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A review of New World *Laemophloeus* Dejean (Coleoptera:
Laemophloeidae): 3. Nearctic species

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A review of New World *Laemophloeus* Dejean
(Coleoptera: Laemophloeidae): 3. Nearctic species

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Abstract. The nine Nearctic species of *Laemophloeus* Dejean (Coleoptera: Laemophloeidae) are reviewed, keyed, and illustrated. One species, *L. apache* Thomas, **n. sp.**, is described as new. Two previously described species are synonymized: *L. californicus* Casey (= *L. biguttatus* (Say), **n. syn.**) and *L. woodruffi* Thomas (= *L. fervidus* Casey, **n. syn.**). A **neotype** is designated for *L. biguttatus* (Say), and **lectotypes** are designated for *L. terminalis* Casey and *L. fervidus* Casey. A checklist of the described world species is provided.

Introduction

This is the third in a series of three papers reviewing the New World species of *Laemophloeus*. It was preceded by reviews of the 16 Neotropical species (Thomas 2013, 2014). The present paper treats nine Nearctic species, all of which possess antennal clubs composed of three antennomeres.

Discussion of Characters

As in the previous papers in this series (Thomas 2013, 2014), some of the structures used here necessitate discussion.

Antennae. Although the antennal club in these species is composed of the usual three antennomeres, there is a unique setal character present in one species pair. In *L. lecontei* Grouvelle and *L. taurus* Thomas, the setae of the body of the club segments occur in clusters of two to three setae (Fig. 35), instead of the usual single seta (Fig. 46). Although this character is best seen with a scanning electron microscope, it can be discerned under a binocular microscope under maximum magnification and good lighting. Even under lower magnification, the club segments of these two species have an unusual “sparkling” appearance.

Male genitalia. The basal plates described in Thomas (2013) are present in most of the species treated here. In addition, the parameral setae number, location, and relative length have provided useful diagnostic characters. In most *Laemophloeus* species, there are two primary setae on each paramere, one basally near the inner margin and one located near the lateral margin.

Materials and Methods

Habitus photos were taken through a Leica Z16 APO microscope equipped with a JVC KY-F75U 3-CCD camera and controlled by Syncrosopy AutoMontage® software; high magnification genitalic photographs were taken using a Leica DM 2500 microscope and resulting image stacks were processed using CombineZP®. Scanning electron photomicrographs were produced with a JEOL JSM-5510LV. Images were post-processed with Jasc Paint Shop Pro 7®. Genitalia were dissected as described in Thomas (1984) and were slide-mounted in Hoyer’s solution for photography. Subsequently, they were soaked off the slide and imbedded in a drop of dimethyl hydantoin formaldehyde on the card point with the respective specimen.

Measurements, using the measuring utility in Leica Application Suite v. 3 on a Leica M205C, were taken as follows: **Length:** Total body length was derived by adding the following measurements: Head, from anteriormost point of epistome to basal line at middle; pronotum: anterior edge to posterior edge at middle; Elytra: anterior edge of scutellum to posteriormost point of elytron; **Width:** Head, widest point

across eyes; Pronotum: widest point, usually behind anterior angles; Elytra: across widest point of one elytron and doubled for total width.

Label data for types of new species are reported verbatim; data are surrounded by quotes and separate labels are indicated by a forward slash (/). Data are condensed for described species; names of countries, states or provinces, and counties or parishes are in boldface type; localities are separated by semi-colons. For the three species of Nearctic *Laemophloeus* that also occur in the Neotropical region, only Nearctic distributions are reported in detail in this paper. The Neotropical distributions of those species were detailed in the previous paper of this series (Thomas 2014).

Codens for collections referred to in the text are:

- ACMT — American Coleoptera Museum, San Antonio, TX, USA
 BYUC — Monte L. Bean Life Science Museum, Brigham Young University, Provo, UT, USA
 CDFA — California State Collection of Arthropods, California Department of Food and Agriculture, Sacramento, CA, USA
 FSCA — Florida State Collection of Arthropods, Gainesville, FL, USA
 MTEC — Montana State University, Bozeman, MT, USA
 MCZC — Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA
 TAMU — Texas A&M University, College Station, TX, USA
 UAIC — University of Arizona, Tuscon, AZ, USA
 UAMC — Entomology Collection, University of Alaska Museum, Fairbanks, AK, USA
 UGAC — University of Georgia, Athens, GA, USA
 USNM — National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA
 WSUC — M. T. James Museum, Washington State University, Pullman, WA, USA

Identification key to Nearctic *Laemophloeus*

1. Head, pronotum, and especially elytra with pubescence conspicuous at moderate magnifications (~30×), at least laterally; head and pronotum densely punctate; body usually dark with a pair of pale elytral maculae; parameres each with a patch of setae at laterobasal angle (Fig. 19, 23, 31, 42) **2**
 — Head, pronotum, and usually elytra appearing glabrous at moderate magnifications; punctation variable; with or without elytral maculae; parameres without a patch of setae laterobasally (as in Fig. 28) **4**
2. Elytral maculae circular and well-defined (Fig. 3, 4); male genitalia with basal plates angulate laterally (Fig. 24, 23); parameres with inner primary setae long, lateral primary setae absent (Fig. 23) (most of North America except Pacific Northwest) ***Laemophloeus biguttatus* (Say)**
 — Elytral maculae more longitudinal, often streak-like; genitalia otherwise **3**
3. Basal plates reduced to rod-like structures (Fig. 41); parameres with inner primary setae greatly reduced in size, lateral primary setae absent (Fig. 42) (Pacific Northwest) ***Laemophloeus shastanus* Casey**
 — Basal plates fully developed; parameres with both pairs of primary setae present **5**
4. Body dorsally piceous (Fig. 8); male genitalia with basal plates narrow, almost parallel-sided for most of their length (Fig. 18); parameres with lateral primary setae thick and long (Fig. 19) and laterobasal patch with about 4-6 setae (Fig. 19) (southwestern U.S.) ***Laemophloeus apache* Thomas, n.sp.**
 — Body dorsally castaneous with darker infuscate areas (Fig. 11); male genitalia with basal plates more oval, not parallel-sided (Fig. 30); parameres with lateral primary setae short and fine (Fig. 31) and laterobasal patch with only 2 setae (Fig. 31) (eastern U.S., west to Texas) ***Laemophloeus fervidus* Casey**

5. Ground color of body generally dark, with well-defined elytral maculae confined to basal half 6
 — Ground color of body testaceous; elytral maculae if present not confined to base 7
6. Pale elytral maculae transversely rectangular (Fig. 7); head and pronotum reddish, elytra ground color blackish (Fig. 10); aedeagus with basal plates narrower (Fig. 27); parameres with basal primary setae widely separated (Fig. 28) (eastern North America)
 *Laemophloeus fasciatus* Haldeman
 — Pale elytral maculae linear (rather amorphous in pale individuals) (Fig. 5, 6); body ground color castaneous throughout, often more darkly infuscate medially on head and pronotum (Fig. 11); aedeagus with basal plates broadly rounded basally (Fig. 30); parameres with basal primary setae narrowly separated (Fig. 31) (eastern U.S., west to Texas)
 *Laemophloeus fervidus* Casey
7. Body completely testaceous (Fig. 12); club antennomeres with complex pubescence (Fig. 35) (southern Florida) *Laemophloeus lecontei* Grouvelle
 — Elytra usually infuscate basally and along suture; club antennomeres with normal pubescence 8
8. Males with tuft of pubescence on dorsal surface of scape (Fig. 36, 39) and epistomal emarginations over antennal insertions (Fig. 36) (southeastern U.S.)
 *Laemophloeus megacephalus* Grouvelle
 — Scape of males without a tuft of setae and epistome immarginate over antennal insertions 9
9. Elytra usually darkly infuscate basally and along suture for about two-thirds its length (Fig. 15); antennomere XI not markedly elongate in large males (Fig. 46) (southern Florida)
 *Laemophloeus suturalis* Reitter
 — Elytra darkly infuscate basally, laterally, and along entire suture to form well-defined discal maculae (Fig. 16); antennomere XI in large males elongate and curved (Fig. 50) (Midwestern states) .
 *Laemophloeus terminalis* Casey

***Laemophloeus apache* Thomas, n.sp.**

Fig. 17-19

Types: Holotype male, deposited in FSCA, with following label data: “Arizona, St. Rita Mts. Madera Cyn. Sept. 14 1974 K. Stephan leg.”/ “HOLOTYPE *Laemophloeus apache* Thomas”; allotype female, deposited in FSCA, with following label data: “ARIZONA: Santa Rita Mts., Madera Canyon. 31-VII-1974 G. H. Nelson”/“ULTRAVIOLET LIGHT”/ “ALLOTYPE *Laemophloeus apache* Thomas”.

Diagnosis. The combination of densely punctate, pubescent dorsal surface; the dark dorsal coloration, ranging from reddish-brown to piceous; and the pale, distinctly longitudinal, elytral maculae, is diagnostic for this species. It is very similar to *L. shastanus* but larger (2.5-3.6mm vs. 2.0-3.2mm) and more robust (compare Fig. 8 with Fig. 14). Male genitalia (Fig. 18-19) differ from other members of the biguttatus group in either number of primary setae (from *L. biguttatus* and *L. shastanus*) or shape of basal plates (*L. fervidus*).

Description: 3.6mm long; elongate-ovate; dorsal surface dark castaneous; mouthparts, antennae, legs, ventral surface, and an elongate macula confined mostly to the second elytral cell at about the basal third, paler (Fig. 8).

Head: 2.5× wider than long; epistome with emargination over labrum moderate, mandibular emarginations moderate, antennal emarginations shallow; frontoclypeal suture complete and distinct (Fig. 17); longitudinal line impressed; surface densely punctate, punctures about the size of an eye facet, separated mostly by about 1 diameter; pubescence inconspicuous, most evidence laterobasally, with punctures there subtending a short dark erect seta that barely emerges from the puncture; disc of head

between punctures smooth and shiny, without microreticulation. Mandibles large, rather elongate. Eyes moderate, length $0.4\times$ that of head (Fig.17). Antennae elongate, attaining about basal third of elytra; scape longer than broad; pedicel quadrate, about $0.5\times$ length of scape; III elongate, $0.9\times$ as long as scape; IV-VII elongate, subequal in length; each $0.7\times$ length of scape; VIII slightly shorter than preceding, club comprised of IX-XI, IX-X each slightly expanded distally, IX, $0.9\times$ length of scape; X, $0.8\times$ length of scape; XI, $1.3\times$ length of scape.

Thorax: Pronotum transverse, $1.9\times$ wider than long; widest just behind apical angle; $1.4\times$ wider apically than across basal angles; anterior angles right, not produced; hind angles obtuse, projecting; antebasal dentical distinct (Fig. 17); sublateral line with median fovea; punctation similar to head, punctures slightly smaller; pubescence more evident laterobasally; surface smooth and shiny between punctures, not microreticulate. Legs moderate; femora stout.

Elytra: $1.5\times$ longer than wide; inner margin of cell 1 grooved only at apical two-thirds, outer margin of cell 1 absent; inner margin of cell 2 grooved from basal fifth, outer margin absent; inner margin of cell 3 absent at base but cell 3 otherwise complete; elytra punctures scattered, not arranged in rows; humeral carina well-marked; elytral surface conspicuously pubescent.

Male genitalia: (Fig. 18-19) parameres broadly triangular, apparently fused along medial margins except for narrow line distally; each paramere with 2 primary setae, one located near midline at very base, and a longer, finer seta located near laterobasal angle; laterobasal angle with patch of 4-5 fine setae; basal plates elongate, almost straight on mesal edge; curved on outer edge, outer basal angle acutely produced; flagellum slender.

Female allotype: 3.5mm long; head $2.6\times$ wider than long, antennae shorter than in male, attaining base of pronotum; eye larger, comprising $0.5\times$ length of head; pronotum $1.5\times$ wider than long, not as narrowed basally as in male; elytra, $1.5\times$ longer than wide, comprising $0.7\times$ total body length.

Variation: Paratypes range in length from 2.5mm to 3.6mm; color ranges from reddish-brown to piceous.

Distribution. Southwestern U.S., from Texas to Arizona. Two specimens are excluded from the type series pending further collections of this species in California and Mexico to confirm its presence. They are labeled: 1, "MEXICO, NAYARIT 24mi. SE TEPIC 22 June 1968 4000' M-4" (CDFA) and 1, "Carmichael, Cal. Sacramento Co. VI-24-1960 "/"ex - Black light "/"R.F. Wilkey Collector" (CDFA).

Paratypes. 110, as follows:

Arizona: 1, "ARIZ: Apache Co. Chuska Mts. 8500' Aug. 31, 1974 und. bark of Quercus "/" K. Stephan J. Lawrence collectors" (MCZC); 1, "Arizona, Charleston St. Pedro River June 7 1975 K. Stephan leg. "/" Compared With Type" (FSCA); 1, "AZ: COCHISE CO. Guadalupe Can. vi-26-77 at lite S. McCleve" (UAIC); 1, "Guadalupe Cn., SE AZ 7-1-1975 at light McCleve&Topham" (UAIC); 1, "Guadalupe Cn., SE AZ 7-31-75 at light Scott McCleve" (UAIC); 1, "ARIZONA: Cochise Co. Sunnyside June 20 1970 K. Stephan leg. "/" Compared With Type" (FSCA); 1, "AZ: COCHISE CO. Huachuca Mtns. Copper Cn 1882m vi-10-78 at light S. Mcleve" (FSCA); 1, "Montezuma Pass Huachuca Mts. Ariz. July 6 1936 H. & A. Howden "/" light" (CMNC); 2, "ARIZ: Santa Rita Mts., Madera Cyn. IX-14-74 Stephan, coll. "/" und. bk. oaks & in fungi" (MCZC); 1, "Cochise Co. AZ., Chiricahua mts. Turkey Creek, ~2000M N31°51.280, W109° 19.883' Coll. Bobbe Fitzgibbon "/" Laemophloeus Det. J. Moser; Ex SPB baited Lindgren traps CB-3- Coll., near XXPB infested Pinus leiophylla Mar 23, 2003" (FSCA); 1, "AZ. Cochise Co Chir. Mtns Cave Crk Cyn 13 July 2012 J. Wappes R. Nelson "/" Turkey Crk @ Paradise Rd 6,400' 31°54'55"N 109°14'94"W" (FSCA); 3, "AZ. Cochise Co Drag Mtns @ Stronghold 17 July 2012 J. Wappes R. Nelson "/" Cochise Stronghold area, el 4,776 ft. 31°53'02"N 109°10'41"W" (FSCA); 10, "Arizona: Cochise Co. near SW Research Station July 8-17, 2013 Lindgren funnel trap Kyle E. Schnepf" (Kyle); 1, "Arizona: Cochise Co, Pinery Canyon Road 6000 ft elev. July 9, 2013 at light Kyle E. Schnepf" (Kyle); 2, "AZ: Cochise Co. Pinery Canyon Rd. July 9th 2013 at light Col. Gareth S Powell "/" WGS84 31.9486 -109.3076 Elv. 1825m" (Kyle); 1, "AZ: Stump Cn Huachuca Mts UV 31-VII-79 Olson" (UAIC); 1, "AZ: Stump Cn UV Huachuca Mts 31-VII-79 Olson" (UAIC); 1, "Tex Cn, Chiricahua Mts., 5300' AZ 8-12-1974 at light S. McCleve" (UAIC); 1, "Pridham Cn., Chiricahua Mts., AZ 7-22 & 23-1975 Scott McCleve" (UAIC); 7, "Tonto Nat. For. Penal [sic] Co. AZ 05/V/98 "/" Collector E. J. Ford" (FSCA); 1, "Arizona. Pima Co. Green Valley, 3107' N31.80, W111.03 UV light, 8-26-2007 "/" Collector: C.W. O'Brien" (FSCA); 1, "Arizona: St. Catalina Mts.

Bear Cyn. Aug. 1 1972 K. Stephan leg.”/” Compared With Type” (FSCA); 1, “ARIZONA Santa Catalina Mts. Bear Cyn. 22 Jun 70 K. Stephan coll.” (FSCA); 2, “Madera Cyn. Santa Cruz Co. Ariz. 9-July 75 Joseph Cicero Coll.”/” ex Quercus” (FSCA); 1, “Madera Cyn. Santa Cruz Co. Ariz. 6-July 75 Joseph Cicero Coll.” (FSCA); 2, “Madera Cyn. Santa Cruz Co. Ariz. 5-July 75 Joseph Cicero Coll.” (FSCA); 1, “ARIZ: Santa Cruz Co. Patagonia Mts., 5700' mv + bl, 29 Aug. 1997 R. Turnbow” (FSCA); 6, “AZ: Sta. Cruz Co. Pena Blanca VII-75 R. Lenczy” (FSCA); 2, “ARIZONA, Santa Cruz Co. Pena Blanca July, 1975 Coll. R. Lenczy”/” Compared With Type” (FSCA); 1, “ARIZONA: Santa Cruz Co., Pena Blanca, 21-VII-1961, R.H. Arnett, Jr. & E.R. Van Tassell at light” (FSCA); 2, “Arizona: Pajarita Mts. Pena Blanca Feb 22 1970”/” Compared With Type” (FSCA); 1, “Ariz: Sta. Cruz Co. 2.7mi. above Pena Blanca 1k.VIII-12-83:E.G. Riley” (TAMU); 1, “Arizona: Santa Cruz Co. near Peña Blanca Lake July 13, 2013 at light Kyle E. Schnepf” (Kyle); 1, “USA: AZ: Santa Cruz Co. Sycamore Cnyn., Canyon Loop Rd. 6-AUG-2003; A.E.Z. Short Ex: BL”/”MV & Fluorescent lights” (FSCA); 5, “Bear Valley, S. sl. Tumacacori Mt. ARIZ 4000 ft. sycamore-oak-ash in valley “/” July 20, 1969 F. Werner & W. Nutting” (MCZC); 1, “Canelo, ARIZ. July 10, 1957G. D. Butler “/” Nearest 10224” (UAIC); 2, “W. sl. Patagonia Mts, ARIZ 4400' July 27, 1949 FWerner, WNutting “/” Nearest 10224” (UAIC); 3, “AZ: STA CRUZ CO. Pajarito Mts. Pena Blanco Can vii-2-80 1191m at lite McCleve” (UAIC); 7, “July 26, 2003 Patagonia Mnt, AZ Harshaw Creek Mathison, Singer” (UAIC); 6, “ARIZONA: Santa Cruz Co. nr. Pena Blanca Lake 31°22'58"N 111°05'30"W VIII-7-2003, E. Riley, UV” (TAMU); 1, “ARIZONA, Santa Cruz Co., Harshaw, 31°28.1'N, 110°42.5'W, 4820 ft. 26-VII-2003. S. M. Clark” (BYUC); 2, “ARIZONA, Santa Cruz Co., Sycamore Canyon, 22-VII-2006, A. J. & D. C. Ames” (BYUC); 1, “ARIZONA, Santa Cruz Co., Peña Blanca Canyon, 31°23.22'N, 111°05.56'W, elev. 3900 ft., 18-VII-2003, R.C. & T.S. Moyer” (BYUC); 1, “ARIZONA, Santa Cruz Co., Peña Blanca Canyon, 18-VII-2003, S.M. Clark & R. C. Mower “ (BYUC).

New Mexico: 1, “NM: HIDALGO CO. Animas Mts. Double Adobe Cr. vi-7-80 1755m at lite McCleve” (FSCA); 1, “NM: HIDALGO CO. Animas Mts. 1706m Godfrey Place vi-12-81 at lite Steve Dobrott” (FSCA); 1, “NM: HIDALGO CO. Animas Mts. Bear Cn 1676m vi-8-80 at lite S. McCleve” (UAIC).

Texas: 2, “TEXAS, Bexar Co. 3 mi N Leon Sprgs 29-30 May, 2014 Wappes & Kuckatz”/” Scenic Oaks, El. 1315 ft MV/UV lts. 24°41 N 98°39 W” (ACMT); 3, “Lake Whitney State Park, Texas VI-11-00, At Light W.F. Chamberlain” (TAMU); 1, “TEXAS: Gonzales Co. Gonzales II-28-2007 Coll. S. Hill under bark of post oak “/” TAMU-ENTO X0543774” (TAMU); 1, “TEXAS, Guadalupe Co. 10miles SE Seguin 24 April, 2014 J.E. Wappes”/”1187 Kohlmann Rd 29°29'N 97°51'W Elevation 620ft.” (ACMT); 1, “USA: TEXAS: Hays Co.6 mi. NW Dripping Springs 30°13.554'N, 98°11.039'W IV-28-VI-2-2006, LF trap 1,320', E.G. Riley, et al.-395 “ (TAMU); 1, “Tex. Jeff Davis Co. Davis Mts. Resort mv + bl 25 June 2000 R. Turnbow “ (FSCA); 1, “Tex. Jeff Davis Co. Davis Mts. Resort mv + bl 26 June 2000 R. Turnbow “ (FSCA); 1, “TEXAS: Jeff Davis Co. Davis Mts. Resort, 5,800 ft. (Dave Marqua residence), UV 30.62842'N, 104.08360'W VIII-24-25-07, E. & M.L. Riley “/” TAMU-ENTO X0619725” (TAMU); 1, “ORIGIN: USA: Texas, Spring Intercepted: CA, Riverside Co. Blythe Inspection Station Ex: Oak wood, 14-MAR-2009 Col. Greenlee, PDR # 5000513” (C DFA).

Etymology. This species is named for the Native American tribe whose territory roughly corresponds with that of the beetle. It is used as a noun in apposition.

Discussion. This narrowly distributed species was long confused by this author with *L. shastanus* but is easily distinguished by genitalic characters.

Laemophloeus biguttatus (Say)

Fig. 3,4, 9, 20-24

Cucujus biguttatus Say, 1827: 267

Laemophloeus biguttatus, Smith 1851: 5

Cucujus bisignatus Guerin, 1844: 205; synonymy by Smith 1851: 5

Laemophloeus californicus Casey, 1916: 122, **new synonym**

Types: Of *Cucujus biguttatus* Say: The type[s] of this species has not been located and probably was destroyed with most of Say's collection. However, some Say specimens survive in the Museum of Comparative Zoology (Mawdsley 1993), including "...7 undetermined specimens" according to Mawdsley (1993). Only one of these is a laemophloeid (Philip Perkins, *in litt.*); a photograph of that specimen revealed it to be a member of the genus *Cryptolestes* Ganglbauer, not *Laemophloeus*. Two specimens identified as *Laemophloeus biguttatus* in the Melsheimer collection at the MCZ were also examined. One, labeled: [blue paper disc] / "Ziegler"/ bigutta tus S. Pa." / "biguttatus", actually is *Laemophloeus fasciatus* Melsheimer. The second specimen, labeled simply: "Melsh.", is missing the head and pronotum. It is a specimen of *L. biguttatus* (Say).

Aggravating the problem of identifying an authentic Say specimen is the fact that Say (1927) did not note the number of specimens before him, except to write that it is "a common insect," nor did he record a type locality. Since there are several superficially similar species in North America, it seems advisable to designate a neotype to affix this name to a specimen. I here designate the first specimen (Fig. 21-22) in the series in the LeConte collection held by the MCZ as the **neotype** of *Cucujus biguttatus* Say. It bears the following labels: [pink disk] [indicating "Middle States"]/"L. biguttatus Say bisignatus Guér." / "NEO-TYPE *Cucujus biguttatus* Say, 1825: 267".

Of *Laemophloeus californicus* Casey: a single male specimen bearing the following label data: "Cal." / "Casey bequest 1925"/"TYPE USNM 49158"/"californicus Csy." [hindbody only; dissected]. Casey (1916) examined only a single specimen, which was without precise locality data.

Diagnosis. Similar to *L. shastanus*, and *L. apache* in its dark color dorsally, dense punctation, pale elytral maculae, and dorsal pubescence. It usually can be distinguished from the other pubescent species by its elytral maculae, which can be larger or smaller but almost always distinctly circular (Fig. 3-4). The male genitalia offer distinctive characters in cases where coloration is ambiguous. In *L. biguttatus*, the basal plates are angulate laterally (Fig. 24); only the basal primary setae on the parameres are present (Fig. 23); a patch of fine setae is located laterally near the base of each paramere (Fig. 23); and the apex of the median lobe is much more attenuate (Fig. 23) than that of other Nearctic species. *Laemophloeus fasciatus* may be confused with *L. biguttatus*, but it has no dorsal pubescence and the elytral maculae are differently shaped. Length, 1.9mm - 3.3mm.

Distribution. Almost all of North America, except the Pacific Northwest, into northern Mexico.

Specimens examined. 1,101 from the following collections: BYUC, CDFA, FSCA, MCZC, TAMU, UAIC, UGAC.

CANADA: ONTARIO: Kent Co.: Tilbury; **Lambton Co.:** Grand Bend.

MEXICO: NUEVO LEON: Monterey; **SAN LUIS POTOSÍ:** Hwy. 80, 4mi. E Ciudad del Maiz.

USA: ALABAMA: Dale Co.: Level Plains; **Jefferson Co.:** Rocky Ridge; Vestavia; **Walker Co.:** Jasper; **ARIZONA: Apache Co.:** Chuaka Mts., Wagon Wheel Forest Camp; **Cochise Co.:** Santa Rita Mts., Gardner Canyon; **Coconino Co.:** Oak Creek Canyon; **Gila Co.:** Globe; **Santa Cruz Co.:** Mowry; Pajarito Mts., Peña Blanca Canyon; Santa Rita Mts., Madera Canyon; **unknown county** "Rice, AZ"; **Yavapai Co.:** Sycamore Ck., Rd. 708 SE Cp. Verde; **ARKANSAS: Garland Co.:** Jessieville; Ouachita National Forest, Camp Clearfork; **Johnson Co.:** Ozone; **Polk Co.:** Mena; **Pulaski Co.:** Little Rock; **CALIFORNIA: Mono Co.:** Origin: USA: Texas, Denton Intercepted: Long Valley Inspection Station, California; **Orange Co.:** Ortega Hwy.; Trabuco Canyon; **San Bernardino Co.:** Blythe Insp. St. [Arkansas]; Lytle Creek; Mill Creek, 14mi. NE Redlands; **San Diego Co.:** Poway; **San Fernando Co.,** Oak Glen; **Stanislaus Co.:** La Grange; **Tulare Co.:** [county only]; **Ventura Co.:** Ojai; **DELAWARE: Kent Co.:** .5mi. N Dinahs Corner; Rising Sun; **FLORIDA:** "Apalachicola N. F. [spans more than one county]; "Osceola N. F." [spans more than one county]; **Alachua Co.:** 2.5mi. SW Archer; Archer; [county only]; Gainesville; **Columbia Co.:** O'Leno State Park; **Dixie Co.:** 3.5mi. N Old Town; 4.2mi. N Old Town; 4mi. N Old Town; **Duval Co.:** Jacksonville; **Franklin Co.:** St. George Island; **Hernando Co.:** Withlacoochee State Forest, Richloam Tract; **Highlands Co.:** Lake Placid, Archbold Biological Station; **Indian River Co.** Oslo area; **Jackson Co.:** Florida Caverns State Park; **Lee Co.:** Fort Myers; **Levy Co.:** .2mi. W Alachua Co. line Rt. 24; 3.8mi. W Archer; 3mi. W Archer; Manatee Springs State Park; Seahorse Key; W of Archer; **Liberty Co.:** Torreya State Park; **Marion Co.:** Ocala National Forest, 2mi. W Grassy Pond;

Ocala; SE of Lake Kerr; Silver River State Park; Village of Rainbow Springs; **Okaloosa Co.:** 4.5mi. N Holt; **Orange Co.:** Orlando; **Polk Co.:** Peace River, 5mi. S Ft. Meade; Winter Haven; **Putnam:** 2.5mi. NE Florahome; [county only]; Interlachen, Paris Rd.; **Santa Rosa Co.:** 1 mi. N Holley, St. Rd. 87; Bone Creek, 2 mi. N Holt; **Sarasota Co.:** Laurel; Myakka River State Park; **Seminole Co.:** Econ Wilderness Area; **St. Johns Co.:** I-95 at US1; **Sumter Co.** Lake Panasofkee; **Volusia Co.:** [county only]; **Wakulla Co.:** Panacea; **GEORGIA:** “Oconee N. F.” [spans more than one county]; **Bartow Co.:** Cartersville; **Charlton Co.:** Okefenokee National Wildlife Refuge; **Chatham Co.:** 10mi. S Savannah; **Clarke Co.:** 3mi. N Athens; nr. Brooklyn Creek; Whitehall State Forest; **Emanuel Co.:** Ochopee Dunes Natural Area; **Fulton Co.:** Atlanta; **Green Co.:** [county only]; **Lowndes Co.:** Rt. 7 at I-75; **Lumpkin Co.:** Dahlonega; **MacIntosh Co.:** Sapelo Is.; **Meriwether Co.:** Greenville; Warm Springs; **Putnam Co.:** [county only]; **Walker Co.:** Lookout Mountain; **ILLINOIS:** **Clark Co.:** Rocky Branch Creek N of Clarksville; **Macon Co.:** NW side of Decatur; **INDIANA:** **Allen Co.:** New Haven; **Brown Co.:** [county only]; **Crawford Co.:** Grantsburg; **Floyd Co.:** New Albany; **Jasper Co.:** Jasper-Pulaski Fish & Wildlife Area, Teft Savanna; Jasper-Pulaski Fish & Wildlife Area; **Marion Co.:** Indianapolis; **Monroe Co.:** Bloomington; **Pulaski Co.:** [county only]; **Tippecanoe Co.:** [county only]; Lafayette; W Lafayette, McCormick Woods; **Vanderburgh Co.:** Hovey; **IOWA:** **Johnson Co.:** Iowa City; **KANSAS:** **Atchison Co.:** Atchison; **KENTUCKY:** **Knox Co.:** Barbourville; **LOUISIANA:** “Kisatchie N. F.” (spans more than one parish); **Natchitoches Par.:** Kisatchie Ranger Distr., Custis Campground; **Rapides Par.:** Woodworth Alexander State Forest; **Webster Par.:** Lake Bistineau St. Pk.; **West Feliciana Par.:** Feliciana Preserve; **MARYLAND:** **Anne Arundel Co.:** 1mi. NW Bristol; Annapolis; Edgewater; Point Lookout; **Baltimore Co.:** Baltimore; Butler; Hebbville; **Dorchester Co.:** Cambridge; **Montgomery Co.:** Takoma Park; **Prince George’s Co.:** Beltsville; Bladensburg; Cedarville; College Park; [county only]; **Somerset Co.:** Princess Anne; Shelltown; **Talbot Co.:** Seth State Forest; **MISSOURI:** **Carter Co.:** 2.1mi. N jct. hwy. 60 and 67; **Greene Co.:** 10 mi. E Springfield; **Jackson Co.:** Raytown; **Randolph Co.:** 1mi. E Moberly; **Reynolds Co.:** hwy. 72, 3.2mi. SE Bunker; **Taney Co.:** 2mi. W Ridgedale; **NEW HAMPSHIRE:** **Strafford Co.:** Dover; Durham; **NEW JERSEY:** **Gloucester Co.:** Paulsboro; **NEW YORK:** **Nassau Co.:** Roslyn; **NORTH CAROLINA:** “Nantahala N. F.” [spans more than one county]; **Catawba Co.:** Hog Hill; **Onslow Co.:** Onslow Beach; **Union Co.:** [county only]; **Wake Co.:** [county only]; Raleigh; **OHIO:** **Franklin Co.:** [county only]; **OKLAHOMA:** **Latimer Co.:** 3.5 mi. W Red Oak; 5mi. W Red Oak; [county only]; Red Oak; SW of Red Oak; **PENNSYLVANIA:** **Allegheny Co.:** Pittsburgh; **Bucks Co.** Quakertown; **SOUTH CAROLINA:** “Sumter N. F.” [spans more than one county]; **Horry Co.:** Myrtle Beach; **Pickens Co.:** Dovehaven; **Sumter Co.** Sumter; **TENNESSEE:** **Chester Co.:** Henderson; **Shelby Co.:** Memphis; **TEXAS:** **Anderson Co.:** Gus Engeling Wildlife Management Area; Salmon; **Angelina Co.:** Angelina Nat. For., ca. 4 mi. SE Zavalla; **Bandera Co.:** Lost Maples St. Pk.; **Bastrop Co.:** Bastrop St. Pk.; Stengl Ranch, 9.5 km. N Smithville; **Brazoria Co.:** Kelly’s Pond. Sam Houston Nat. For.; Stubblefield Lake, Sam Houston Nat. For.; **Brazos. Co.:** College Station, Lick Creek St Pk.; College Station; **Brewster Co.:** 9 mi. W Alpine; **Caldwell Co.:** ca. 5 mi. E McMahan; **Erath Co.:** Stephenville; **Freestone Co.:** Old Spring Seat Church nr. Donie; **Hardin Co.:** Grayburg; **Hays Co.:** 6 mi. NW Dripping Springs; **Hill Co.:** Lake Whitney State Park; **Kerr Co.:** 6.5 mi. SW Hunt, 1960’; Kerrville; **King Co.:** Vidor; **Lamar Co.:** Camp Maxey; **Leon Co.:** 5 mi. N Flynn; **Montgomery Co.:** Conroe; The Woodlands; **Robertson Co.:** 5 mi. SW Hearne; 8 mi. E Hearne; **Robertson Co.:** Mill Creek headwater, 6 mi. SE New Baden; **Sabine Co.:** 9 mi. E Hemphill, “Beech Bottom”; Mill Creek Cove, “Beech Bottom,” 8.8mi. NE Hemphill; **San Patricio Co.:** Welder Wildlife Refuge; **Smith Co.:** Tyler St. Pk.; **Travis Co.:** Austin, Brackenridge Field Lab; **Wood Co.:** 3 mi., N Hawkins; **VIRGINIA:** **Buckingham Co.:** [county only]; **Fairfax Co.:** Falls Church.

Discussion. This is the most widely distributed and most frequently collected North American species of *Laemophloeus*. It occurs completely across the U.S. in the South, but is replaced in the Pacific Northwest by *L. shastanus*, beginning at about the latitude of San Francisco (37°N).

***Laemphloeus fasciatus* Melsheimer**

Fig. 7, 10, 25-28

Laemphloeus fasciatus Melsheimer, 1844:113

Types: There is no labeled type of *L. fasciatus* in the MZC, which is where Melsheimer's types were deposited (Hagen 1884). It is known that the labels of many specimens in the MCZ were removed in the mid 19th Century and destroyed (Hagen 1884). There is a single specimen (Fig. 26) in the MCZ Melsheimer collection which may be the type of this species. It bears the following labels: "Melsh." / [scrap of red paper] / "fasciatus". Phillip Perkins (*in litt.*) wrote that the origins of the red paper and the identification label are unknown. The specimen, which is a male, appears to be conspecific with the historical concept of *L. fasciatus*, although it is larger and the male characters are more pronounced than in most specimens. In view of the uncertainty surrounding this specimen, I hesitate in accepting it as the holotype of *L. fasciatus*.

Diagnosis. The combination of apparently glabrous dorsal surface (Fig. 10); coloration usually reddish-testaceous with piceous or black elytra each with a pale, rectangular macula covering all three cells basally, is characteristic for this species. The pronotum and head may be more or less infuscate. Individuals of *L. megacephalus* with the variant color pattern may be superficially similar, but the maculae are situated a little more basally than in *L. fasciatus* (compare Fig. 2 with Fig. 7) and the males of *L. megacephalus* possess a tuft of hairs on the dorsal surface of the scape (Fig. 39), which is lacking in males of *L. fasciatus*. The male genitalia of *L. fasciatus* (Fig. 27-28) and *L. megacephalus* (Fig. 37-38) are quite similar in that both have the parameres with basal primary setae widely separated and lateral primary setae situated at about the midpoint laterally; the basal plates of *L. fasciatus* are a little narrower than in *L. megacephalus*. Length, 2.1mm - 3.1mm.

Distribution. Eastern North America from Ontario to Florida and west to Texas.

Specimens examined. 330 from the following collections: FSCA, TAMU, UGAC.

CANADA: ONTARIO: Essex Co.: Tilbury; Wheatley.

USA: ALABAMA: Jefferson Co.: Rocky Ridge; Vestavia; **Walker Co.:** Jasper; **DELAWARE: Kent Co.:** .5mi. N Dinahs Corner; **New Castle Co.:** Centerville, Flint Woods Preserve; Newark; **FLORIDA: "Osceola N. F.":** [spans more than one county]; **Alachua Co.:** [county only]; Gainesville; **Dade Co.** Miami; **Highlands Co.:** Highlands Hammock State Park; Sebring Airport; **Liberty Co.:** Appalachicola Bluffs & Ravines Preserve; Torreya State Park; **Marion Co.:** Ocala; **Okaloosa Co.:** 4.5mi. N Holt; **Santa Rosa Co.:** 1mi. N Holley on SR 87; **Sarasota Co.:** Englewood; **Suwanee Co.:** Suwanee Riv. at SR 249; **GEORGIA: Clarke Co.:** 1mi. N Athens; nr. Memorial Park; **Emanuel Co.:** [county only]; **Meriwether Co.:** Greenville; **ILLINOIS: Macon Co.:** NW side of Decatur; W side of Decatur; **Union Co.:** Pine Hills Recreation Area; **Walker Co.:** Lookout Mountain; **INDIANA: Allen Co.:** New Haven; **Marion Co.:** Indianapolis; **Monroe Co.:** Bloomington; **Tippecanoe Co.:** [county only]; Lafayette; W Lafayette, McCormick Woods; **KENTUCKY: Knox Co.:** Barbourville; **LOUISIANA: "Kisatchie N. F.":** (spans more than one parish); **Baton Rouge Par.:** Baton Rouge; **East Baton Rouge Par.:** Baton Rouge, Place DuPlantier; **Webster Par.:** Lake Bistineau St. Pk.; **MAINE: Washington Co.:** Princeton; **MARYLAND: Anne Arundel Co.:** Friendship; **Baltimore Co.:** Butler; **Montgomery Co.:** 3mi. S Colesville; Takoma Park; **Queen Anne's Co.:** Wye Island National Wildlife Refuge; **Somerset Co.:** Shelltown; **MICHIGAN: Wayne Co.:** Redord Township; **MISSOURI: Barry Co.:** Roaring River State Park; **Boone Co.:** Ashland; Columbia; **Crawford Co.:** 12mi. E Steelville; **Jackson Co.:** Raytown; **NEW HAMPSHIRE: Carroll Co.:** Ossipee; **Strafford Co.:** Durham; **NEW JERSEY: Essex Co.:** Belleville; Millburn; **Union Co.:** Plainfield; **NEW YORK: Bronx Co.:** New York Botanical Garden; **Tompkins Co.:** Ithaca; **NORTH CAROLINA: Macon Co.:** Coweeta Hydrolog. Lab.; **Wake Co.:** [county only]; **OHIO: Champaign Co.:** Cedar Swamp; **Coshocton Co.:** Cavallo; **Delaw Co.:** [county only]; **Summit Co.:** Akron; **OKLAHOMA: Grady Co.:** Tuttle; **Latimer Co.:** 5mi. W Red Oak; [county only]; **PENNSYLVANIA: Franklin Co.:** 28mi. NW Gettysburg; **Lancaster Co.:** Lancaster vic.; **SOUTH CAROLINA: Pickens Co.:** Calhoun, Clemson; **Anderson Co.:** Oak Ridge; **TEXAS: Brazos Co.** College Sta-

tion; **Fort Bend Co.:** Brazos Bend St. Pk.; **Robertson Co.:** 5mi. SW Hearne; **Sabine Co.:** 9mi. E Hemphill, "Beech Bottom"; Mill Creek Cove, "Beech Bottom," 8.8mi. NE Hemphill; **Wood Co.:** Godwin Woods, 3.5mi. SW Hainsville; **VIRGINIA: Campbell Co.:** nr. Leesville Lake.

Discussion. This is the second most commonly collected species of *Laemophloeus* in the eastern U.S. Its lack of dorsal pubescence, lack of a setal patch on the parameres, and widely separated basal primary setae suggest it is more closely related to *L. megacephalus* than to the members of the *biguttatus* group.

Laemophloeus fervidus Casey

Fig. 5,6, 11, 29-31

Laemophloeus fervidus Casey, 1916:121

Laemophloeus woodruffi Thomas 1993: 62, **new synonym**

Types: Lectotype male, here designated for nomenclatural stability, with following label data: "Ill."/"Casey bequest 1925"/"TYPE USNM 49154"/"fervidus Csy."/"LECTOTYPE *Laemophloeus fervidus* Casey 1916: 121"; two other specimens, male and female, with label data: "Kan"/"Casey bequest 1925"/"fervidus PARATYPE USNM 49154". Examination of series of *L. fervidus* reveals that *L. woodruffi* Thomas falls within the range of variation and is here synonymized.

Diagnosis. The combination of the following character states is diagnostic for this species: the apparently glabrous dorsal surface; moderately dense punctation; dark dorsal coloration, often with darker infuscate areas, and pale, rather amorphous, elytral maculae (Fig. 11); antennae of males have an elongate, simple scape, and the antennae attain about the apical third of the elytra. The basal plates of the aedeagus are oval, narrowed distally (Fig. 30); the basal primary setae are close together (Fig. 31), and the lateral primary setae are short and fine and located at about the basal third of the lateral margin of each paramere (Fig. 31). There are about two fine setae in the laterobasal region of each paramere (Fig. 31). Length, 2.3mm - 3.7mm.

Distribution. Southeastern and Central U.S. from Maryland west to Illinois and south to Texas and Florida.

Specimens examined. 174 from the following collections: BYUC, CDFR, FSCA, TAMU, UGAC.

USA: ALABAMA: Jefferson Co.: Birmingham, Shades Mountain; Rocky Ridge; Vestavia; **Lawrence Co.:** Joe Wheeler State Park; **Walker Co.:** Jasper; **ARKANSAS: Garland Co.:** Ouachita National Forest, Camp Clearfork; **Polk Co.:** Mena; **Pulaski Co.:** Little Rock; **FLORIDA: Alachua Co.:** Gainesville; **Dixie Co.:** 3.5mi. N Old Town; **Gadsden Co.:** Appalachian Bluffs & Ravines Preserve; **Liberty Co.:** Torreya State Park; **GEORGIA: Bartow Co.:** Cartersville; **Clarke Co.:** Athens; nr. Brooklyn Creek; nr. Memorial Park; **Meriwether Co.:** Greenville; **ILLINOIS: Macon Co.:** Spitler Woods State Park; **INDIANA: Baltimore Co.:** Butler; **Monroe Co.:** Bloomington; **Perry Co.:** [county only]; **Tippecanoe Co.:** [county only]; Lafayette; **KENTUCKY: McCracken Co.:** 2 mi. W Paducah; **MARYLAND: Chickasaw Co.:** Tombigbee National Forest; **MISSISSIPPI: Sharkey Co.:** Delta National Forest; **Winston Co.:** Tombigbee National Forest; **MISSOURI: Boone Co.:** 3 Creeks Park; Columbia; **Johnson Co.:** Knob Noster State Park; **Taney Co.:** 2mi. W Ridgedale; **NORTH CAROLINA: Durham Co.:** Duke Forest; Durham; **OKLAHOMA: Latimer Co.:** 5mi. W Red Oak; [county only]; Red Oak; SW of Red Oak; **Osage Co.:** W. Bartlesville; **TENNESSEE: Anderson Co.:** Oak Ridge; **TEXAS: Brazos Co.:** College Station, Lick Creek Park; College Station; **Jeff Davis Co.:** Davis Mountains resort, 5800'; **Robertson Co.:** Mill Creek headwater, 6 mi. SE Baden; **Sabine Co.:** Mill Creek Cove, "Beech Bottom," 8.8mi. NE Hemphill; **San Patricio Co.:** Welder Wildlife Refuge; **Wood Co.:** ca. 18 mi. N Hawkins.

Discussion. Southern specimens tend to be lighter in coloration than those from farther north. In paler specimens, the elytral maculae are amorphous (Fig. 6), while darker specimens exhibit maculae that

approach those of *L. apache*, n. sp., and *L. shastanus* in their linearity (Fig. 5).

The affinities of *L. fervidus* are uncertain. The noticeable, though not conspicuous, dorsal pubescence of some specimens, the near approximate position of the basal primary setae of the parameres (Fig. 31), and the presence of 1-2 fine setae laterobasally on the parameres (Fig. 31) suggest *L. fervidus* belongs to the biguttatus species group, although its general habitus does not immediately suggest that.

***Laemophloeus lecontei* Grouvelle**

Fig. 12, 32-35

Laemophloeus lecontei Grouvelle, 1876:496

Laemophloeus chevrolati Grouvelle, 1878: 264; synonymy by Thomas 2014: 10

Types: Thomas (2014) discussed type material of *L. lecontei* and *L. chevrolati* housed in the MNHN.

Diagnosis. The combination of the unusual pubescence – composed of clusters of 2-3 setae – of the antennal club (Fig. 35), entirely pale body (Fig. 12), and, in the male, epistome with clypeal teeth and deep emarginations over the antennal bases (Fig. 32) is sufficient to recognize this species in the Nearctic fauna. The male genitalia (Fig. 33-34) are unlike those of any other known Nearctic species in having the parameres separated for their entire length; the basal primary setae located at about the basal third on the inner margin of each paramere; the lateral primary setae located at the posteriolateral angle of each; and the unusually shaped basal plates. Length, 2.0mm - 3.5mm.

Distribution. Caribbean, North, Central and South America. In the Nearctic, *L. lecontei* has been collected only in extreme southern Florida.

Specimens examined. 29, all in the FSCA.

USA: FLORIDA: Miami-Dade Co.: Camp Mahachee, nr. Matheson Hammock; Matheson Hammock; **Monroe Co.:** Upper Key Largo.

Discussion. This is the most widely distributed species of *Laemophloeus* in the West Indies (Thomas 2014), and is confined to the tropical portion of Florida that shows a strong West Indian influence in both its flora and fauna.

***Laemophloeus megacephalus* Grouvelle**

Fig. 1,2, 13, 36-39

Laemophloeus megacephalus Grouvelle, 1876: 495

Laemophloeus floridanus Casey, 1884: 85; synonymy by Thomas 1993: 60

Laemophloeus distinguendus Sharp, 1899: 518; synonymy by Thomas 2014: 11

Types: Thomas (2014) discussed the type material of this species.

Diagnosis. In males, the antennal scapes (Fig. 13) with tufts of hair dorsally and broad emarginations above the antennal insertions (Fig. 36, 39) are diagnostic. Coloration is unusually variable, with southern Florida specimens being mostly unicolorous testaceous with the elytral base and suture infusate (Fig. 1), while more northern specimens are darker, with dark elytra and distinct pale basal maculae (Fig. 2). Females generally may be distinguished from other Nearctic species by coloration and surface sculpture, but where their ranges overlaps in southern Florida, they may be indistinguishable from females of *L. suturalis*. The male genitalic characters (Fig. 37-38) are discussed under *L. fasciatus*. Length, 2.3mm - 3.4mm.

Distribution. In the U.S., *L. megacephalus* ranges from Delaware west to Indiana, south to Arizona and Florida. Elsewhere, it ranges from Mexico throughout Central America south to Bolivia and in Jamaica in the Caribbean.

Specimens examined. 361 from the following collections: FSCA, TAMU, UGAC.

USA: ALABAMA: Baldwin Co.: Weeks Bay Reserve; **Dale Co.:** Level Plains; **Jefferson Co.:** Vestavia; **Lawrence Co.:** Joe Wheeler State Park; **Monroe Co.:** Haines Island Park; **ARIZONA: Pima Co.:** Mt. Lemon, Bear Wallow Area; **ARKANSAS: Garland Co.:** Ouachita National Forest, Camp Clearfork; **Pulaski Co.:** Camp Robinson; **DELAWARE: Kent Co.:** .5mi. S Dinahs Corner; **FLORIDA: Alachua Co.:** [county only]; Gainesville; **Clay Co.:** Camp Blanding; **Columbia Co.:** O'Leno State Park; **Dixie Co.:** 3.5mi. N Old Town; **Duval Co.:** Jacksonville; **Flagler Co.:** 2mi. S I-95 on US-1; **Highlands Co.:** Highlands Hammock State Park; **Indian River Co.** Oslo area; **Leon Co.:** Tallahassee; **Levy Co.:** Manatee Springs State Park; **Liberty Co.:** Torreya State Park; **Marion Co.:** Citra; Ocala; **Miami-Dade Co.:** Camp Mahachie, nr. Matheson Hammock; Miami; **Orange Co.:** Apopka; **Polk Co.:** Peace River, 5mi. S Ft. Meade; **Union Co.:** Hwy 241 at Santa Fe River; **GEORGIA: Clarke Co.:** nr. Brooklyn Creek; nr. Memorial Park; **Meriwether Co.:** Greenville; **Rabun Co.:** Black Rock Mountain State Park; **INDIANA: Monroe Co.:** Bloomington; **MARYLAND: Baltimore Co.:** Butler; **MISSISSIPPI: Winston Co.:** Tombigbee National Forest; **NORTH CAROLINA: Wake Co.:** [county only]; **TEXAS: Hardin Co.:** [county only]; Grayburg; **Montgomery Co.:** Conroe; **Sabine Co.:** Mill Creek Cove, "Beech Bottom," 8.8mi. NE Hemphill; **San Augustine Co.:** Piney Woods Conservation Center, 14mi. SE Broadus; **Shelby Co.:** Snyder's Boat Ramp, Sabine National Forest.

Discussion. This is the most widely distributed species of *Laemophloeus*, ranging throughout much of South America north to the southern half of the U.S. As may be expected, it exhibits considerable color variation throughout its tremendous range, but surprisingly little structural variation. Neotropical specimens tend to be pale, with infuscate elytral sutural and basal margins, much as in *L. suturalis*. Southern Florida specimens follow that same pattern, but progressing northwards, specimens become darker and at their most extreme closely resemble the color pattern of *L. fasciatus*.

***Laemophloeus shastanus* Casey**

Fig. 14, 40-42

Laemophloeus shastanus Casey, 1916:123

Types: Casey (1916) did not designate a type specimen but mentioned only one specimen in his description of this species. In the USNM is a single specimen labeled as follows: "Cal."/"Casey bequest 1925"/"TYPE USNM 49157"/"shastanus Csy." In the original description, Casey (1916) recorded "California (Redwood Creek, Humboldt Co.)" as the type locality.

Diagnosis. Very similar to *L. apache* but smaller (2.0-3.2mm vs. 2.5-3.6mm) and generally less robust (compare Fig. 14 with Fig. 8). Also similar to *L. biguttatus* but possessing streak-like elytral fascia. Male genitalia (Fig. 41-42) differ from all other Nearctic *Laemophloeus* species in the parameres lacking lateral primary setae and the basal primary setae being highly reduced, and the basal plates reduced to rod-like structures. The small, protuberant eyes (Fig. 40) also are distinctive. Length, 2.0mm - 3.2mm.

Distribution. Northwestern North America, from Alaska south to northern California and east to Montana.

Specimens examined. 74 from the following collections: BYUC, CDFA, FSCA, MCZC, MTEC, UAMC, UGAC, WSUC.

CANADA: BRITISH COLUMBIA: Columbia-Shuswap Co. Mt. Revelstoke.

USA: ALASKA: Fairbanks North Star Co.: Manchu Lk. 135m el. 64.70133° -147.0239°; **Yukon Koyukuk Co.:** Eliot Hwy. 294m el 65.3997° -148.90802°; **CALIFORNIA: Marin Co.:** Samuel P. Taylor

St. Pk.; **Napa Co.:** Angwin; **MONTANA: Flathead Co.:** Glacier National Park, N. Fork Flathead Area; **Gallatin Co.:** Bozeman; **Madison Co.:** Hidden Lake Beach; **Yellowstone Co.:** Huntley; **OREGON: Curry Co.:** 6.7 mi. NE Brookings 100'; **UTAH: Utah Co.:** Mt. Timpanogos, American Fork Canyon; Pole Canyon; foothills E of Salem; Hobble Creek; Rock Canyon; Hope Forest Camp; **WASHINGTON: King Co.:** Seattle; **Thurston Co.:** Olympia.

Discussion. This species has gone unrecognized since its description (Casey 1916). Hatch (1961) recorded *L. biguttatus* from the Pacific Northwest, although his description "...elytra with a prominent elongate oval spot in basal half..." suggests he was referring to *L. shastanus*. I long misapplied this name to specimens of the new species described above. Discovering that biguttatus group specimens from northern and southern California had different male genitalia and that neither matched those of *L. apache* led both to the recognition of *L. shastanus* and that *L. californicus* is a junior synonym of *L. biguttatus*.

***Laemophloeus suturalis* Reitter**

Fig. 15, 43-46

Laemophloeus suturalis Reitter, 1876:50

Types: Thomas (2014) discussed the possible fate of the type of this widespread species.

Diagnosis. The combination of glabrous dorsal surface, testaceous coloration with infuscate elytral base and suture (Fig. 15), simple scape and uncurved antennomere XI (Fig. 46) are diagnostic for this species. Length, 1.9mm - 3.0mm.

Distribution. Mexico, Central and South America. In the Nearctic, only in extreme southern Florida.

Specimens examined. 26 in the FSCA.

USA: FLORIDA: Broward Co.: Ft. Lauderdale, west of airport; **Miami-Dade Co.:** Castellow Hammock; Homestead, Camp Owaissa-Bauer.

Discussion. This widely distributed Neotropical species seems to form a close-knit group with *L. terminalis* and *L. insulatestudinorum* Thomas. The basal plates of the male genitalia (Fig. 44) are somewhat broader in South Florida specimens, approaching those of *L. terminalis* (Fig. 48), than in specimens from farther south, but otherwise they are indistinguishable.

***Laemophloeus terminalis* Casey**

Fig. 16, 47-50

Laemophloeus terminalis Casey, 1884: 82,83

Types: Casey (1884) noted he had a "...full series of this fine species before me from the cabinet of Dr. LeConte, also two specimens from Mr. Schwarz, all from Texas. In the USNM, I have examined four specimens of this species with the following label data: 1, "Tex"/"Casey bequest 1925"/"TYPE USNM 49153"/"Laemophloeus terminalis Csy" / "LECTOTYPE *Laemophloeus terminalis* Casey, 1884: 82"; 1, "Tex"/"Casey bequest 1925"/"terminalis PARATYPE USNM 49153"; 1, "Columbus 7.6 Texas" / "CollHubbard andSchwarz"/"L. terminalis Casey." [folded]/"CoType No. 4655 U.S.N.M."/"Laemophloeus terminalis Casey"; 1, "Columbus 6.7 Texas"/"CollHubbard andSchwarz"/"L. terminalis Casey." [folded]/"CoType No. 4655 U.S.N.M.". Casey (1884) did not designate a holotype. In the interests of nomenclatural stability, I designate the first listed specimen as lectotype.

Diagnosis. The combination of glabrous dorsal surface, testaceous coloration with darkly infusate elytral margins forming a pale discal macula (Fig. 16), simple scape (Fig. 47) and curved antennomere XI (Fig. 50) are diagnostic for this species. The male genitalia resemble those of *L. suturalis*, but are even broader (Fig. 48). Length, 2.6mm - 4.1mm.

Distribution. Texas, east to Mississippi and north to Oklahoma.

Specimens examined. 175 from the following collections: BYUC, FSCA, TAMU, USNM.

USA: LOUISIANA: Baton Rouge Par.: Baton Rouge; E. Baton Rouge; **Calcasieu Par.:** Sam Houston Jones State Park; **MISSISSIPPI: Sharkey Co.:** Delta National Forest; **OKLAHOMA: Grady Co.:** Tuttle; **TEXAS: Bexar Co.:** Babcock Road and Scenic Loop nr. San Antonio; Leon Valley; San Antonio; **Brazoria Co.:** Stubblefield Lake, Sam Houston Nat. For.; **Brazos Co.:** College Station, Lick Creek Park; College Station; Leonard Road, 6mi. W Bryan; **Brown Co.:** Lake Brownwood St. Pk.; **Cameron Co.:** 1.5mi. E. jct. FM1419 on Hwy. 4, E. of Brownsville; 4 mi. ESE Brownsville; 5mi. W Brownsville; Brownsville; Resaca de La Palm State Park; Sabal Palm Grove; **Erath Co.:** Stephenville; **Fort Bend Co.:** Brazos Bend St. Pk.; **Hidalgo Co.:** Bentsen-Rio Grande Valley State Park; LRGVNRW; Santa Ana National Wildlife Refuge; Mission; **Hill Co.:** Lake Whitney State Park; **Karnes Co.:** Eceto Metz Roch; **Kerr Co.:** Kerrville; **Lee Co.:** [county only]; **Llano Co.:** 19 mi. NW Llano; **Milam Co.:** Fort Sullivan; **San Jacinto Co.:** Big Creek Scenic Area; **San Patricio Co.:** Welder Wildlife Refuge; **Starr Co.:** Santa Margarita Ranch; **Tarrant Co.:** Arlington; **Limestone Co.:** Mexia; [state label only].

Discussion. As noted above, this species is close to *L. suturalis* and *L. insulatestudinorum*, and it may be an extreme form of the former, although the consistent color pattern, elongate and curved antennomere XI, and very broad basal plates argue for its status as a separate species.

Relationships

The genus *Laemophloeus* is Holarctic and Neotropical in distribution. It belongs to a group of six genera, the other five of which (*Charaphloeus* Casey, *Metaxyphloeus* Thomas, *Phloeipsius* Casey, *Rhinomalus* Gemminger in Harold, and *Rhinophloeus* Sharp) are restricted to the New World. This group of genera shares the unique derived character of the intercoxal process of abdominal ventrite III with an anteriorly directed projection that fits into a notch in the metasternum, plus other characters, such as a visible epistomal suture, very unequal anterior tibial spurs, and characteristic male genitalia. Recently, molecular evidence has showed that this genus group is monophyletic (McElrath et al. 2015).

Although all members of the group have not yet been sequenced, available molecular evidence also suggests that the members of the biguttatus group are more closely related to each other than to other New World *Laemophloeus* (McElrath et al. 2015). Unfortunately, no Palaearctic species were included in the analysis, but examination of the male genitalia of three (*L. monilis* (Fabricius) (Fig. 51-52), *L. nigricollis* Lucas (Fig. 53-54), and *L. submonilis* Reitter (Fig. 55-56)) of the six known Palaearctic species shows that they possess several genitalic features characteristic of the biguttatus group, suggesting that the endemic Nearctic biguttatus group is closer to the Palaearctic fauna than to the rest of the New World species of *Laemophloeus*.

The monophyly of the *Laemophloeus* group of genera and the complete lack of its representatives in Gondwanian regions other than South America suggest that its origins were Laurasian. Generic diversity of the group is greatest in Central America (one genus, *Phloeipsius*, is confined to Guatemala), suggesting that its ancestors spread from the north to Central America, where they differentiated and then dispersed north into the Nearctic and then into South America once the continents were connected.

Checklist of the described species of *Laemophloeus* of the world

| | |
|--|-------------------------------------|
| <i>Laemophloeus apache</i> Thomas, n.sp. | [North America] |
| <i>Laemophloeus biguttatus</i> (Say, 1827:267) | [North America] |
| <i>Laemophloeus buenavista</i> Thomas, 2013: 4 | [Mexico, Central and South America] |

| | |
|---|--|
| <i>Laemophloeus capitisculptus</i> Thomas, 2014: 4 | [South America] |
| <i>Laemophloeus concinnus</i> Thomas, 2013: 6 | [Central and South America] |
| <i>Laemophloeus corporoflavus</i> Thomas, 2014: 5 | [South America] |
| <i>Laemophloeus dozieri</i> Thomas, 2014: 7 | [South America] |
| <i>Laemophloeus fasciatus</i> Melsheimer, 1844:113 | [North America] |
| <i>Laemophloeus fervidus</i> Casey, 1916:121 | [North America] |
| <i>Laemophloeus germaini</i> Grouvelle 1896: 200 | [Central and South America] |
| <i>Laemophloeus incisus</i> Sharp, 1899:521 | [Central and South America] |
| <i>Laemophloeus insulatestudinas</i> Thomas, 2014: 8 | [Galapagos] |
| <i>Laemophloeus kraussi</i> Ganglbauer, 1897:569 | [Europe] |
| <i>Laemophloeus lecontei</i> Grouvelle, 1876:496 | [North, Central, and South America, West Indies] |
| <i>Laemophloeus macrognathus</i> Reitter, 1876:48 | [Central and South America] |
| <i>Laemophloeus mathani</i> Grouvelle, 1889:108 | [South America] |
| <i>Laemophloeus megacephalus</i> Grouvelle, 1876:495 | [North, Central, and South America, West Indies] |
| <i>Laemophloeus monilis</i> (Fabricius, 1787:116) | [Europe, North Africa, Asia] |
| <i>Laemophloeus muticus</i> (Fabricius, 1781:257) | [Europe, Asia] |
| <i>Laemophloeus nigricollis</i> Lucas, 1849:478 | [Europe, North Africa] |
| <i>Laemophloeus plana clavatus</i> Thomas, 2014: 12 | [South America] |
| <i>Laemophloeus ribbei</i> Reitter, 1879:220 | [Siberia] |
| <i>Laemophloeus sexarticulatus</i> Kessel, 1926:72,82 | [Mexico, Central and South America] |
| <i>Laemophloeus submonilis</i> Reitter, 1889:317 | [Japan, Siberia] |
| <i>Laemophloeus suturalis</i> Reitter, 1876:50 | [North, Central and South America] |
| <i>Laemophloeus taurus</i> Thomas, 2014: 14 | [Mexico, South America] |
| <i>Laemophloeus shastanus</i> Casey, 1916:123 | [North America] |
| <i>Laemophloeus terminalis</i> Casey, 1884:82,83 | [North America] |

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Figures 1-7. Variation in *Laemophloeus* elytral fasciae. **1-2)** *L. megacephalus*. **3-4)** *L. biguttatus*. **5-6)** *L. fervidus* (5, Arkansas; 6, paratype of *L. woodruffi*, Florida). **7)** *L. fasciatus*.



Figure 8. *Laemophloeus apache*, n. sp., male habitus.



Figure 9. *Laemophloeus biguttatus*, male habitus.



Figure 10. *Laemophloeus fasciatus*, male habitus.



Figure 11. *Laemophloeus fervidus*, male habitus.

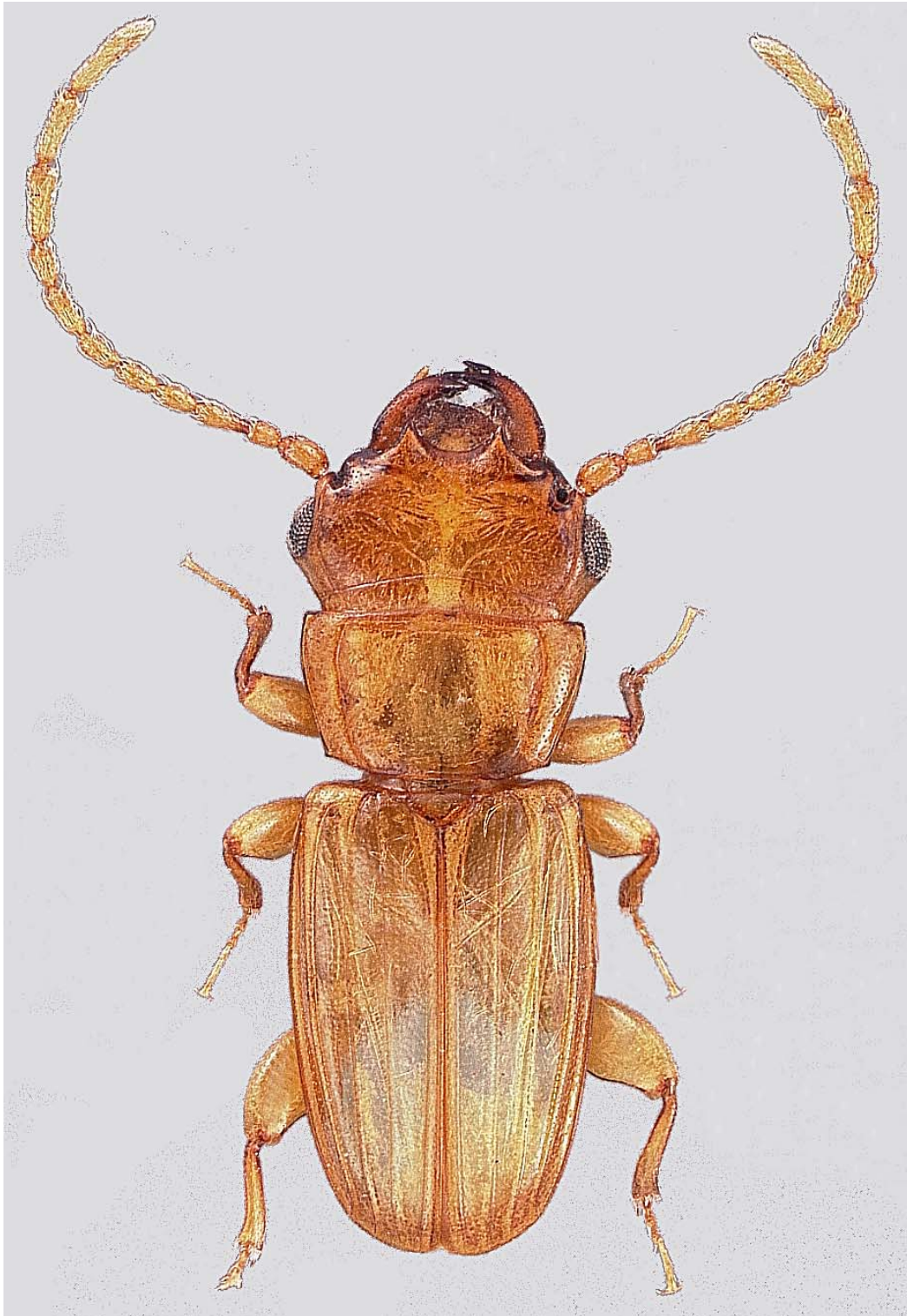


Figure 12. *Laemophloeus lecontei*, male habitus.



Figure 13. *Laemophloeus megacephalus*, male habitus.



Figure 14. *Laemophloeus shastanus*, male habitus.



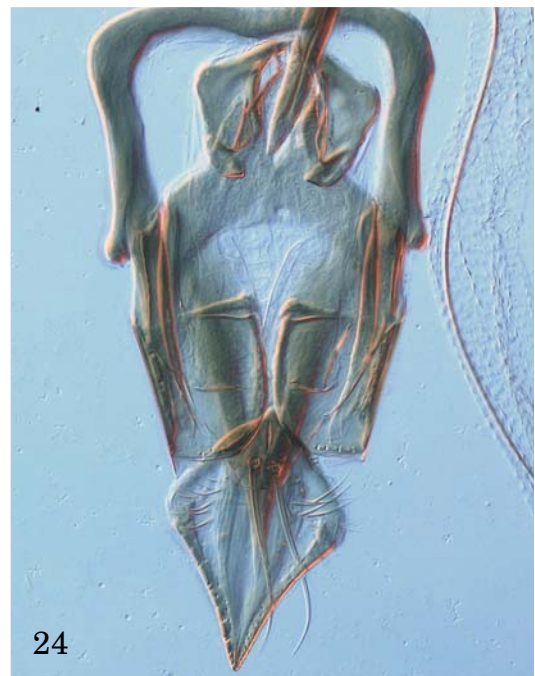
Figure 15. *Laemophloeus suturalis*, male habitus.



Figure 16. *Laemophloeus terminalis*, male habitus.



Figures 17-19. *Laemophloeus apache*, n. sp. 17) Head and pronotum. 18) Aedeagus. 19) Parameres.



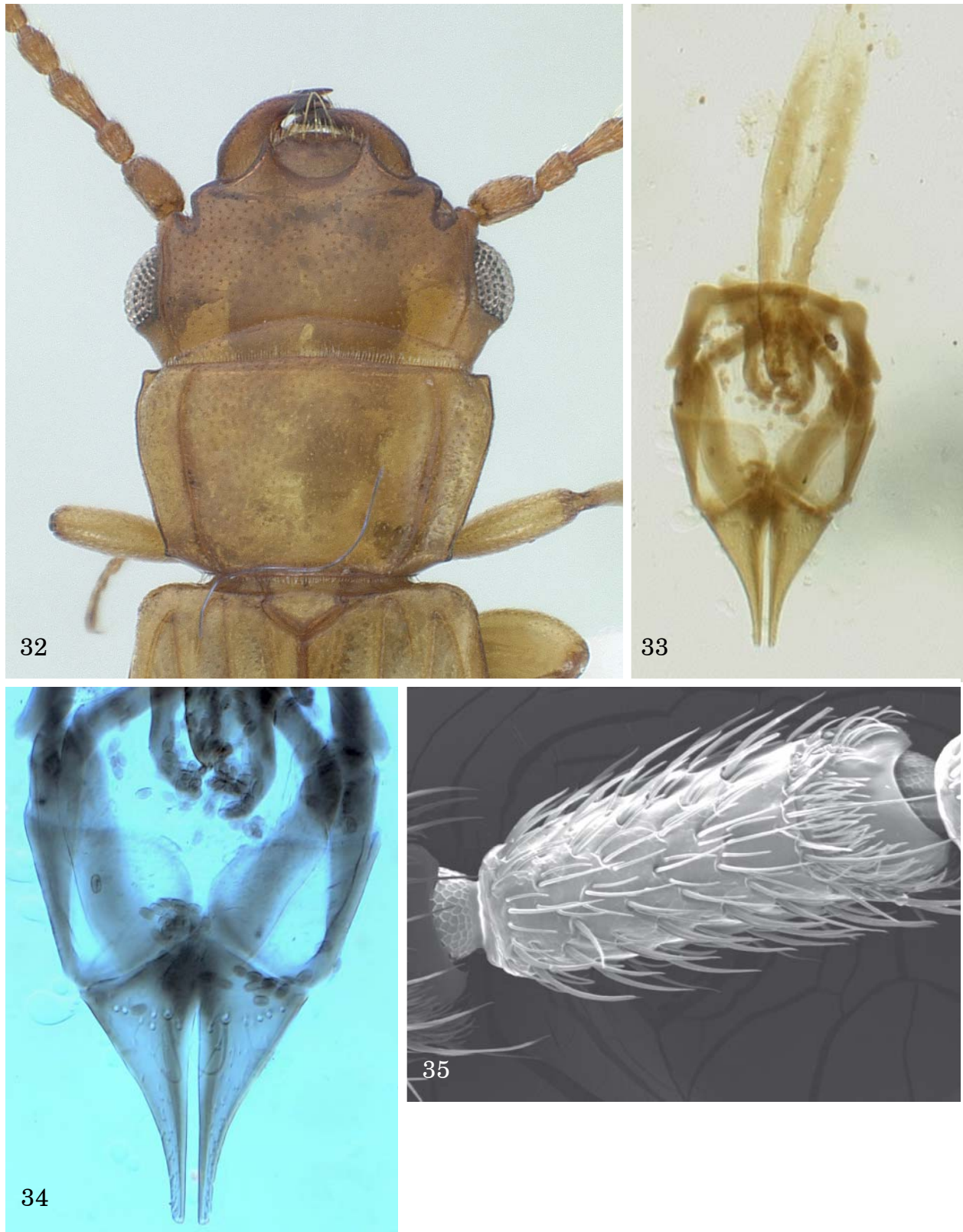
Figures 20-24. *Laemophloeus biguttatus*. 20) Head and pronotum. 21) Habitus, neotype. 22) Neotype, labels. 23) Parameres. 24) Aedeagus.



Figures 25-28. *Laemophloeus fasciatus*. 25) Head and pronotum. 26) Habitus, supposed Melsheimer specimen. 27) Aedeagus. 28) Parameres.



Figures 29-31. *Laemophloeus fervidus*. **29)** Head and pronotum. **30)** Aedeagus. **31)** Parameres.



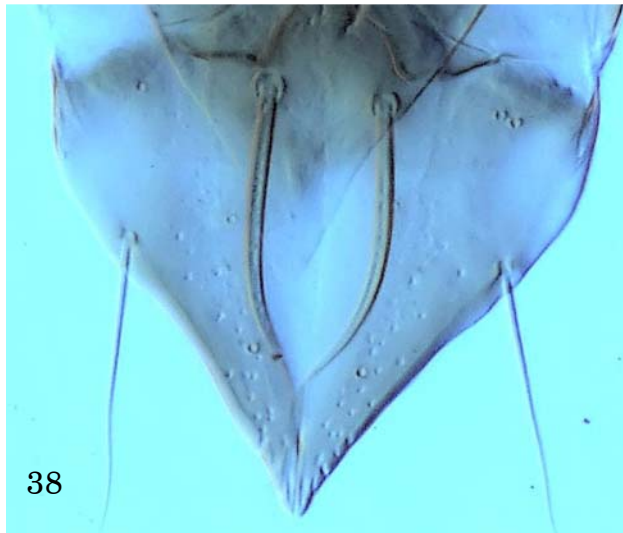
Figures 32-35. *Laemophloeus lecontei*, male. **32)** Head and pronotum. **33)** Aedeagus. **34)** Parameres. **35)** Antennomere 10 (specimen from Mexico).



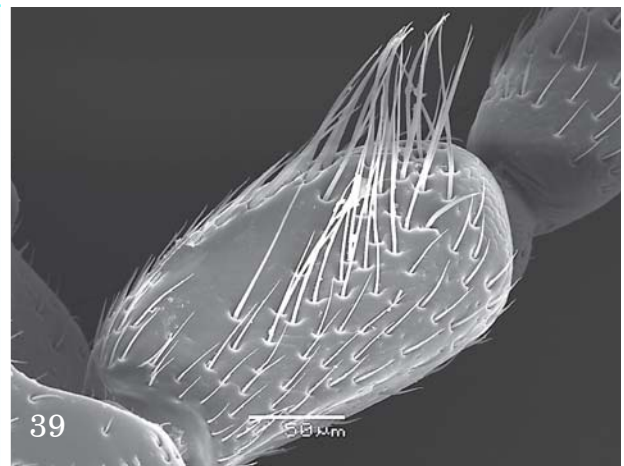
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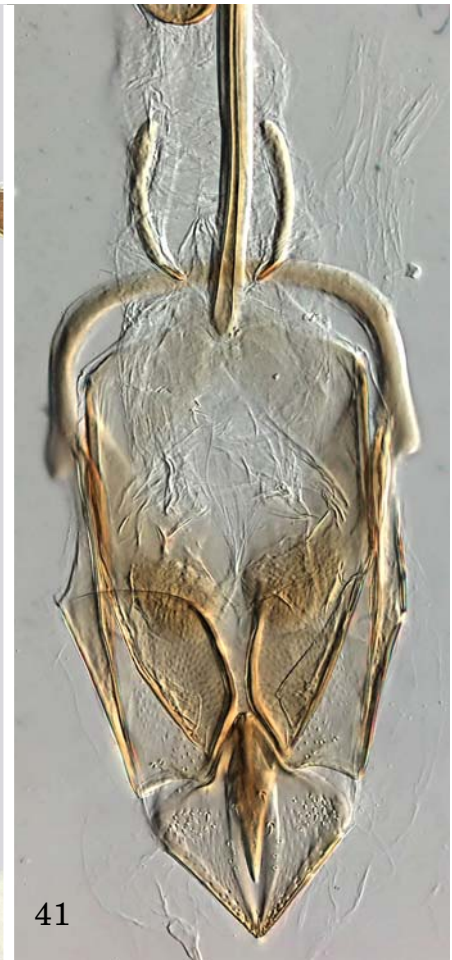


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Figures 36-39. *Laemophloeus megacephalus*, male. **36)** Head and pronotum. **37)** Aedeagus.**38)** Parameres. **39)** Antennal scape.



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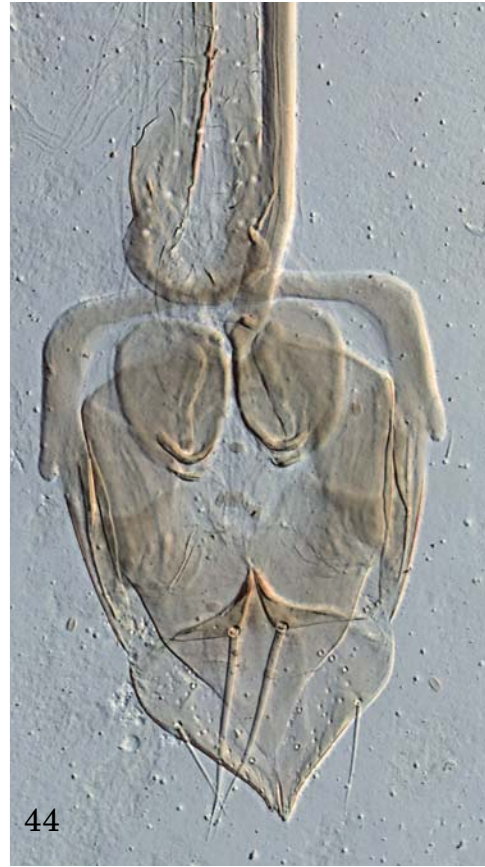


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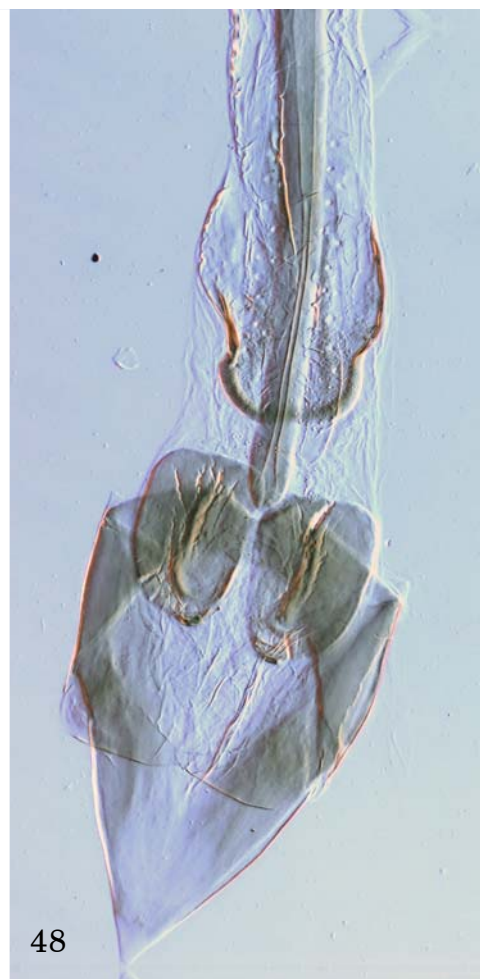


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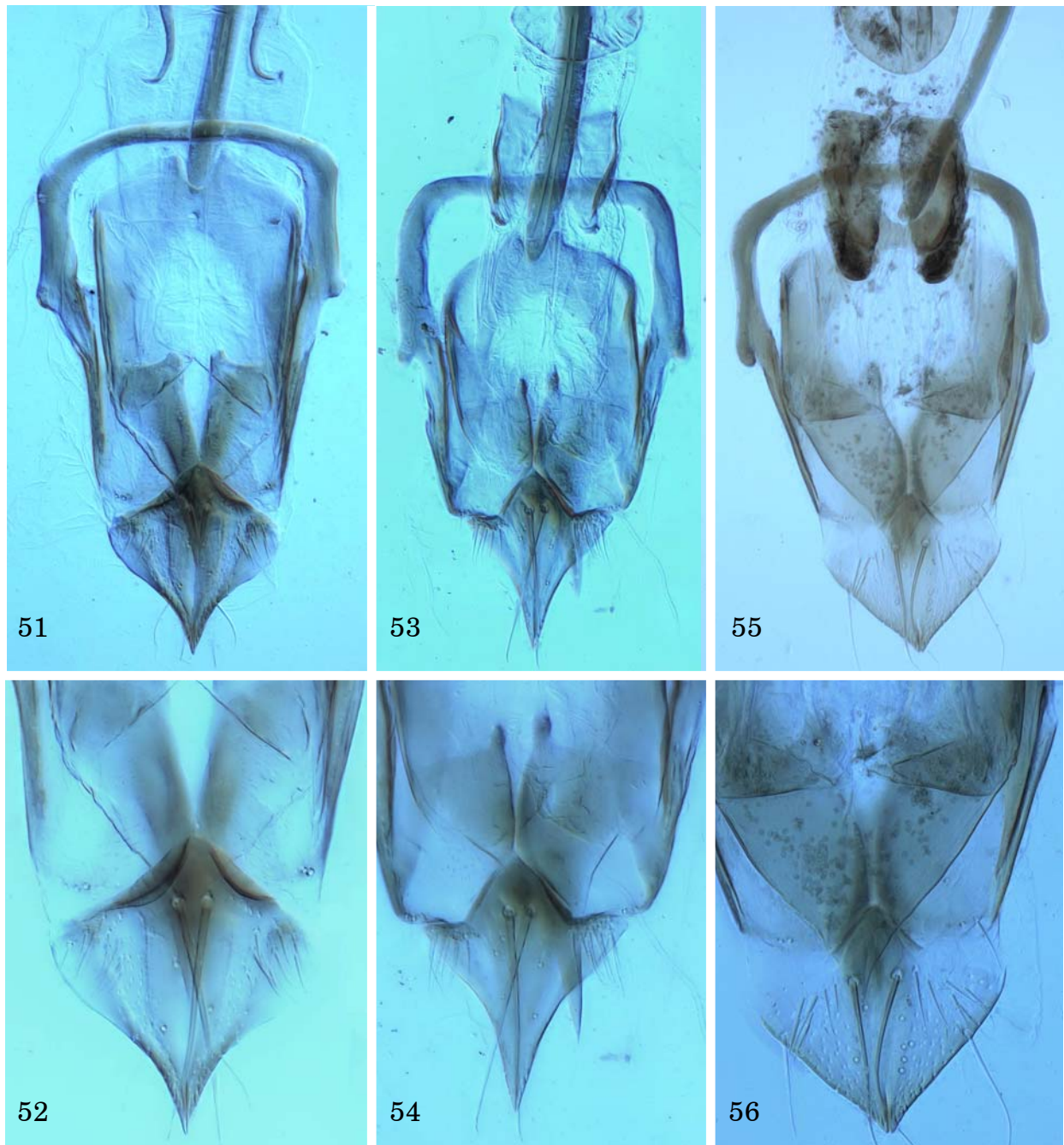
Figures 40-42. *Laemophloeus shastanus*. 40) Head and pronotum. 41) Aedeagus. 42) Parameres.



Figures 43-46. *Laemophloeus suturalis*. 43) Head and pronotum. 44) Aedeagus. 45) Parameres. 46) Antennal club.



Figures 47-50. *Laemophloeus terminalis*. **47)** Head and pronotum. **48)** Aedeagus. **49)** Parameres. **50)** Antennal club.



Figures 51-56. Aedeagus (top) and parameres (bottom) of Palaearctic species of *Laemophloeus*. **51-52)** *L. monilis*. **53-54)** *L. nigricollis*. **55-56)** *L. submonilis*.

