metallic part distinctly and abruptly delimited (this color not applying to some specimens from mid-California to southern Oregon) (Fig. 11b); metafemur with small acute tooth (Fig. 11b); tibiae and tarsi rufous; antennomeres each basally rufous, with apical half metallic, and with antennomere 3 slightly longer than 2 (ratio of antennomere 3 to 2 being 1.00–1.32). *P. pusilla* (Say)
- All femora entirely testaceous or rufous to entirely infuscate or obscurely metallic, but few specimens with apical half so abruptly metallic; metafemur with tooth absent to large and triangular; tibiae and/or tarsi rufous, testaceous, or partly to entirely infuscate; antennae entirely rufous or testaceous to entirely infuscate or metallic in some specimens, but few specimens with basal half of each antennomere rufous and apical half metallic; antennomere 3 relatively longer than 2 in most specimens (ratio of 3 to 2 being 1.25 or more) 23
- 23(22). Appendages entirely testaceous in most specimens, but rufous in some specimens, with slight infuscation of legs in a few specimens, and entirely infuscate but not metallic in still fewer specimens; metafemur with tooth absent to moderate in size; pygidium shallowly emarginate

(Fig. 6d); pronotal disk with medial area finely, irregularly rugulose to alutaceous in some specimens; aedeagus with apex of median lobe lacking single prominent carina below; endophallus with lateral digits having prominent hind angles, with basal supporting block robust, of 2 parts with dorsal part expanded to cover ventral part
 *P. flavipes* (Kirby)

- Appendages varying from rufous to entirely infusate or metallic, in most specimens not entirely rufous; metafemur with tooth prominent and triangular in most specimens; pygidium deeply emarginate; pronotal disk more or less uniformly punctate-punctulate, with medial area not finely rugulose or alutaceous; median lobe of aedeagus with coarse carina below from basal foramen to apex; endophallus with lateral digits lacking acute hind angles, with basal supporting block more slender, of 2 parts end to end
 *P. fulvipes* (Lacordaire)*

Plateumaris dubia (Schaeffer)

Figs. 5, 16a

Donacia dubia Schaeffer, 1925:152

Donacia idola Hatch, 1938:110

DIAGNOSIS.—This species normally has black femora, sometimes with red at the base but not extending to midlength. From most other Utah *Plateumaris* with normally black femora, this species can be distinguished by the comparatively small, blunt tooth on the ventral side of the hind femur. Even so, *P. dubia* is likely to be confused with *P. neomexicana*, which may be the same in the above-mentioned characters. As indicated in the foregoing dichotomous key, the latter species is geographically variable. Because of close morphological similarity, complicated by this variability, the 2 species are often very difficult to distinguish. However, in Utah, the interpunctural areas of the pronotum are usually smooth and shiny in *P. dubia* and usually minutely granulate in *P. neomexicana*. Additional characters facilitating the identification of *P. dubia* are provided in the key.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NL, NT, ON, QC, SK, YT. **United States:** AK, CO, ID, MT, OR, UT, WA, WY.

PUBLISHED RECORDS FROM UTAH.—Askevold (1991) reported that this species occurs as far south as “southern Utah.” The distribution map he provided indicates localities in southern Utah, likely in Kane or Washington County, and also in northeastern Utah, likely in Daggett, Duchesne, Summit, or Uintah County. Probably based on this report, Riley et al. (2003)

listed *P. dubia* from Utah, but without indication of specific localities within the state.

UTAH MATERIAL EXAMINED (Fig. 16a).—*Kane Co.:* Glendale, V-1939, G.F. Knowlton and F.C. Harmston (2♂, 1♀, USUC); 3 mi N Glendale, 12-VI-1982, W.J. Hanson (3♂, USUC); Podunk Creek, Road 99, S of Tropic Reservoir, 15-VII-1998, R.G. Call and R.W. Baumann (1♂, BYUC). *Uintah Co.:* Dinosaur National Monument, Harpers Corner, 8-VII-1991, B.C. Kondratieff (1♀, CSUC); Whiterocks, 31-V-1940, G.F. Knowlton and F.C. Harmston (1♂, USUC). *Wasatch Co.:* Daniels Canyon, Lodgepole Campground, 26-VII-1999, J. Bass (1♀, BYUC).

HOST PLANTS.—Hosts are reported to be *Carex*, *Eleocharis*, and possibly *Scirpus* (Clark et al. 2004).

COMMENTS.—In many areas this species is very difficult to distinguish from *P. neomexicana*. However, judging from the few specimens examined, *P. dubia* seems to be fairly distinct in Utah and can be recognized by the characters in the preceding key and diagnosis.

Plateumaris flavipes (Kirby)

Figs. 6, 16b

Donacia flavipes Kirby, 1837:223

Donacia wallisi Schaeffer, 1925:147

DIAGNOSIS.—This species has largely or entirely pale legs and antennae, as opposed to the black or abruptly bicolored appendages of some other species. The pronotal punctures are normally separated by somewhat alutaceous areas, and, as in most species, the hind femora are somewhat pedunculately narrowed basally. These characters generally enable separation of this species from other *Plateumaris* known to occur in Utah. Additional diagnostic characters are included in the foregoing dichotomous key.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NL, NT, ON, QC, SK, YT. **United States:** AK, AZ, CO, ID, MA, ME, MI, MN, MT, NM, NY, PA, UT, VA, WY.

PUBLISHED RECORDS FROM UTAH.—Askevold (1991) provided a distribution map indicating that this species occurs at several places along the border of Utah and Wyoming. Likely based on this report, Riley et al. (2003) listed this species from Utah, but without indicating specific localities within the state.

UTAH MATERIAL EXAMINED (Fig. 16b).—*Cache Co.:* White Pine Lake, 31-VII-1993, T.S. Hsiao

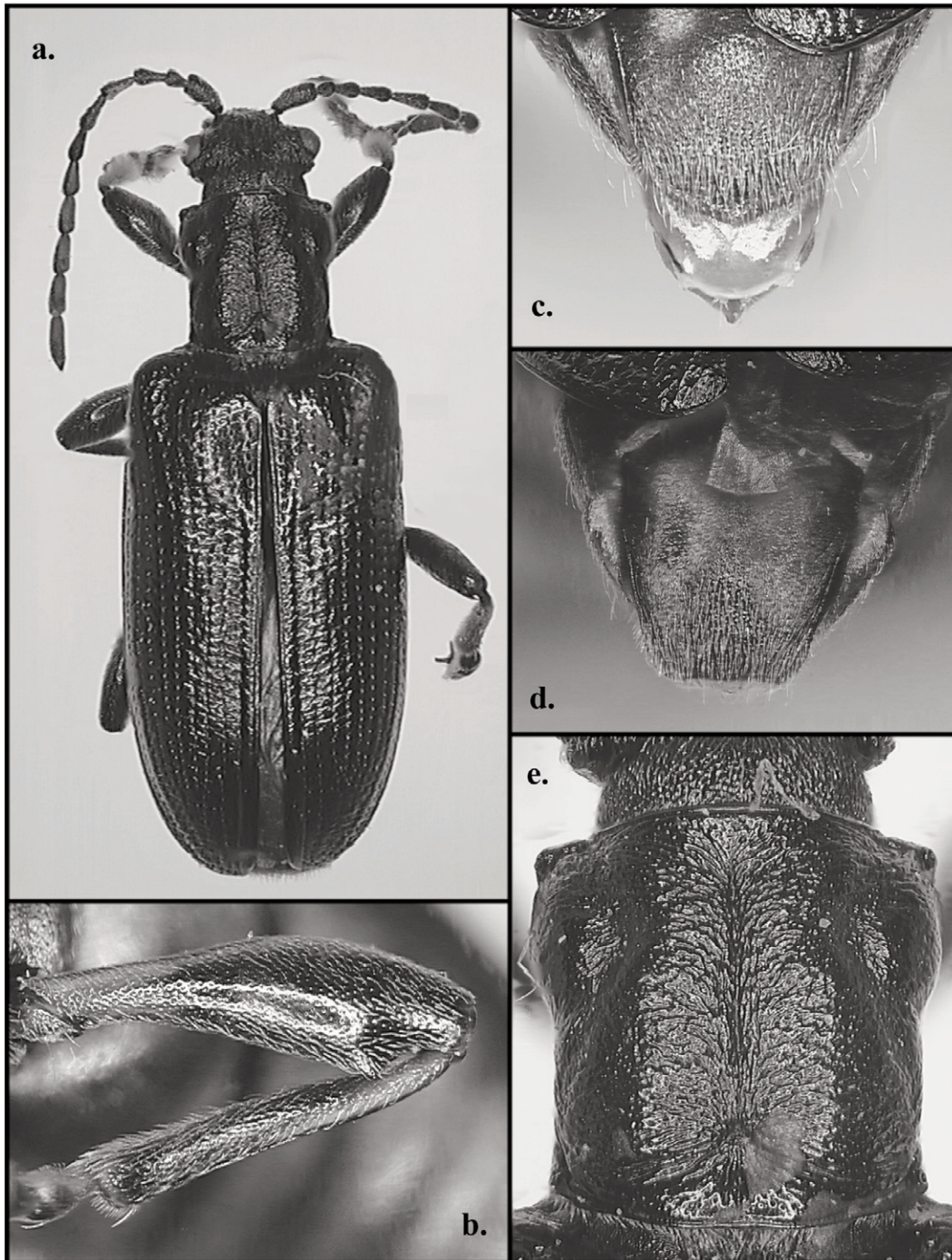


Fig. 5. *Plateumaris dubia*: a, dorsal habitus; b, hind leg; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

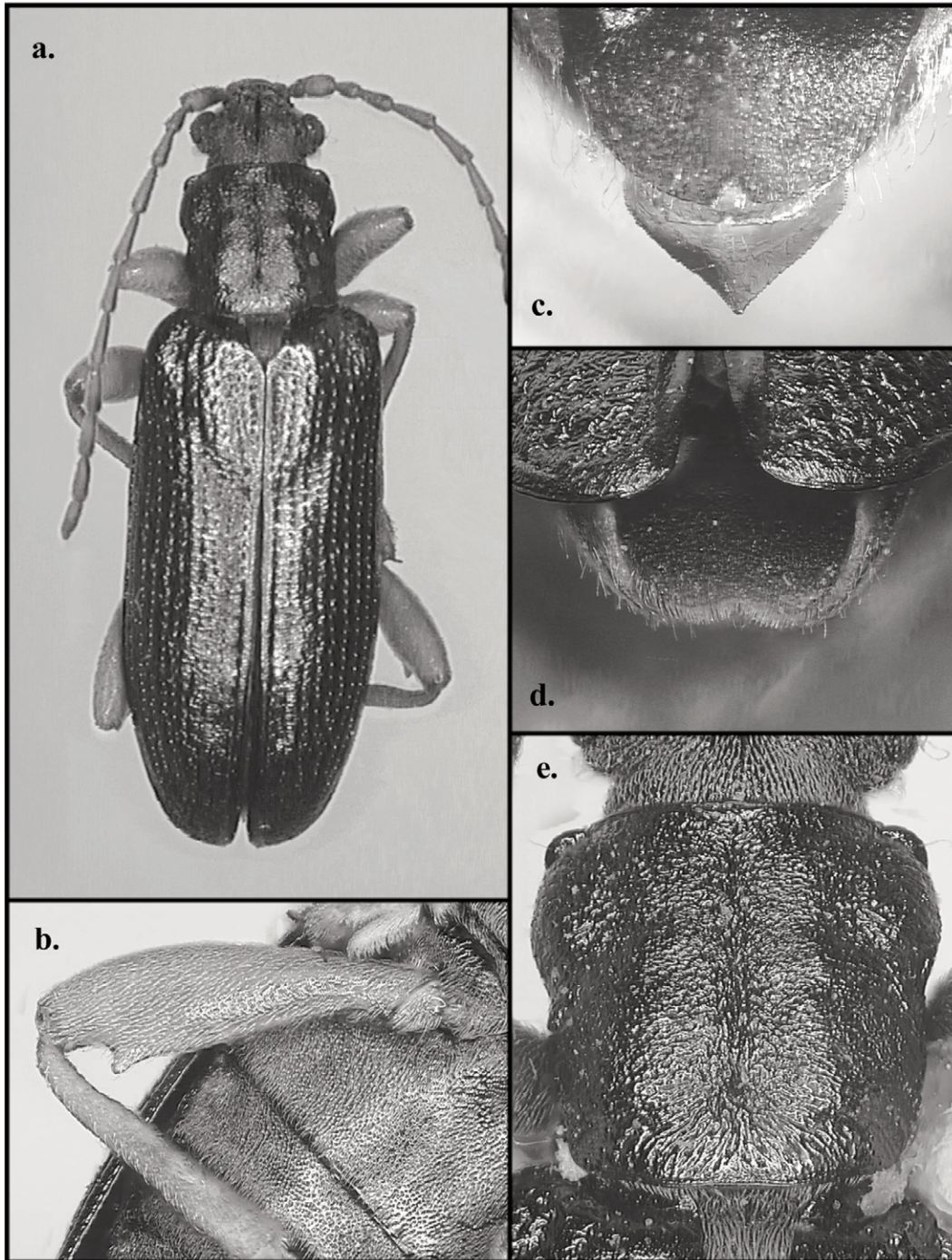


Fig. 6. *Plateumaris flavipes*: a, dorsal habitus; b, hind femur; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

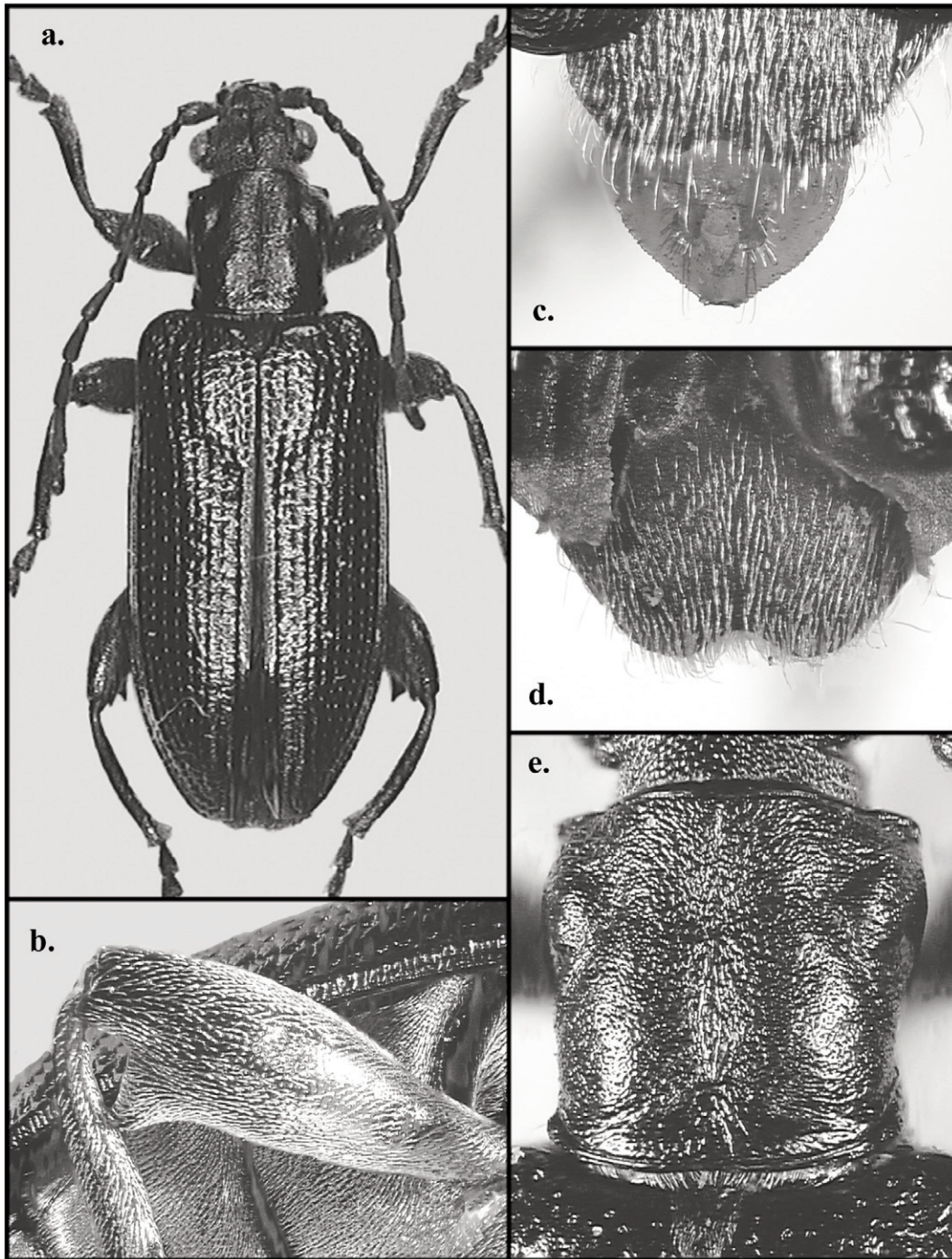


Fig. 7. *Plateumaris frosti*: a, dorsal habitus; b, hind femur; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

(6♂, 4♀, USUC). *Daggett Co.*: Uinta Mountains, Spirit Lake, 21 mi W Rt. 44, 11-VII-2007, A.R. Myrup (1♂, 1♀, BYUC). *Duchesne Co.*: Butterfly Lake, 12-VIII-1971, G.F. Knowlton (1♀, USUC); Granddaddy Lakes, 4-VII-1937, J.B. Duncan (4♂, 5♀, UUC); stream from RC 27 to Mohawk Lake, 40.6060°N, 110.8287°W, elev. 3170 m, 9-VII-2003, P.A. Fugal (2♀, BYUC); Uinta Mountains, Mirror Lake, V.M. Tanner (4♂, BYUC). *Garfield Co.*: Calf Creek Campground, Lower Falls Trail, off Hwy. 12, 37°47'37"N, 111°24'54"W, 16-VI-2000, E.C. Green, K.T. Huntzinger, W.N. Mendel (1♀, BYUC). *Sanpete Co.*: Bougler Reservoir, Flat Canyon Campground, 30-31-VII-1973, R.W. and W. Baumann (9♂, USNM). *Summit Co.*: Beth Lake, Uinta Mountains, 40°39'N, 110°58'W, 20-VII-2006, R.W. Baumann (7♂, 11♀, BYUC); Lilly Lake, 9-VIII-1978, Baumann and Unziker (1♂, BYUC); Lilly Lake, Uinta Mountains, 17-VII-1978, R.W. Baumann (3♂, 1♀, BYUC); Lily Lake, Uinta Mountains, 18-VII-1991, R.W. Baumann, K.H. Larson, and L.J. Liu (4♂, 6♀, BYUC); pond, Road 58, 2 mi S Meeks Cabin Reservoir, 40°58'N, 110°34'W, 8-VIII-2005, R.W. Baumann (9♂, 7♀, BYUC); 6 mi W Mirror Lake, 11-VII-1964, R.M. Weseloh (1♀, BYUC); Uinta Mountains, Star Lake stream, V.M. Tanner (1♂, BYUC); Uinta Mountains, Tryol Lake, (4♀, BYUC); Uinta Mountains, Tryol Lake, V.M. Tanner (6♂, 6♀, BYUC). *Uintah Co.*: Paradise Park, 22-VII-1942, G.F. Edmunds (1♂, 3♀, UUC); Sims Peak Pot-holes, 22-VIII-1983, R.W. Baumann and M.F. Whiting (1♂, BYUC). *Utah Co.*: Provo City, 16-X-1964, Lowell Fisher (1♂, 1♀, BYUC).

HOST PLANTS.—This species has been reported from a variety of mostly aquatic and semiaquatic plants, but true hosts apparently belong to the genera *Carex*, *Eleocharis*, and *Scirpus* (Clark et al. 2004).

COMMENTS.—Most of the specimens cited above are from lentic rather than lotic habitats.

Plateumaris frosti (Schaeffer)

Figs. 7, 16c

Donacia emarginata, var. *frosti* Schaeffer, 1925:136

DIAGNOSIS.—In Utah this species is perhaps most likely to be confused with *P. nitida*. Both species normally have black rather than pale femora, and they both have a large ventral tooth on each hind femur. In *P. frosti* the tooth extends abruptly from the leg, forming a dis-

tinct angle with respect to the more basal edge of the femur. In *P. nitida* the edge of the tooth is nearly in line with the more basal part of the femur. Also, the interpunctural area of the pronotum of *P. frosti* is not strongly alutaceous as it is in *P. nitida*, though it is minutely granulate in some specimens.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NS, NT, ON, QC, SK. **United States:** CT, IL, IN, MA, ME, MI, MN, MT, ND, NH, NJ, NY, OH, PA, RI, UT, WI.

PUBLISHED RECORDS FROM UTAH (Fig. 16c).—Askevold (1991) reported that this species occurs as far south as “northern Utah.” The distribution map that he provided indicates that the material examined was from near the southeastern edge of the Great Salt Lake, likely in either Davis or Salt Lake County. Probably based on this report, other workers have listed *P. frosti* from Utah, but without indicating specific localities within the state (Downie and Arnett 1996, Riley et al. 2003).

UTAH MATERIAL EXAMINED.—None.

HOST PLANTS.—Hosts are apparently Cyperaceae, including *Carex stricta* Lam. (Clark et al. 2004).

COMMENTS.—This species is apparently uncommon in Utah, if it does truly occur in the state. It is much more frequently collected in more eastern or northern areas. Askevold (1991) suspected that a specimen reportedly from California was mislabeled. Conceivably, the Utah material that he examined was also mislabeled. It is noteworthy that he recorded *P. shoemakeri*, another species that seems out of range in Utah, from the same site. Perhaps collections made elsewhere were mistakenly labeled as this locality in Utah.

Plateumaris germari (Mannerheim)

Figs. 8, 16d

Donacia flavipennis Mannerheim, 1843:306

Donacia germari Mannerheim, 1843:306

Donacia dives LeConte, 1851:314

Donacia serricauda Schaeffer, 1920:318

DIAGNOSIS.—The normally pale legs, alutaceous pronotum, absence or reduction of the median pronotal sulcus, and especially the unusual hind femora, as broad at the base as at the apex and not pedunculately clavate, enable recognition of this species.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NL, NS, NT, ON, QC, SK, YT. **United States:** AK, AZ, CA, CO, CT, ID, IN,

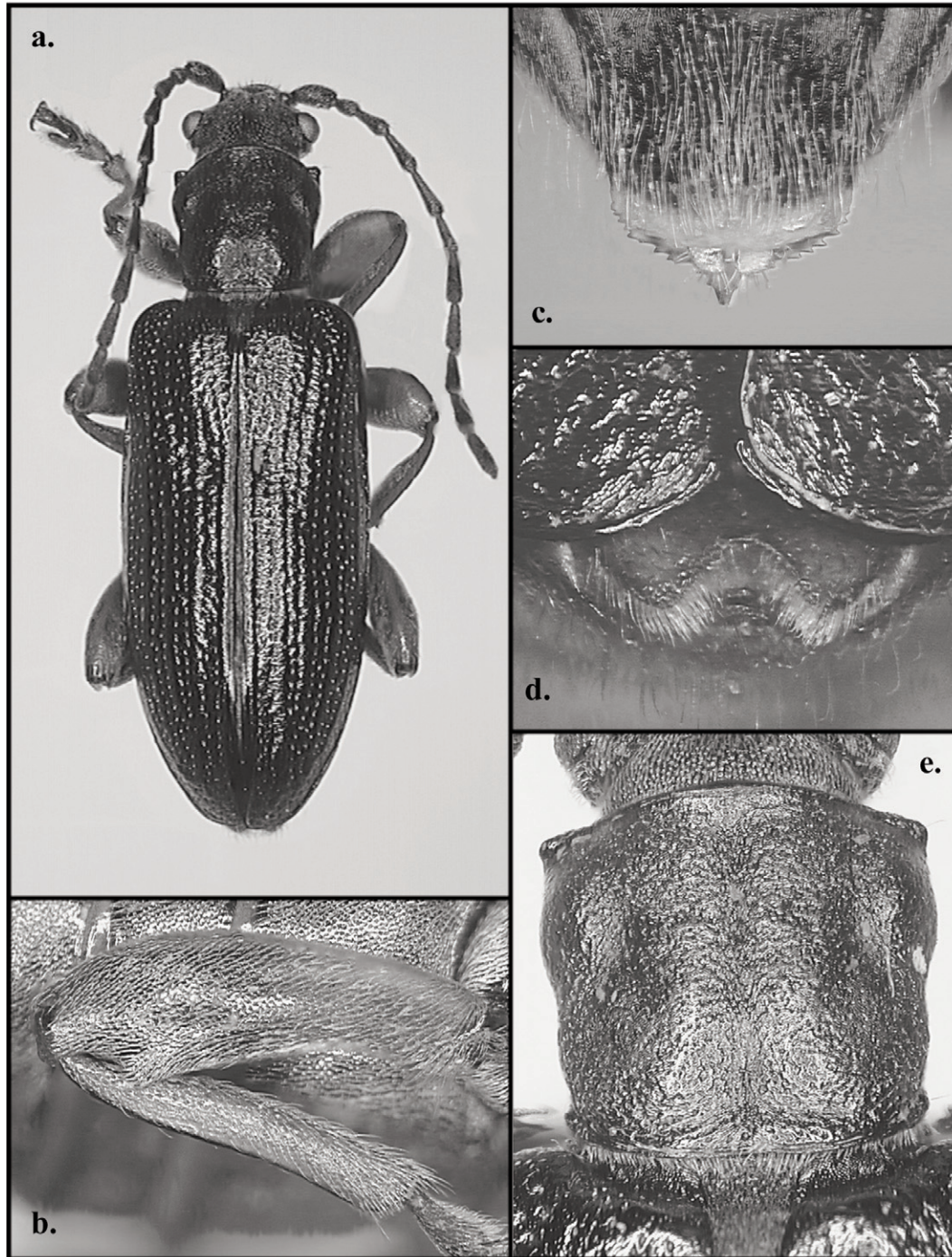


Fig. 8. *Plateumaris germari*: a, dorsal habitus; b, hind leg; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

MA, ME, MI, MN, MT, NH, NJ, NV, NY, OR, PA, SD, UT, VT, WA, WI, WY.

PUBLISHED RECORDS FROM UTAH.—Askevold's (1991) distribution map indicates that this species occurs at a number of places in Utah. Although the scale of the map is too small to enable recognition of specific sites (or even substantiate definite county records), the localities indicated extend from the northern edge of the state, near the borders with Idaho and Wyoming, southward through the more urbanized and more frequently traveled parts of the state, and from there toward the southwestern corner of Utah. Probably based on Askevold's report, Riley et al. (2003) listed *P. germari* from Utah, but without indication of specific localities within the state.

UTAH MATERIAL EXAMINED (Fig. 16d).—*Beaver Co.*: Beaver, 27-VI-1967, G.F. Knowlton (4♂, 7♀, USUC). *Cache Co.*: Hyde Park, 5-VI-1939, G.S. Staine and G.F. Knowlton (1♀, USUC); Logan, V-1952, L.C. Raniere (1♀, USUC). *Daggett Co.*: Uinta Mountains, Spirit Lake, 21 mi W Rt. 44, 11-VII-2007, A.R. Myrup (1♂, BYUC). *Garfield Co.*: Grand Staircase–Escalante National Monument, Henrieville Creek, 7.5 mi NE Henrieville, near Hwy. 12, 37°36'46"N, 111°53'48"W, 15-V-2001, D.J. Cavan, K.F. Kuehnl, and C.R. Nelson (1♂, 2♀, BYUC); spring off Hwy. 12, 7.5 mi E Henrieville, 37°36'46"N, 111°53'48"W, 6578 ft., 23-VI-2000, R.W. Baumann, D.J. Cavan, E.C. Green, W.N. Mendel (1♀, BYUC). *Kane Co.*: 6 mi N Kanab, 15-VI-1978, G.F. Knowlton (1♂, USUC). *Millard Co.*: Delta, 20-V-1944, G.F. Knowlton and F.C. Harmston (1♂, 1♀, USUC). *Sanpete Co.*: Indianola, 15-VI-1948, G.F. Knowlton and S.L. Wood (2♂, USUC). *Summit Co.*: Kamas, 19-VI-1940, G.F. Knowlton (1♀, USUC). *Utah Co.*: Mount Nebo Loop, 3-VI-1972, G.F. Knowlton and W.J. Hanson (1♀, USUC); Provo, 24-V-1955, L. King (1♀, BYUC); Provo environs (1♂, 1♀, BYUC).

HOST PLANTS.—These beetles have been reported from species of *Carex*, *Eleocharis*, and *Scirpus* (Clark et al. 2004).

COMMENTS.—According to Askevold (1991), *P. germari* is likely most closely related to the Palearctic species *P. weisei* (Duvivier).

Plateumaris neomexicana (Schaeffer)

Figs. 9, 17a

Donacia neomexicana Schaeffer, 1925:154

Donacia longicollis Schaeffer, 1925:156
Donacia vermiculata Schaeffer, 1925:158

DIAGNOSIS.—Due in large part to geographic variability, this species is difficult to characterize. However, in Utah the femora are generally black or bicolored, the hind femur has a comparatively small, blunt ventral tooth, and the interpunctural areas of the pronotum are normally minutely granulate. This combination of characters usually enables separation from other Utah species of *Plateumaris*, and additional characters facilitating identification are provided in the foregoing dichotomous key.

OVERALL DISTRIBUTION.—**Canada:** BC. **United States:** AZ, CA, CO, ID, NM, NV, OR, UT, WA.

PUBLISHED RECORDS FROM UTAH.—Askevold (1991) reported this species to be "widespread in Utah." The distribution map he provided indicates localities in southern Utah, likely in Kane or Washington County, and also in various places in north central Utah. Probably based on Askevold's publication, Riley et al. (2003) listed *P. neomexicana* from Utah, but without indicating specific localities within the state.

UTAH MATERIAL EXAMINED (Fig. 17a).—*Box Elder Co.*: 1.5 mi S Mantua, 20-29-VII-1983, C.R. Nelson (1♀, BYUC); 2 mi S Mantua, 14-20-VII-1983, Malaise trap (3♀, USUC); 11.5 mi S Mantua, 14-20-VII-1983, C.R. Nelson and W.J. Hanson (1♂, 1♀, USUC); Willard, 29-IV-1939, G.F. Knowlton and F.C. Harmston (1♂, USUC). *Cache Co.*: Amalga, 19-VI-1937, C.F. Smith (1♂, USUC); Cache Junction, 21-V-1944, G.F. Knowlton (1♂, USUC); Cache Junction, 27-VI-1944, G.F. Knowlton (1♀, USUC); Cache Junction, 11-VI-1957, J.L. Eastin (1♂, 6♀, USUC); Cache Junction, 16-VI-1957, J.L. Eastin (1♂, USUC); Cache Junction, 16-VI-1967, G.F. Knowlton (1♂, 2♀, USUC); Logan, 27-VII-1939, G.F. Knowlton (1♀, USUC); Logan, 2-VI-1943, E.R. Stoddard (1♂, USUC); Logan, 2-VII-1943, P.E. Telford (1♀, USUC); Logan, 18-VI-1948, R.W. McAdams (1♀, USUC); Logan, 24-VII-1948, J.H. Judd (1♀, USUC); Logan, 29-VII-1948, J.H. Judd (2♀, USUC); Logan, 20-V-1949, G.L. Dean (1♀, USUC); Logan, 3-VII-1950, A.B. Altikriti (1♂, USUC); Logan, 24-V-1951, G.P. Taylor (1♀, USUC); Logan, 16-VI-1967, G.F. Knowlton (3♂, 1♀, USUC); Logan, 21-VI-1968, W.J. Hanson (1♂, USUC); west Logan, 17-VI-1967, W.J. Hanson (5♂, 1♀, USUC); Mendon, 16-VI-1967, G.F. Knowlton

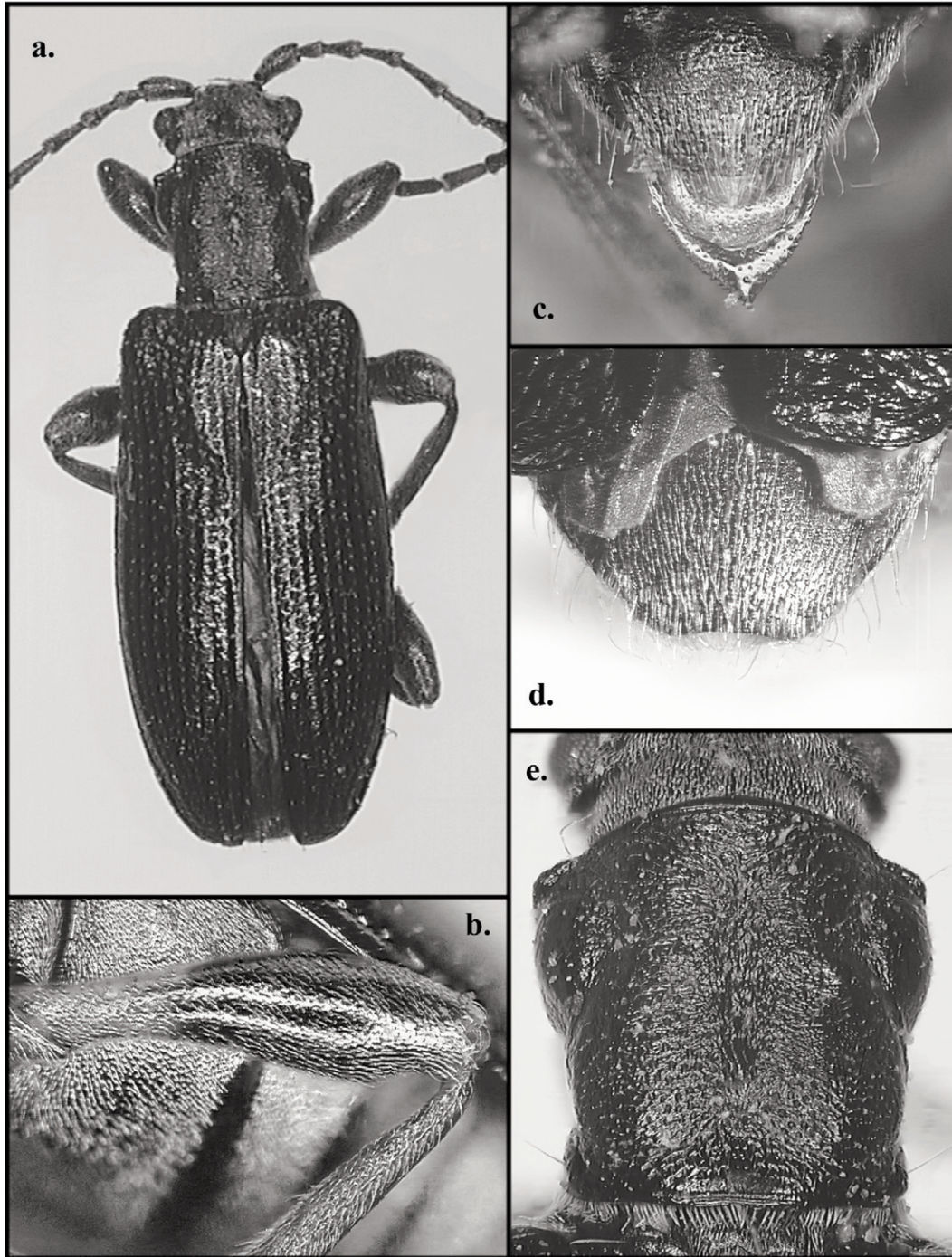


Fig. 9. *Plateumaris neomexicana*: a, dorsal habitus; b, hind femur; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

(1♂, 2♀, USUC); North Logan, 20-V-1950, P.R. Fitzgerald (1♀, USUC); Wellsville, 11-VI-1975, W.J. Hanson (2♂, USUC). *Davis Co.*: Farmington, 19-VI-1921, D.E. Hardy (1♂, USUC). *Garfield Co.*: Boulder Mountains, 17-VIII-1993, K. Richards (1♂, BYUC); Bryce, 30-VIII-1949, C.J. Stewart (1♀, USUC). *Juab Co.*: Mount Nebo Loop, 3-VII-1972, W.J. Hanson and G.F. Knowlton (5♂, 1♀, USUC). *Rich Co.*: Lakota, 24-VII-1943, G.F. Knowlton and D.R. Maddock (1♂, USUC). *Salt Lake Co.*: Butterfield Canyon, W of Herriman, 19-VII-2004, S.M. Clark and R.W. Baumann (2♂, 2♀, BYUC); Butterfield Canyon, above Lark, 11-VI-1987, Nelson and Wells (1♀, BYUC). *Sanpete Co.*: Mount Nebo, 25-VII-1942, Knowlton (1♂, USUC). *Summit Co.*: Altus, 25-VI-1940, M. and H. James (1♂, 1♀, CSUC); Francis, 12-VII-1963, G.F. Knowlton (2♀, USUC); Kamas, 24-VII-1939, G.F. Knowlton and F.C. Harmston (1♀, USUC); Kamas, 15-VIII-1943, G.F. Knowlton and D.R. Maddock (2♀, USUC); Kamas, 12-VI-1965, G.F. Knowlton (2♂, 1♀, USUC). *Utah Co.*: Alpine area, 7-VI-1982, M.F. Whiting (1♀, BYUC); Alpine, Dry Creek Canyon, 9-VI-2003, P.A. Fugal (1♂, BYUC); Alpine, Dry Creek Canyon, 7-VII-2003, P.A. Fugal (1♂, BYUC); American Fork, on beets, 23-VI-1926, G.F. Knowlton (1♂, USUC); springs between American Fork and Lehi, 20-IV-2001, R.W. Baumann (1♂, BYUC); springs between American Fork and Lehi, UTM 432525E 4468471N, 24-VI-2002, M.J. Keleher (1♀, BYUC); American Fork Springs, 8-V-2001, Baumann and Winkler (1♂, BYUC); American Fork Springs, Mill Pond, 11-VII-2001, M.L. Shirley (2♀, BYUC); Anderson Hollow, near Birdseye, 26-VI-2003, P.A. Fugal (1♂, BYUC); pond, Francis Ranch, S of Thistle, 26-VI-2003, Baumann and Clark (1♂, BYUC); Hobbie Creek Canyon, 10-VI-1953, T.B. Moore (4♂, 2♀, BYUC); Hobbie Creek Canyon, 31-VII-1953, T.B. Moore (5♂, 5♀, BYUC); Hobbie Creek Canyon, 1-VIII-1953, T.B. Moore (3♂, 2♀, BYUC); Hobbie Creek Canyon, E of Springville, 20-VII-1957, L.D. Moore (23♂, 22♀, BYUC); Orem Marina, 4-VI-1981, S.M. Clark (1♀, BYUC); Payson, Spring Lake, 7-VII-1992, R.W. Baumann (1♀, BYUC); Payson, Spring Lake, 7-VII-1992, S. England (1♂, BYUC); Pete Winward Reservoir trailhead, pond, 39°57'N, 111°41'W, 7-VII-2006, R.W. Baumann (11♂, 2♀, BYUC); near Pete Winward Reservoir, Uinta National Forest, 30-VI-

2000, S.M. Clark (4♂, 2♀, BYUC); Powell Slough, 22-V-1985, Whiting and Wells (1♀, BYUC); Provo, V-1926, G.L. Hayward (1♂, 1♀, BYUC); Provo, 5-VI-1944, G.F. Knowlton and S.L. Wood (1♂, 1♀, USUC); Provo, 24-V-1955, L. King (1♂, BYUC); Provo, 12-VII-1962, G.L. Jensen (1♂, USUC); Spanish Fork, 25-VII-1949, T.B. Moore (1♂, BYUC). *Wasatch Co.*: Gerber Spring, Midway, 21-VI-1983, M.F. Whiting (3♂, 1♀, BYUC). *Weber Co.*: head, Beaver Creek, 6-VII-1976, W.J. Hanson (2♂, 1♀, USUC); head, Beaver Creek, 6-VII-1976, G.F. Knowlton (1♂, 3♀, USUC); head, Beaver Creek, 21-VII-1976, G.F. Knowlton (1♂, 3♀, USUC); head, Beaver Creek, 7-VII-1977, Knowlton and Hanson (9♂, 7♀, USUC); head, Beaver Creek, 19-VII-1979, G.F. Knowlton and W.J. Hanson (2♂, 1♀, USUC); head, Beaver Creek, 1-VIII-1980, Hanson, Knowlton, and Clemons (1♂, USUC); Beaver Creek, Lime Spring, 6-VII-1976, G.F. Knowlton (1♂, USUC); Eden, 5-VII-1940, G.F. Knowlton and F.C. Harmston (1♂, USUC); Huntsville, VI-1947, M. Nielson (1♀, USUC); Liberty, 5-VII-1940, G.F. Knowlton and F.C. Harmston (1♀, USUC); 6 mi S Monte Cristo, 6-VII-1976, G.F. Knowlton (1♂, USUC); Ogden, 16-VI-1937, D.E. Hardy (1♂, USUC); Riverdale, 10-VII-1937, G.F. Knowlton (1♀, USUC); West Ogden, 24-VI-1935, G.F. Knowlton (1♂, USUC).

HOST PLANTS.—Hosts are reported to be Cyperaceae, including *Carex* and probably *Scirpus* (Clark et al. 2004).

COMMENTS.—This species is geographically variable. It is confusing that some of the easily visible, nongenital characters that enable species recognition in Utah are actually diagnostic of *P. dubia* in areas more to the northwest.

Plateumaris nitida (Germar)

Figs. 10, 17b

Donacia nitida Germar, 1811:31

Donacia emarginata Kirby, 1837:224

Donacia bimodosa LeConte, 1851:316 [unjustified emendation, see Askevold, 1991]

Donacia juncina Couper, 1864:88

Donacia junci: Crotch, 1873:21 [*lapsus calami*, *Donacia juncina* Couper intended]

Donacia emarginata, var. *pacifica* Schaeffer, 1925:135

DIAGNOSIS.—In this species, especially in females but also in males, the pronotum is strongly alutaceous (smooth or granulate in some other species), the legs are normally

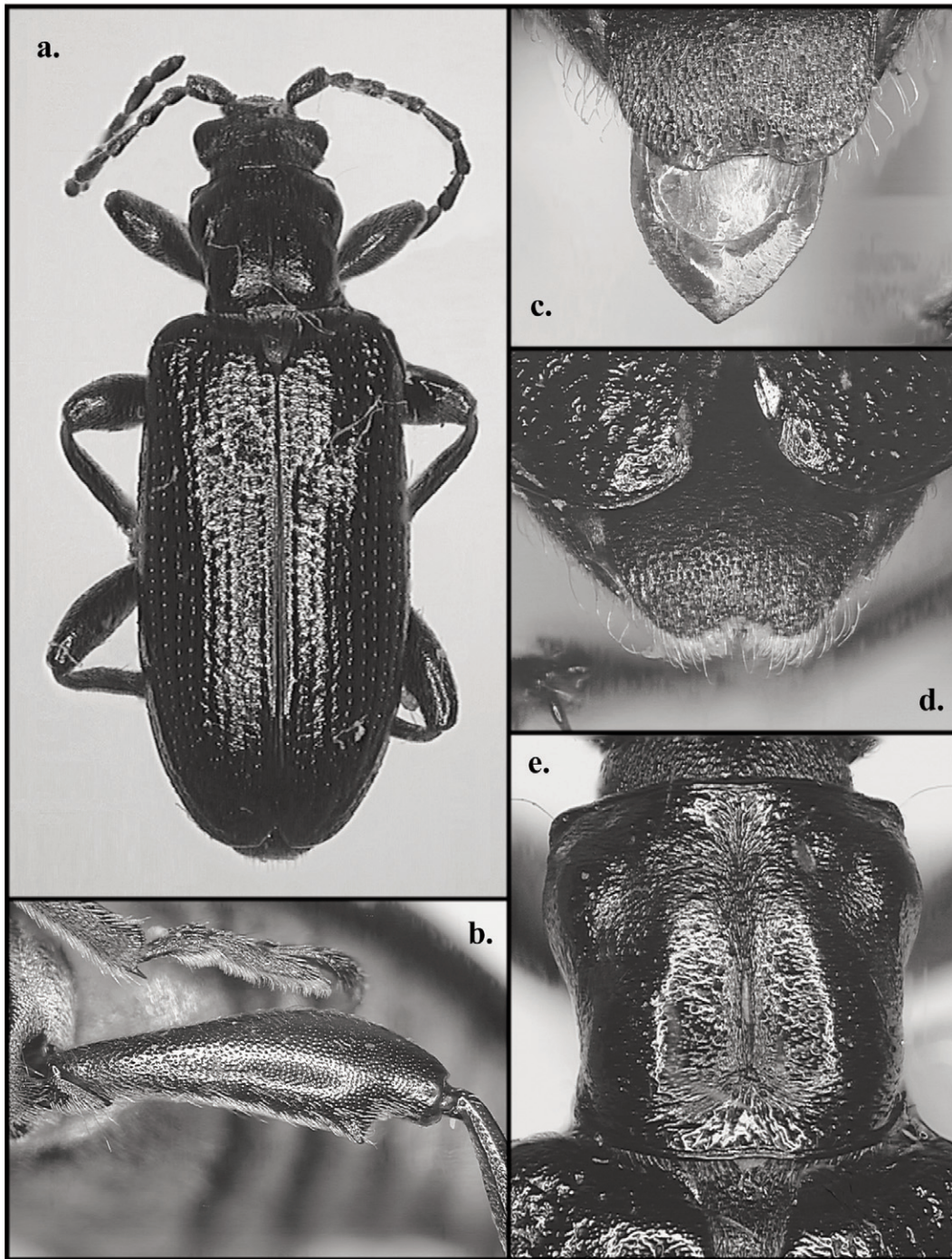


Fig. 10. *Plateumaris nitida*: a, dorsal habitus; b, hind femur; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

largely or entirely black, and, in comparison with *P. dubia* and *P. neomexicana*, the ventral tooth of the hind femur is large and acute. This combination of characters distinguishes *P. nitida* from other *Plateumaris* known to occur in Utah.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NL, NS, NT, ON, PE, QC, SK. **United States:** CA, CO, CT, ID, IL, IN, MA, ME, MI, MN, MT, NE, NH, NJ, NY, OR, PA, RI, SD, UT, VA, VT, WA, WI, WY, WY.

PUBLISHED RECORDS FROM UTAH.—Schaeffer (1925) reported the synonym *D. emarginata* from the Great Salt Lake [Box Elder, Davis, Salt Lake, Tooele, or Weber County]. Wilcox (1975) similarly listed the synonym *Plateumaris emarginata* from Utah, but without indicating specific localities within the state. Askevold (1990b) provided a map indicating that the distribution of *P. nitida* includes much of Utah. However, later (Askevold 1991) he provided another distribution map for *P. nitida* with localities marked off only in southern Utah, likely in Kane or Washington County, and in northern Utah along the borders with Idaho and Wyoming. Riley et al. (2003) listed *P. nitida* from Utah, but without indication of specific localities within the state.

UTAH MATERIAL EXAMINED (Fig. 17b).—*Box Elder Co.:* Big Hollow Creek, 20-VI-1979, Baumann and Webb (1♂, BYUC); Clear Creek Campground, 15-VII-1980, R.W. Baumann (3♂, 2♀, BYUC); Clear Creek Campground, 19-VII-1984, R.W. Baumann (2♂, 1♀, BYUC); Clear Creek Campground, 19-VII-1984, M.F. Whiting (1♂, 1♀, BYUC); Clear Creek Campground, Raft River Mountains, 19-VI-1979, S.M. Clark (3♂, 3♀, BYUC); Clear Creek Campground, Raft River Mountains, 3-VII-1992, S.A. Wells (1♂, 2♀, BYUC); Clear Creek Campground, Raft River Mountains, 26-VII-1995, Baumann and Houseman (3♂, 6♀, BYUC); Clear Creek Canyon at mouth, Raft River Mountains, 15-VII-1980, S.M. Clark (1♂, 2♀, BYUC); Dove Creek, Raft River Mountains, 28-VII-1995, Baumann and Houseman (3♂, BYUC); Raft River Mountains, 20-VI-1979, R.W. Baumann (1♀, BYUC); Wildcat Creek, Raft River Mountains, 20-VI-1979, Baumann and Clark (1♀, BYUC); Yost, 22-VI-1983, C.R. Nelson (1♀, BYUC). *Cache Co.:* Ant Valley, 6-VII-1976, G.F. Knowlton (1♂, USUC); Avon, 24-VII-1942, G.F. Knowlton (1♀, USUC); Blacksmith Fork Canyon, 24-VI-1964, W.J. Hanson (2♂, USUC); Blacksmith Fork Canyon, 14-VI-1977, G.F.

Knowlton (1♂, USUC); Blacksmith Fork Canyon, 21-V-1983, C.R. Nelson (1♂, BYUC); Cache Junction, V-1929, G.F. Knowlton (1♂, BYUC); Porcupine Reservoir, 6-VI-1973, G.F. Knowlton (1♂, USUC). *Garfield Co.:* Calf Creek Campground, Lower Falls Trail, Grand Staircase–Escalante National Monument, 37°47'37"N, 111°21'18"W, 9-V-2001, D.J. Cavan and K.F. Kuehnl (1♂, BYUC); Deer Creek and nearby swamp, Deer Creek Campground, 37°51'N, 111°21'W, 20-VI-2002, R.W. Baumann and S.M. Clark (2♂, 1♀, BYUC); Deer Creek, jct. Hwy. 12, 37.856° N, 111.355° W, 6-V-2002, C.R. Nelson (1♂, BYUC); Deer Creek Campground, Burr Trail, Grand Staircase–Escalante National Monument, 37°51'20"N, 111°21'18"W, 17-VII-2001, D.J. Cavan and K.F. Kuehnl (1♀, BYUC); Grand Staircase–Escalante National Monument, pond, near mile marker 46, Hwy. 12, 20-VI-2001, D.J. Cavan and K.F. Kuehnl (1♂, BYUC); 6.5 mi NE Henrieville on Hwy. 12, Grand Staircase–Escalante National Monument, 37°36'N, 111°55'W, 11-VII-2002, S.M. Clark (1♂, BYUC); 7.5 mi E Henrieville, spring near Hwy. 12, 37°36'46"N, 111°53'48"W, 6578 ft., 23-VI-2000, R.W. Baumann, D.J. Cavan, E.C. Green, W.N. Mendel (1♀, BYUC); 7.5 mi E Henrieville, spring near Hwy. 12, 37°36'46"N, 111°53'48"W, 6578 ft., 27-VI-2000, E.C. Green, W.N. Mendel (2♂, BYUC); 7.5 mi NE Henrieville, near Hwy. 12, Henrieville Creek, Grand Staircase–Escalante National Monument, 37°36'46"N, 111°53'48"W, 15-V-2001, D.J. Cavan, K.F. Kuehnl, and C.R. Nelson (5♀, BYUC); 7.5 mi E Henrieville, spring near Hwy. 12, Grand Staircase–Escalante National Monument, 37°36'46"N, 111°53'48"W, 23-V-2001, D.J. Cavan, K.F. Kuehnl, and C.R. Nelson (3♂, 2♀, BYUC); 7.5 mi E Henrieville, spring near Hwy. 12, Grand Staircase–Escalante National Monument, 37°36'46"N, 111°53'48"W, 20-VI-2001, D.J. Cavan and K.F. Kuehnl (1♂, BYUC); 7.5 mi E Henrieville, spring near Hwy. 12, Grand Staircase–Escalante National Monument, 37°36'46"N, 111°53'48"W, 2-VII-2001, D.J. Cavan and K.F. Kuehnl (1♀, BYUC); 8 mi NE Henrieville, springs entering Henrieville Creek, Hwy. 12, 37°36'42"N, 111°53'42"W, 20-VII-2001, C.R. Nelson (1♂, BYUC); 8 mi NE Henrieville on Hwy. 12, Grand Staircase–Escalante National Monument, 37°37'N, 111°54'W, 13-VI-2002, S.M. Clark (1♂, 1♀, BYUC); 8 mi NE Henrieville on Hwy. 12, spring, Grand Staircase–Escalante

National Monument, 37°37'N, 111°54'W, 13-VI-2002, S.M. Clark (8♂, 6♀, BYUC); 8 mi NE Henrieville on Hwy. 12, Grand Staircase–Escalante National Monument, 37°37'N, 111°54'W, 10-VII-2002, S.M. Clark (5♂, 4♀, BYUC); 8 mi NE Henrieville on Hwy. 12, Grand Staircase–Escalante National Monument, 37°37'N, 111°54'W, 11-VII-2002, S.M. Clark (1♀, BYUC); Henrieville Creek, upstream from jct. Hwy. 12, Grand Staircase–Escalante National Monument, 37°36'46"N, 111°53'48"W, 8-V-2001, D.J. Cavan and K.F. Kuehnl (1♂, 2♀, BYUC); Henrieville Creek, upstream from jct. Hwy. 12, Grand Staircase–Escalante National Monument, 37°36'46"N, 111°53'48"W, 15-V-2001, D.J. Cavan, K.F. Kuehnl, and C.R. Nelson (8♂, BYUC); North Creek Road at jct. Hwy. 12, near mile marker 55, W of Escalante, 27-V-2001, Kuehnl and Cavan (4♂, BYUC); North Creek Road at jct. Hwy. 12, near mile marker 55, Grand Staircase–Escalante National Monument, 27-VI-2001, K.F. Kuehnl and D.J. Cavan (2♂, 3♀, BYUC); North Creek Road at jct. Hwy. 12, W of Escalante, 37°45'55"N, 111°40'56"W, 27-VI-2001, D.J. Cavan and K.F. Kuehnl (30♂, 22♀, BYUC); North Creek Road at jct. Hwy. 12, 37°45'55"N, 111°40'56"W, 6-VII-2001, D.J. Cavan and K.F. Kuehnl (2♂, BYUC); North Creek Road at jct. Hwy. 12, mile marker 55, Grand Staircase–Escalante National Monument, 6-VII-2001, K.F. Kuehnl (2♂, 2♀, BYUC); Oak Spring, near Alvey Wash, W of Smoky Mountain Road, 37°42'18"N, 111°37'39"W, 27-VI-2001, Grand Staircase–Escalante National Monument, K.A. Clark and E.C. Green (1♀, BYUC); Right Hand Collett Canyon, spring at jct. Smoky Mountain Road, 37°32'33"N, 111°38'25"W, 7-VII-2000, E.C. Green, W.N. Mendel, M. Moody, C.R. Nelson (1♀, BYUC); Upper Calf Creek Falls, Grand Staircase–Escalante National Monument, 27-V-2003, S.M. Clark (1♀, BYUC); Upper Calf Creek Trail and Falls, 18 mi E Escalante, 37°51'18"N, 111°27'07"W, 20-VII-2001, C. Tappen (1♂, BYUC). *Kane Co.*: 3 mi N Glendale, 17-VI-1982, W.J. Hanson (1♂, 3♀, USUC); 6 mi N Kanab, 15-VI-1978, Knowlton and Hanson (3♂, USUC); Podunk Creek, Road 99, S of Tropic Reservoir, 15-VII-1998, R.G. Call and R.W. Baumann (1♂, BYUC); Sheep Creek, Route 500, Grand Staircase–Escalante National Monument, 11-VII-2002, S.M. Clark (4♂, BYUC); Sheep Creek, Skutumpah Road, Grand Staircase–Escalante National Monument, 17-V-

2001, R.W. Baumann (3♂, BYUC); Sheep Creek, Skutumpah Road, Grand Staircase–Escalante National Monument, 37°29'42"N, 112°03'57"W, 17-V-2001, R. Lorimer and S.E. Morrison (5♂, BYUC). *Rich Co.*: Garden City, 6-VI-1938, G.F. Knowlton and F.C. Harmston (1♂, 1♀, USUC); Lakota, 21-V-1949, G.F. Knowlton and S.C. Ma (2♀, USUC). *Uintah Co.*: Dinosaur National Monument, Harpers Corner, 8-VII-1991, B.C. Kondratieff (1♀, CSUC). *Wasatch Co.*: Mill Hollow, Uinta National Forest, 26-VI-2001, J.R. Jones (1♂, BYUC). *Weber Co.*: head, Beaver Creek, 6-VII-1976, W.J. Hanson (1♀, USUC); head, Beaver Creek, 21-VII-1976, G.F. Knowlton (3♂, 1♀, USUC); head, Beaver Creek, 7-VII-1977, Hanson and Knowlton (2♀, USUC); head, Beaver Creek, 21-VII-1978, G.F. Knowlton (2♀, USUC); head, Beaver Creek, 19-VII-1979, G.F. Knowlton (2♂, 2♀, USUC); head, Beaver Creek, 1-VIII-1980, Hanson, Knowlton, and Clemons (1♂, USUC); Liberty, 5-VII-1940, G.F. Knowlton and F.C. Harmston (1♂, USUC).

HOST PLANTS.—Although this species has been reported from a variety of other plants, actual hosts are probably Cyperaceae, associations having been recorded with species of *Carex*, *Eleocharis*, and *Scirpus* (Clark et al. 2004).

COMMENTS.—This species is sometimes very common in areas of seepage springs where sedges are abundant.

Plateumaris pusilla (Say)

Figs. 11, 17d

Donacia pusilla Say, 1826:293

Donacia rugifrons Newman, 1838:391

Donacia pyritosa LeConte, 1857:66

DIAGNOSIS.—The hind femora in this species are almost always abruptly bicolored, the basal half being red and the apical half being black. In most other Utah species of *Plateumaris*, the hind femora are either black, sometimes with light coloration at the extreme base, or they are pale, sometimes with small dark or clouded areas. Some specimens of *P. neomexicana* do have bicolored femora like those of *P. pusilla*, but *P. neomexicana* normally has a small, blunt ventral tooth on the hind femur, compared to the relatively larger, acute tooth of *P. pusilla*. Additional characters enabling recognition of *P. pusilla* are included in the dichotomous key.

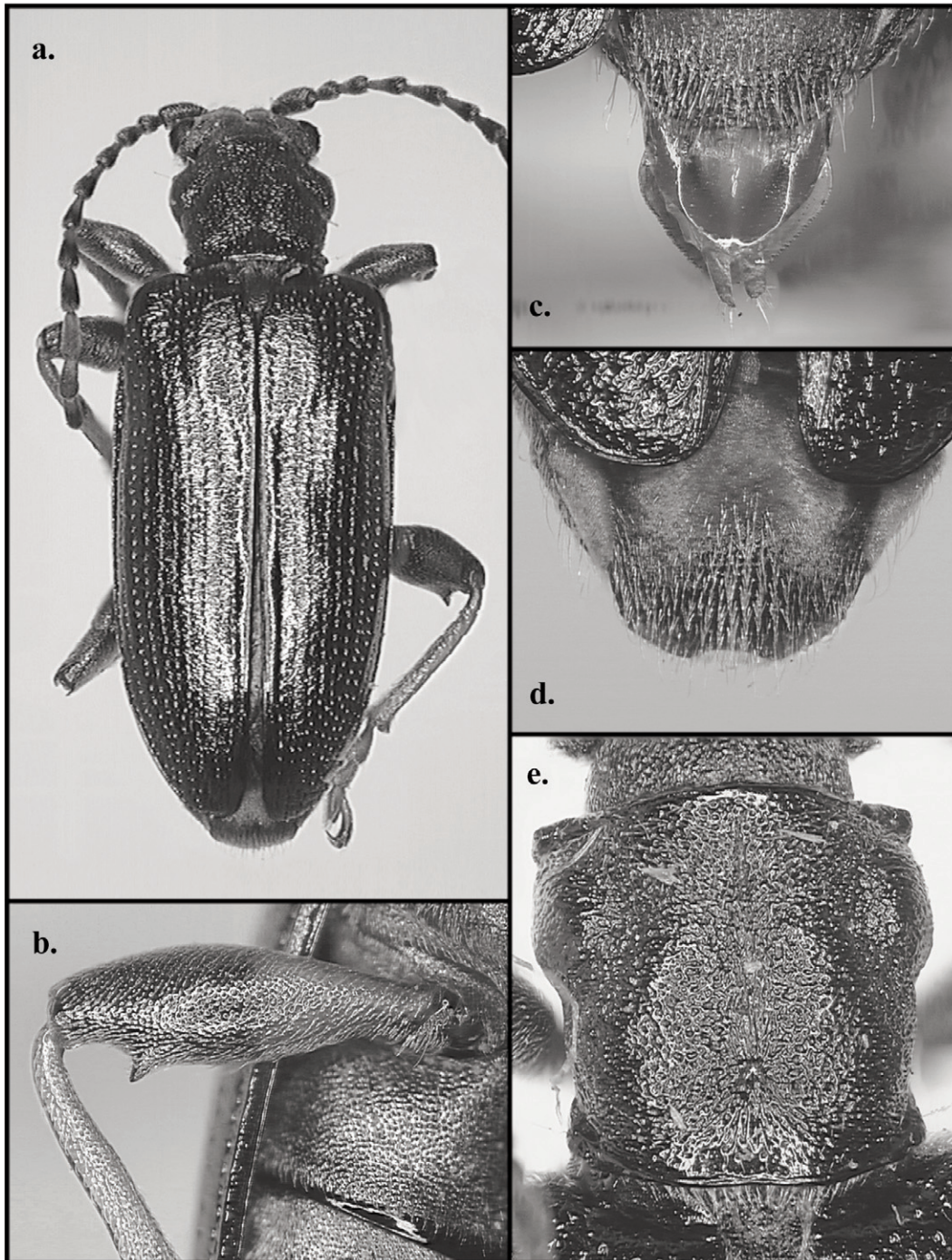


Fig. 11. *Plateumaris pusilla*: a, dorsal habitus; b, hind femur; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NL, NS, NT, ON, QC, SK, YT. **United States:** AK, CA, CO, CT, ID, IN, MA, ME, MI, MN, MT, NH, NJ, NM, NV, NY, OH, OR, PA, RI, TX, UT, VT, WA, WI, WY.

PUBLISHED RECORDS FROM UTAH.—Knowlton (1930) recorded this species from Hyde Park [Cache Co.]. Askevold (1991) provided a distribution map indicating that the species occurs in numerous places throughout much of Utah. However, the scale of the map is too small to enable recognition of specific sites or even to substantiate definite county records. Riley et al. (2003) listed *P. pusilla* from Utah but did not indicate specific localities within the state.

UTAH MATERIAL EXAMINED (Fig. 17d).—*Beaver Co.:* Beaver, 21-V-1938, D.E. Hardy (1♂, USUC); Beaver, 27-V-1938, D.E. Hardy, on alfalfa (1♀, USUC); Beaver Valley (1♀, USNM); Minersville, in meadow, 23-V-1938 (1♂, USUC). *Box Elder Co.:* Deweyville, 7-VI-1937, G.F. Knowlton (1♀, USUC); Honeyville, 21-IV-1939, G.F. Knowlton and D.L. Bixhoff (1♂, USUC); Honeyville, 29-IV-1939, G.F. Knowlton and D.L. Bixhoff (1♀, USUC); Lynn, 22-VI-1983, C.R. Nelson (1♂, BYUC); Perry, 29-IV-1941, G.F. Knowlton (1♂, USUC); Raft River, Upper Narrows, 20-VI-1979, S.M. Clark (11♂, 7♀, BYUC); Raft River, Upper Narrows, 16-VII-1980, S.M. Clark and S.A. Wells (12♂, 9♀, BYUC); Raft River Mountains, 20-VI-1979, Webb and Clark (1♂, BYUC); [county record only], 29-V-1965, K.J. Kapelle (1♀, USUC). *Cache Co.:* Amalga, 19-VI-1937, F.C. Harmston (1♂, USUC); Amalga, 19-VI-1937, C.F. Smith (1♂, USUC); Amalga, 31-V-1938, D.E. Hardy (1♂, 2♀, USUC); Cache Junction, 28-V-1944, G.F. Knowlton (1♀, USUC); Cornish, 15-VI-1968, G.E. Bohart (1♀, USUC); Hyde Park, 4-V-1939, G.F. Knowlton (1♂, USUC); Hyrum, 22-IV-1937, W. Berseth (1♂, USUC); Logan, 7-V-1941, R.S. Roberts (1♂, USUC); Logan, 11-X-1941, J.R. Fowler (1♂, 1♀, USUC); Logan, 11-V-1950, A.B. Altikriti (1♂, USUC); Logan Meadows, 10-III-1936, P.T. Rigby (1♂, 1♀, UUC); Tony Grove Canyon, 7800 ft., 26-31-VII-1975, Knowlton and Hanson, Malaise trap (1♂, USUC). *Emery Co.:* Ferron Creek, 14-IV-1971, Winget and Devenport (1♀, BYUC); Potters Pond, 20-VII-1991, L. Johnson (1♀, BYUC). *Garfield Co.:* Lost Camp, 5 mi SE Panguitch Lake, 17-VII-1970, T.B. Moore (1♂, BYUC); Panguitch, 15-VI-1948,

G.F. Knowlton and S.L. Wood (1♀, USUC). *Grand Co.:* 20 mi E Moab, 24-VI-1971, J.L. Petty (1♀, BYUC). *Iron Co.:* Parowan Canyon, 20-VI-1960 (1♂, 1♀, BYUC; 7♂, 1♀, USUC). *Juab Co.:* Chicken Creek Reservoir, 10-VI-1964, W.J. Hanson (1♀, USUC); Nephi, 25-V-1939, G.F. Knowlton and F.C. Harmston (1♂, USUC). *Kane Co.:* Aspen Mirror Lake, 3-X-1996, A.L. Huillet (1♀, BYUC); Duck Creek, Cedar Mountain, 8600 ft., 19-VI-2001, A.H. Barnum (1♂, DSCC); Duck Creek Camp, 7-VII-1964, G.F. Knowlton (5♂, USUC). *Millard Co.:* Delta, 20-V-1941, G.F. Knowlton and F.C. Harmston (1♂, 1♀, USUC). *Piute Co.:* Junction, 24-V-1940, G.F. Knowlton (1♂, 2♀, USUC). *Salt Lake Co.:* Bennion, 26-V-1944, G.F. Knowlton, E.R. Stoddard and R. Bates (1♂, 1♀, USUC). *Sanpete Co.:* near Bougler Lake, 21-VII-1978, R. and J. Baumann (1♀, BYUC); temporary pond near Bougler Lake, 8-VIII-1978, R.W. Baumann (1♀, BYUC); Bougler Reservoir, Flat Canyon Campground, 30-31-VII-1973, R.W. and W. Baumann (3♀, USNM); Lake Hill Campground, near Ephraim, 25-VI-1990, S.M. Clark (20♂, 9♀, BYUC). *Sevier Co.:* Fremont River, Zedds Meadow, 29-VI-1989, R.W. Baumann (1♂, BYUC). *Summit Co.:* pond, Road 58, 2 mi S Meeks Cabin Reservoir, 40°58'N, 110°34'W, 8-VIII-2005, R.W. Baumann (2♂, BYUC). *Utah Co.:* American Fork Canyon, 25-VII-1973, G.F. Knowlton (1♂, USUC); American Fork Canyon, Tibble Fork Reservoir, 18-VII-2003, R.W. Baumann (7♂, 5♀, BYUC); American Fork Canyon, Tibble Fork Reservoir, 5-VIII-2003, D.J. Cavan and R.W. Baumann (7♂, 5♀, BYUC); American Fork Canyon, Tibble Fork Reservoir, 2-VIII-2004, S.M. Clark and R.W. Baumann (3♂, 2♀, BYUC); Hobbie Creek Canyon, 10-VI-1953, T.B. Moore (1♂, 1♀, BYUC); Lehi, 31-X-1980, S.M. Clark (1♂, BYUC); Orem, 14-V-1937 (1♀, USUC); Payson, 21-VI-1945, P.E. Telford (1♂, USUC); Payson Canyon, Maple Lake, 39°57.5'N, 111°41.6'W, 5-X-2005, S.M. Clark and R.W. Baumann (1♀, BYUC); Salamander Lake, 29-VII-1991, R.W. Baumann (1♂, BYUC); Salamander Pond, Mount Timpanogos, 10-IX-1998, R.W. Baumann (1♂, BYUC). *Wasatch Co.:* Gerber Spring, Midway, 21-VI-1983, M.F. Whiting (1♀, BYUC); Heber, 29-V-1941, G.F. Knowlton and F.C. Harmston (1♂, 1♀, USUC); Heber, 19-VII-1966, G.F. Knowlton (1♀, USUC); Legacy Lake, Heber Valley Camp, near Heber, 23-VI-2007, R.W. Baumann (3♂,

1 ♀, BYUC). *Washington Co.*: Pine Valley, VI-1948, R. Hardy (1 ♂, DSCC); Pine Valley, 12-VI-1961, D.W. Davis (1 ♂, USUC); Pine Valley Reservoir, above Pine Valley, 37°23'N, 113°29'W, 14-VI-2005, R.W. Baumann (4 ♂, 4 ♀, BYUC). *Wayne Co.*: Fremont, 16-VI-1948, G.F. Knowlton and S.L. Wood (1 ♀, USUC). *Weber Co.*: Farr West, 19-V-1938, G.F. Knowlton, D.E. Hardy (1 ♂, USUC); North Ogden, 26-IV-1931, G.F. Knowlton (1 ♂, USUC); Slaterville, 29-V-1946, G.F. Knowlton (1 ♂, USUC).

HOST PLANTS.—Although associations have been reported with a variety of other plants, more likely hosts are species of *Carex*, *Eleocharis*, *Scirpus*, and *Juncus* (Clark et al. 2004).

COMMENTS.—This species is common in many areas, including recently formed aquatic habitats. Askevold (1991) noted that “it appears that this species may be an active colonizer, searching out new water bodies.”

Plateumaris robusta (Schaeffer)

Figs. 12, 17c

Donacia pusilla, var. *robusta* Schaeffer, 1920:318

DIAGNOSIS.—In this species, antennomere 3 is only slightly longer than 2, and the legs are normally pale rather than black. These characters usually enable separation of this species from other *Plateumaris* known to occur in Utah.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NT, ON, QC, SK. **United States:** CO, IA, ID, KS, MI, MN, MT, ND, NE, NM, SD, UT, WA, WY.

PUBLISHED RECORDS FROM UTAH.—Askevold's (1991) distribution map indicates that this species occurs at localities along the borders of Utah, Idaho, and Wyoming. However, the map is too small-scale to enable recognition of specific sites, or even to clearly show whether they are in Utah or in the other states. Other workers have clearly listed this species from Utah, but without mentioning specific localities within the state (Downie and Arnett 1996, Riley et al. 2003).

UTAH MATERIAL EXAMINED (Fig. 17c).—*Rich Co.*: Randolph, 26-VI-1939, G.F. Knowlton (1 ♂, USUC); Woodruff, 11-VI-1939, G.F. Knowlton and F.C. Harmston (1 ♂, USUC). *San Juan Co.*: near Montezuma Creek, 17-VI-1992, B.C. Kondratieff (1 ♂, CSUC).

HOST PLANTS.—Hosts are reported to be *Carex*, *Eleocharis*, and *Scirpus* (Clark et al. 2004).

COMMENTS.—Northern Utah may be near the southwestern extreme of the distribution of this species, although Askevold (1991) reported questionable records for Arizona and California.

Plateumaris shoemakeri (Schaeffer)

Figs. 13, 16c

Donacia flavipes, var. *lodingi* Schaeffer, 1925:129

Donacia flavipes, var. *shoemakeri* Schaeffer, 1925:129

DIAGNOSIS.—Throughout most of the range of this rather widespread species, the femora are normally pale brown rather than black, most pronotal punctures are well separated, leaving highly polished areas between, and the median sulcus of the pronotum is usually deep and abruptly impressed. These characters enable easy separation from other *Plateumaris* known to occur in Utah.

OVERALL DISTRIBUTION.—**Canada:** AB, BC, MB, NB, NS, ON, PE, QC, SK. **United States:** AL, CO, CT, FL, GA, IA, IL, IN, MA, MD, ME, MI, MN, NE, NH, NJ, NY, OH, PA, RI, UT, VA, VT, WV.

PUBLISHED RECORDS FROM UTAH.—Askevold (1991) reported this species from “northern Utah.” The distribution map that he provided indicates that the material examined was from near the southeastern edge of the Great Salt Lake, likely in either Davis or Salt Lake County. Probably based on Askevold's publications, other workers have listed this species from Utah, but without indicating specific localities within the state (Downie and Arnett 1996, Peck and Thomas 1998, Riley et al. 2003).

UTAH MATERIAL EXAMINED.—None.

HOST PLANTS.—These insects have been associated with species of *Acorus* and *Peltandra*, and they sometimes may also utilize *Carex* and *Scirpus* (Clark et al. 2004).

COMMENTS.—This is largely an eastern species that extends into western Canada. Askevold (1991) provided a distribution map indicating that the record from Utah is somewhat of an outlier; other United States records extend no farther west than Nebraska. Perhaps this record is based on mislabeled material. It is noteworthy that he also recorded *P. frosti*, another species that seems out of range in Utah, from the same site. Collections made elsewhere could have been mistakenly labeled from this locality in Utah.

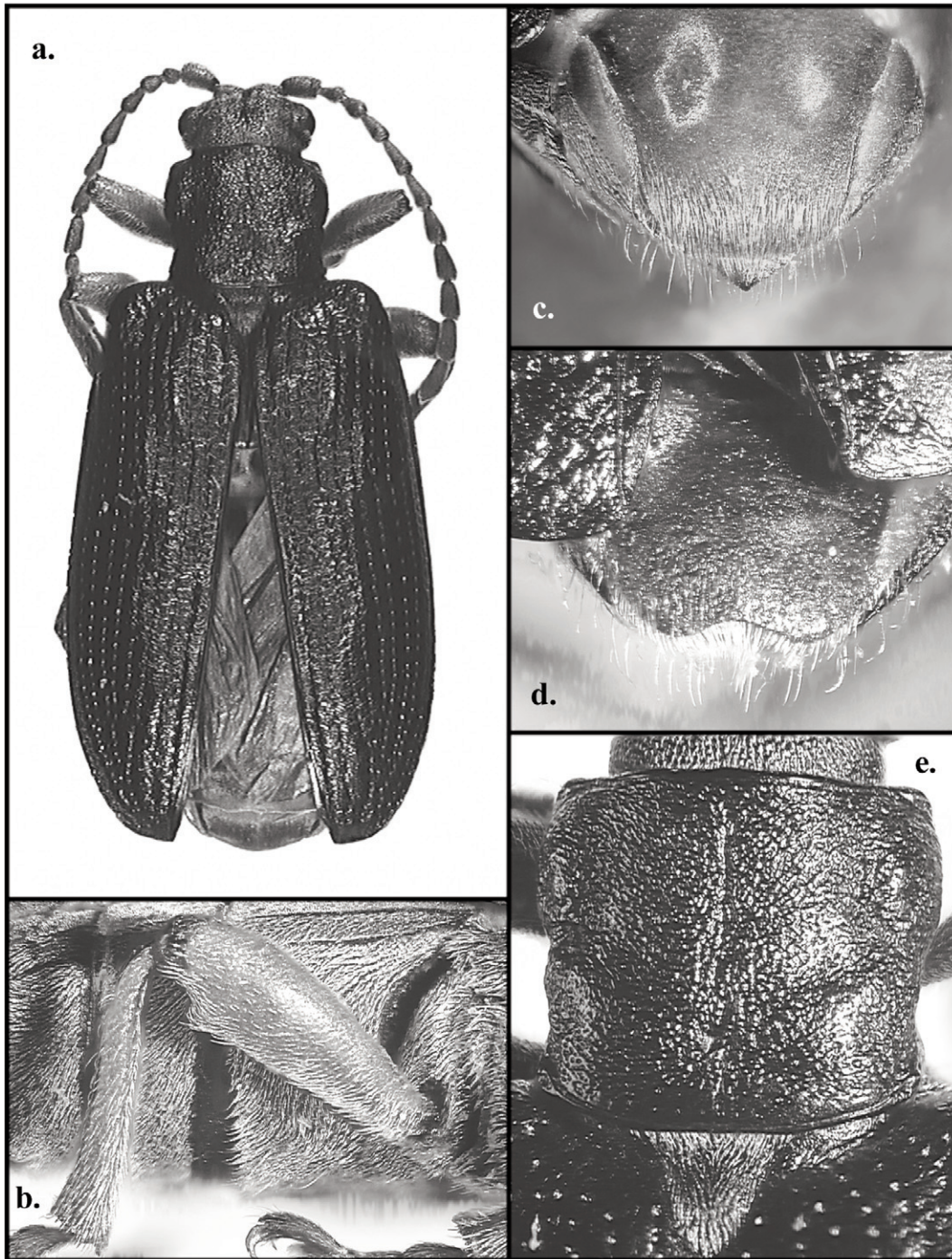


Fig. 12. *Plateumaris robusta*: a, dorsal habitus; b, hind leg; c, female pygidium; d, male pygidium; e, pronotum.

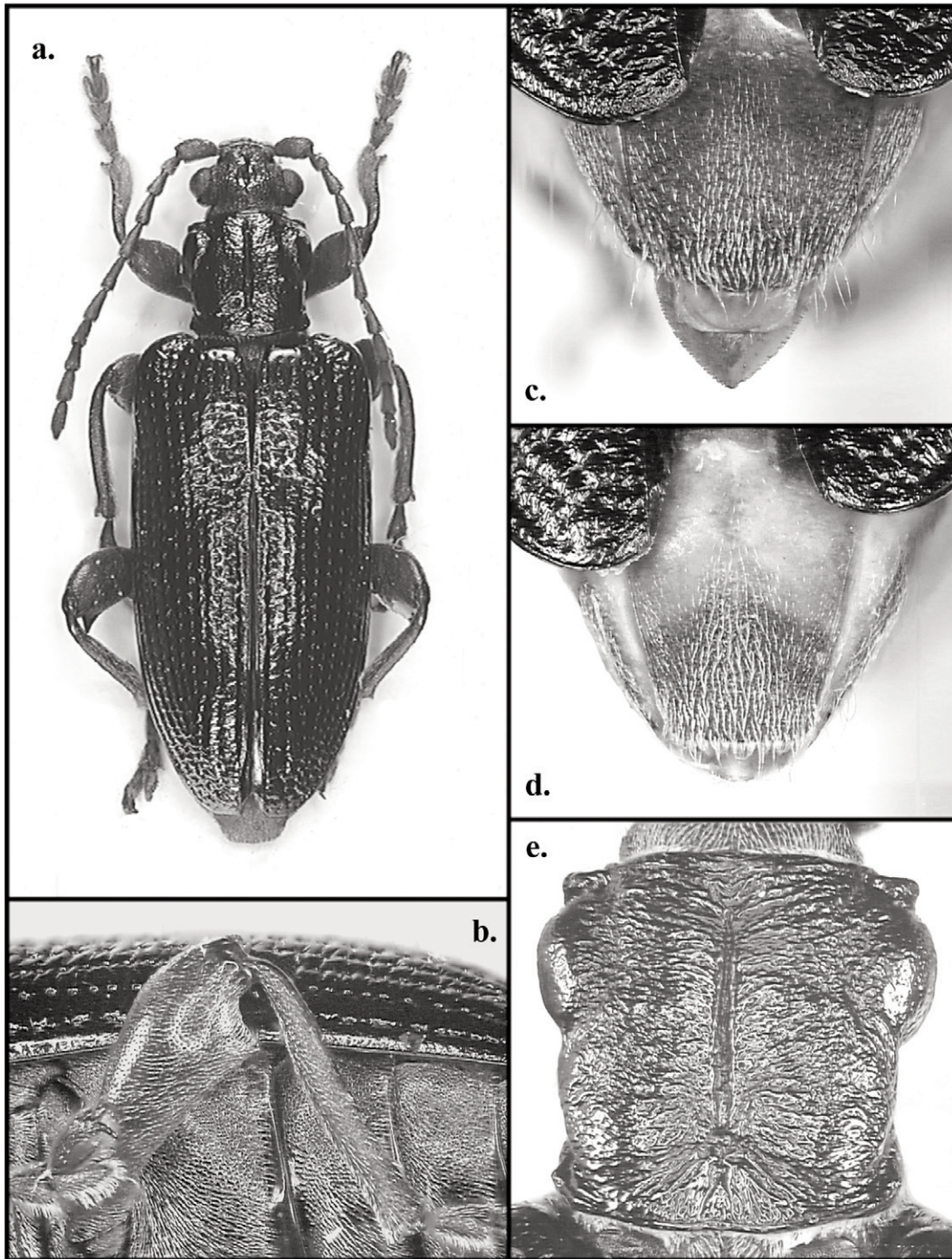


Fig. 13. *Plateumaris shoemakeri*: a, dorsal habitus; b, hind leg; c, female pygidium, with tip of ovipositor protruding; d, male pygidium; e, pronotum.

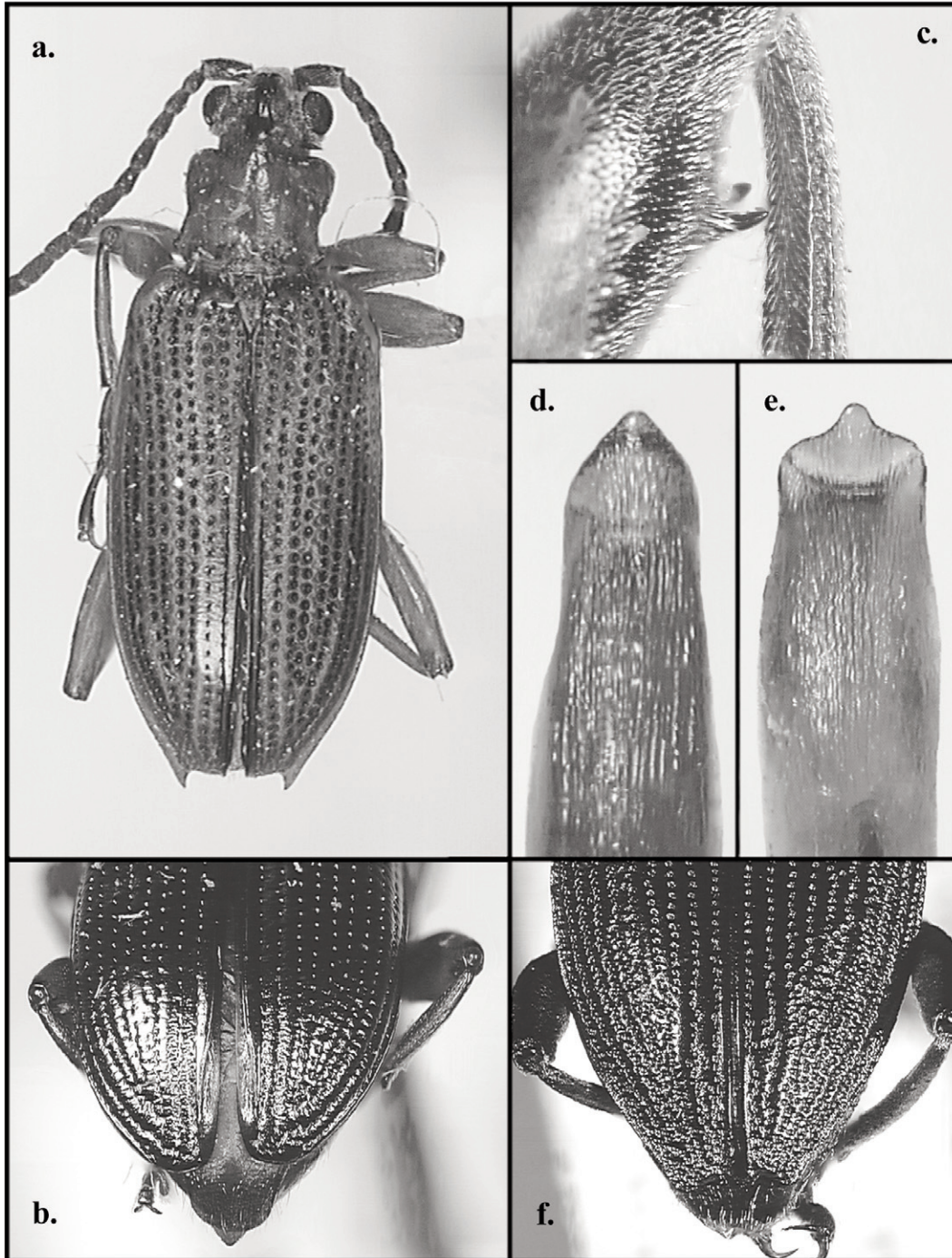


Fig. 14. a, *Neohaemonia melsheimeri*, dorsal habitus; b, *Plateumaris rufa*, elytral apex; c, *Donacia magna*, hind leg, with denticulate ridge along flexor surface of tibia; d, *D. subtilis*, apical portion of aedeagus, ventral aspect; e, *D. confluenta*, apical portion of aedeagus, ventral aspect; f, *D. subtilis*, elytral apex.

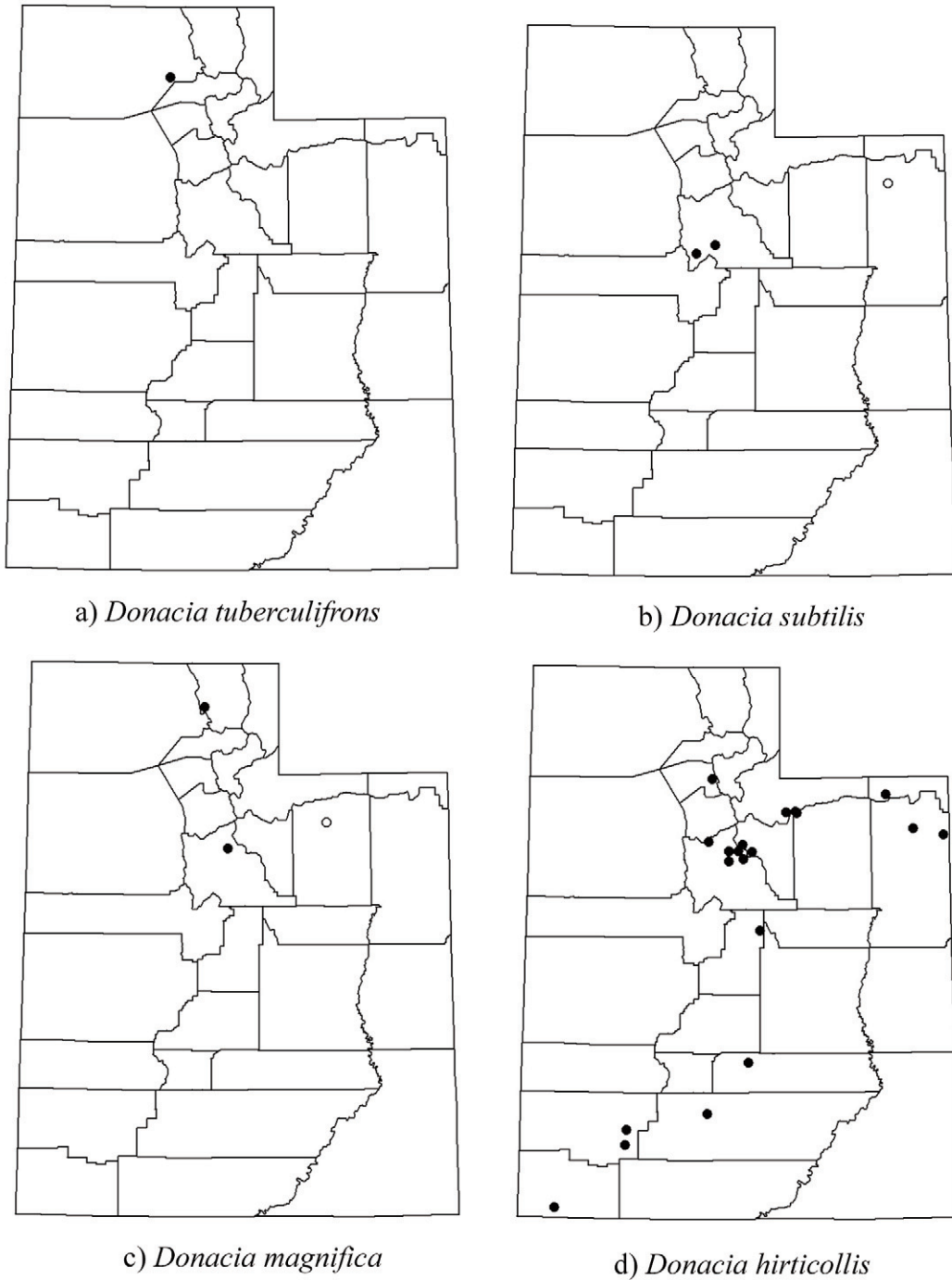


Fig. 15. Known Utah distribution of *Donacia*: a, *D. tuberculifrons*; b, *D. subtilis*; c, *D. magnifica*; and d, *D. hirticollis*. Solid dots = material examined; unfilled circles = literature records only.

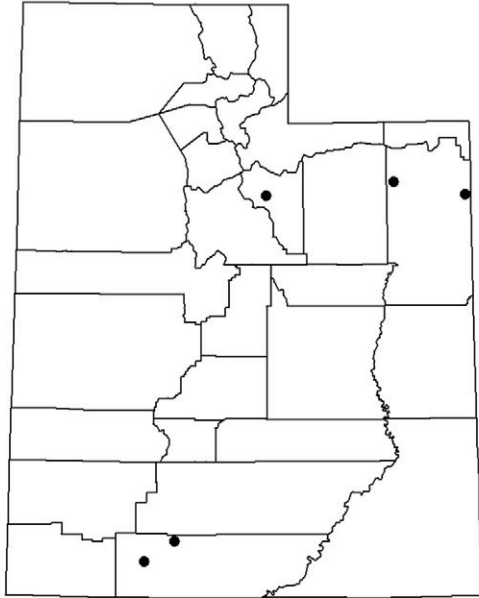
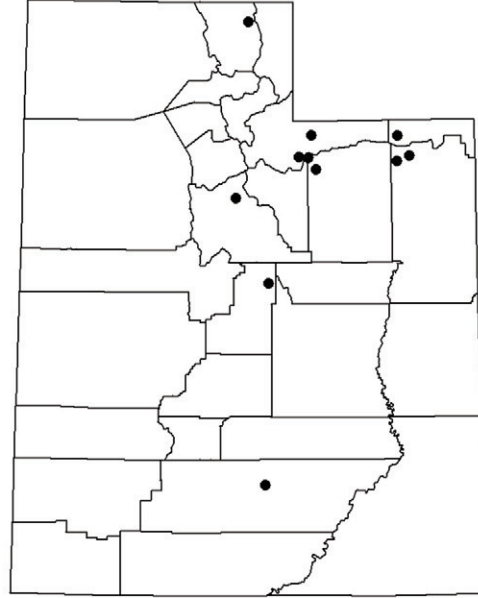
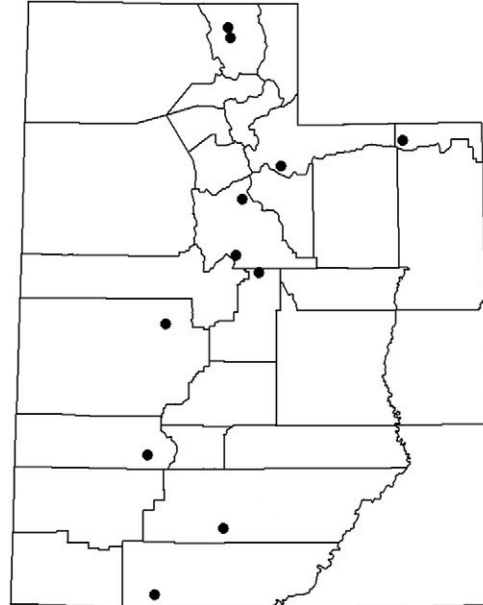
a) *Plateumaris dubia*b) *Plateumaris flavipes*c) *Plateumaris frosti* and *P. shoemakeri*d) *Plateumaris germari*

Fig. 16. Known Utah distribution of *Plateumaris*: a, *P. dubia*; b, *P. flavipes*; c, *P. frosti* and *P. shoemakeri*; d, *P. germari*. Solid dots = material examined; unfilled circle = literature records only.

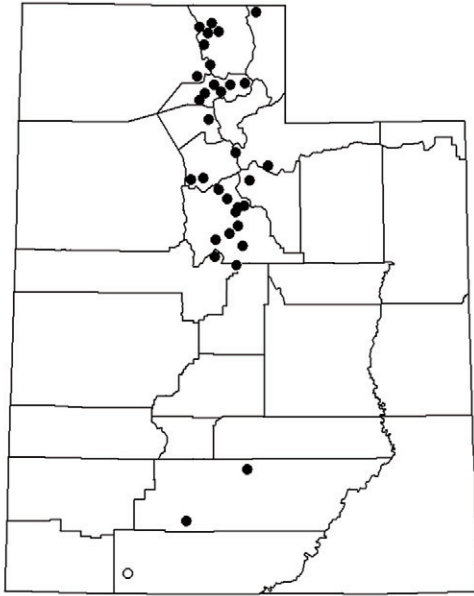
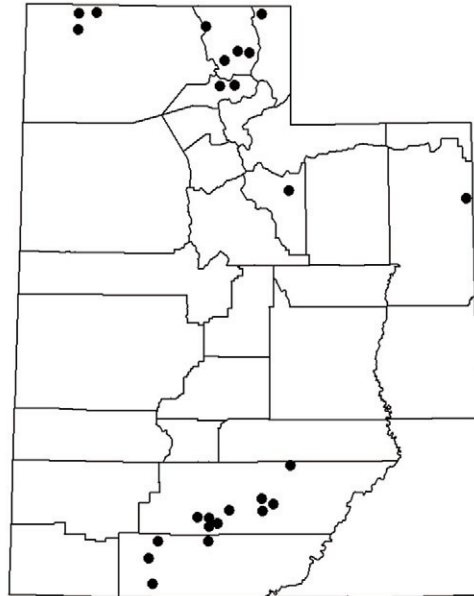
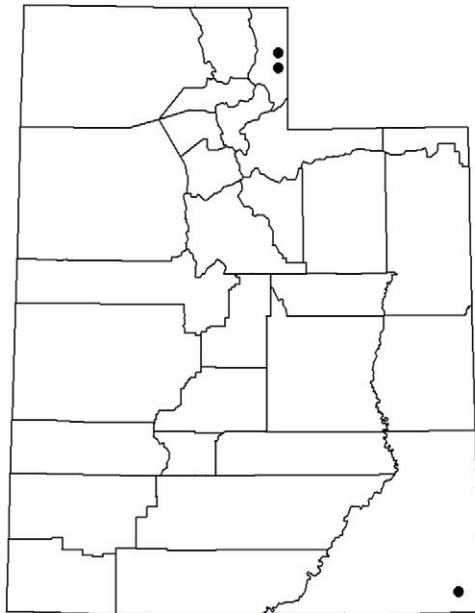
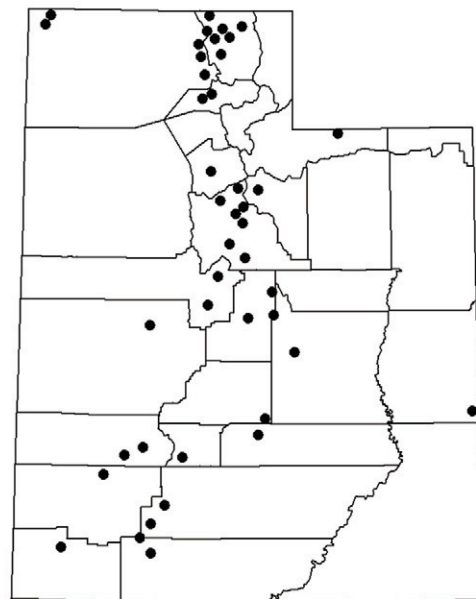
a) *Plateumaris neomexicana*b) *Plateumaris nitida*c) *Plateumaris robusta*d) *Plateumaris pusilla*

Fig. 17. Known Utah distribution of *Plateumaris*: a, *P. neomexicana*; b, *P. nitida*; c, *P. robusta*; and d, *P. pusilla*. Solid dots = material examined; unfilled circle = literature record only.

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